Computer algebra independent integration tests

5-Inverse-trig-functions/5.5-Inverse-secant/5.5.1-u-a+b-arcsec-c-x-^n

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Contents

Chapter 1

Introduction

This report gives the result of running the computer algebra independent integration problems. The listing of the problems are maintained by and can be downloaded from `https://rulebasedintegration.org`

The number of integrals in this report is [174]. This is test number [156].

1.1 Listing of CAS systems tested

The following systems were tested at this time.

1. Mathematica 12.1 (64 bit) on windows 10.
2. Rubi 4.16.1 in Mathematica 12 on windows 10.
3. Maple 2020 (64 bit) on windows 10.
4. Maxima 5.43 on Linux. (via sagemath 8.9)
5. Fricas 1.3.6 on Linux (via sagemath 9.0)
6. Sympy 1.5 under Python 3.7.3 using Anaconda distribution.
7. Giac/Xcas 1.5 on Linux. (via sagemath 8.9)

Maxima, Fricas and Giac/Xcas were called from inside SageMath. This was done using SageMath integrate command by changing the name of the algorithm to use the different CAS systems.

Sympy was called directly using Python.

1.2 Results

Important note: A number of problems in this test suite have no antiderivative in closed form. This means the antiderivative of these integrals can not be expressed in terms of elementary, special functions or `Hypergeometric2F1` functions. `RootSum` and `RootOf` are not allowed.

If a CAS returns the above integral unevaluated within the time limit, then the result is counted as passed and assigned an A grade.

However, if CAS times out, then it is assigned an F grade even if the integral is not integrable, as this implies CAS could not determine that the integral is not integrable in the time limit.

If a CAS returns an antiderivative to such an integral, it is assigned an A grade automatically and this special result is listed in the introduction section of each individual test report to make it easy to identify as this can be important result to investigate.

The results given in in the table below reflects the above.

System	solved	Failed
Rubi	% 100. (174)	% 0. (0)
Mathematica	% 97.13 (169)	% 2.87 (5)
Maple	% 79.89 (139)	% 20.11 (35)
Maxima	% 34.48 (60)	% 65.52 (114)
Fricas	% 62.07 (108)	% 37.93 (66)
Sympy	% 10.92 (19)	% 89.08 (155)
Giac	% 26.44 (46)	% 73.56 (128)

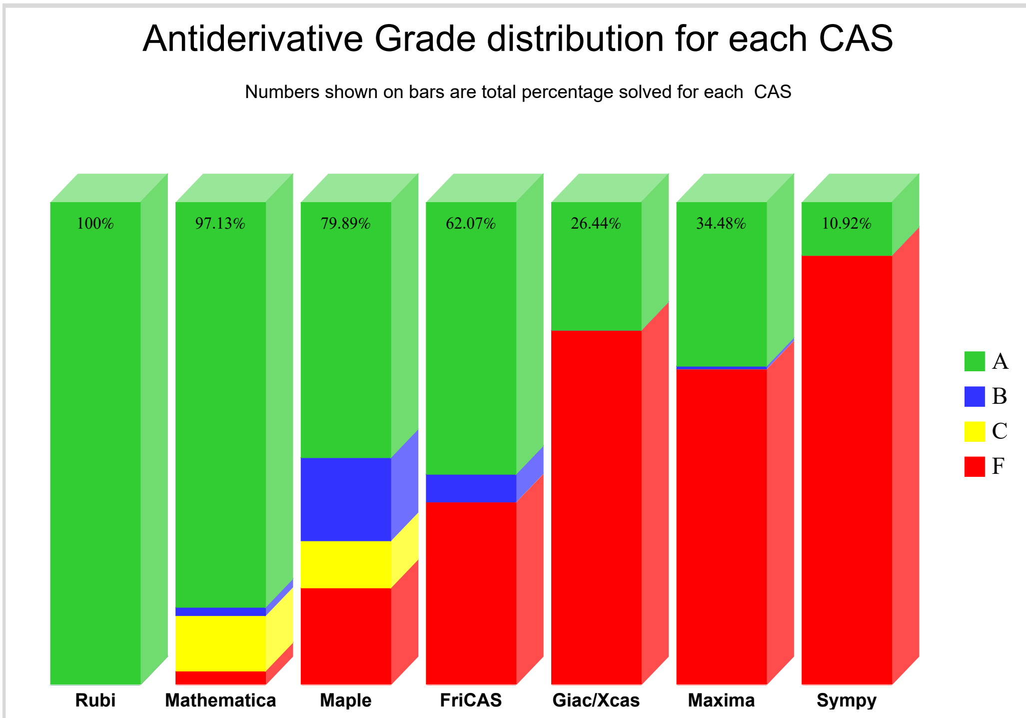
The table below gives additional break down of the grading of quality of the antiderivatives generated by each CAS. The grading is given using the letters A,B,C and F with A being the best quality. The grading is accomplished by comparing the antiderivative generated with the optimal antiderivatives included in the test suite. The following table describes the meaning of these grades.

grade	description
A	Integral was solved and antiderivative is optimal in quality and leaf size.
B	Integral was solved and antiderivative is optimal in quality but leaf size is larger than twice the optimal antiderivatives leaf size.
C	Integral was solved and antiderivative is non-optimal in quality. This can be due to one or more of the following reasons 1. antiderivative contains a hypergeometric function and the optimal antiderivative does not. 2. antiderivative contains a special function and the optimal antiderivative does not. 3. antiderivative contains the imaginary unit and the optimal antiderivative does not.
F	Integral was not solved. Either the integral was returned unevaluated within the time limit, or it timed out, or CAS hanged or crashed or an exception was raised.

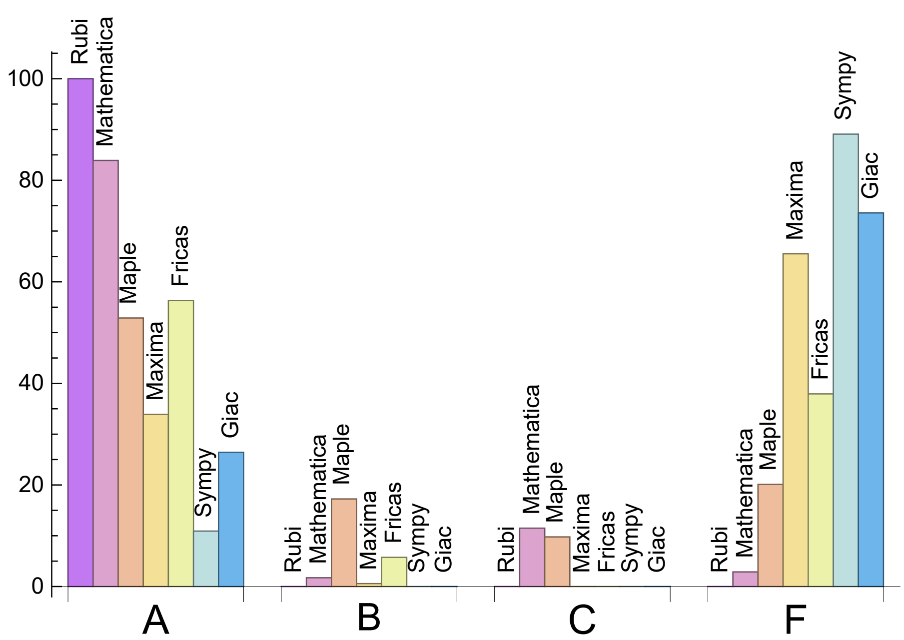
Grading is implemented for all CAS systems. Based on the above, the following table summarizes the grading for this test suite.

System	% A grade	% B grade	% C grade	% F grade
Rubi	100.	0.	0.	0.
Mathematica	83.91	1.72	11.49	2.87
Maple	52.87	17.24	9.77	20.11
Maxima	33.91	0.57	0.	65.52
Fricas	56.32	5.75	0.	37.93
Sympy	10.92	0.	0.	89.08
Giac	26.44	0.	0.	73.56

The following is a Bar chart illustration of the data in the above table.



The figure below compares the CAS systems for each grade level.



1.3 Performance

The table below summarizes the performance of each CAS system in terms of CPU time and leaf size of results.

System	Mean time (sec)	Mean size	Normalized mean	Median size	Normalized median
Rubi	0.39	197.64	0.75	129.5	1.
Mathematica	2.32	228.63	0.85	124.	0.87
Maple	0.83	396.2	1.42	145.	1.15
Maxima	0.78	146.98	1.22	118.5	1.31
Fricas	2.6	532.49	2.98	152.	1.62
Sympy	0.15	1.89	0.06	0.	0.
Giac	0.05	2.7	0.08	0.	0.

1.4 list of integrals that has no closed form antiderivative

{33, 34, 35, 39, 40, 41, 45, 46, 47, 51, 52, 54, 55, 114, 115, 116, 117, 118, 123, 124, 125, 126, 127, 128, 134, 135, 136, 137, 144, 145, 146, 147, 154, 155, 156, 157, 164, 165, 166, 167, 168, 169, 173, 174}

1.5 list of integrals solved by CAS but has no known antiderivative

Rubi {}

Mathematica {}

Maple {}

Maxima {}

Fricas {}

Sympy {}

Giac {}

1.6 list of integrals solved by CAS but failed verification

The following are integrals solved by CAS but the verification phase failed to verify the anti-derivative produced is correct. This does not mean necessarily that the anti-derivative is wrong, as additional methods of verification might be needed, or more time is needed (3 minutes time limit was used). These integrals are listed here to make it easier to do further investigation to determine why it was not possible to verify the result produced.

Rubi {163}

Mathematica {8, 16, 19, 24, 25, 26, 27, 28, 60, 79, 80, 89, 90, 91, 92, 93, 94, 95, 96, 97, 100, 101, 102, 103, 104, 108, 109, 110, 111, 121}

Maple Verification phase not implemented yet.

Maxima Verification phase not implemented yet.

Fricas Verification phase not implemented yet.

Sympy Verification phase not implemented yet.

Giac Verification phase not implemented yet.

1.7 Timing

The command `AboluteTiming[]` was used in Mathematica to obtain the elapsed time for each integrate call. In Maple, the command `Usage` was used as in the following example

```
cpu_time := Usage(assign ('result_of _int',int(expr,x)),output='realtime'
```

For all other CAS systems, the elapsed time to complete each integral was found by taking the difference between the time after the call has completed from the time before the call was made. This was done using Python's `time.time()` call.

All elapsed times shown are in seconds. A time limit of 3 minutes was used for each integral. If the integrate command did not complete within this time limit, the integral was aborted and considered to have failed and assigned an F grade. The time used by failed integrals due to time out is not counted in the final statistics.

1.8 Verification

A verification phase was applied on the result of integration for Rubi and Mathematica. Future version of this report will implement verification for the other CAS systems. For the integrals whose result was not run through a verification phase, it is assumed that the antiderivative produced was correct.

Verification phase has 3 minutes time out. An integral whose result was not verified could still be correct. Further investigation is needed on those integrals which failed verifications. Such integrals are marked in the summary table below and also in each integral separate section so they are easy to identify and locate.

1.9 Important notes about some of the results

1.9.1 Important note about Maxima results

Since these integrals are run in a batch mode, using an automated script, and by using sagemath (SageMath uses Maxima), then any integral where Maxima needs an interactive response from the user to answer a question during evaluation of the integral in order to complete the integration, will fail and is counted as failed.

The exception raised is `ValueError`. Therefore Maxima result below is lower than what could result if Maxima was run directly and each question Maxima asks was answered correctly.

The percentage of such failures were not counted for each test file, but for an example, for the Timofeev test file, there were about 30 such integrals out of total 705, or about 4 percent. This pecrentage can be higher or lower depending on the specific input test file.

Such integrals can be indentified by looking at the output of the integration in each section for Maxima. If the output was an exception `ValueError` then this is most likely due to this reason.

Maxima integrate was run using SageMath with the following settings set by default

```
'besselexpand : true'
'display2d : false'
'domain : complex'
'keepfloat : true'
'load(to_poly_solve)'
'load(simplify_sum)'
'load(abs_integrate)' 'load(diag)'
```

SageMath loading of Maxima `abs_integrate` was found to cause some problem. So the following code was added to disable this effect.

```
from sage.interfaces.maxima_lib import maxima_lib
maxima_lib.set('extra_definite_integration_methods', '[]')
maxima_lib.set('extra_integration_methods', '[]')
```

See https://ask.sagemath.org/question/43088/integrate-results-that-are-different-from-using-maxima/ for reference.

1.9.2 Important note about FriCAS and Giac/XCAS results

There are Few integrals which failed due to SageMath not able to translate the result back to SageMath syntax and not because these CAS system were not able to do the integrations.

These will fail With error `Exception raised: NotImplementedError`

The number of such cases seems to be very small. About 1 or 2 percent of all integrals.

Hopefully the next version of SageMath will have complete translation of FriCAS and XCAS syntax and I will re-run all the tests again when this happens.

1.9.3 Important note about finding leaf size of antiderivative

For Mathematica, Rubi and Maple, the buildin system function `LeafSize` is used to find the leaf size of each antiderivative.

The other CAS systems (SageMath and Sympy) do not have special buildin function for this purpose at this time. Therefore the leaf size is determined as follows.

For Fricas, Giac and Maxima (all called via sagemath) the following code is used

```
#see https://stackoverflow.com/questions/25202346/how-to-obtain-leaf-count-expression-size-in-

def tree(expr):
    if expr.operator() is None:
       return expr
    else:
       return [expr.operator()]+map(tree, expr.operands())

try:
    # 1.35 is a fudge factor since this estimate of leaf count is bit lower than
    #what it should be compared to Mathematica's
    leafCount = round(1.35*len(flatten(tree(anti))))
except Exception as ee:
    leafCount =1
```

For Sympy, called directly from Python, the following code is used

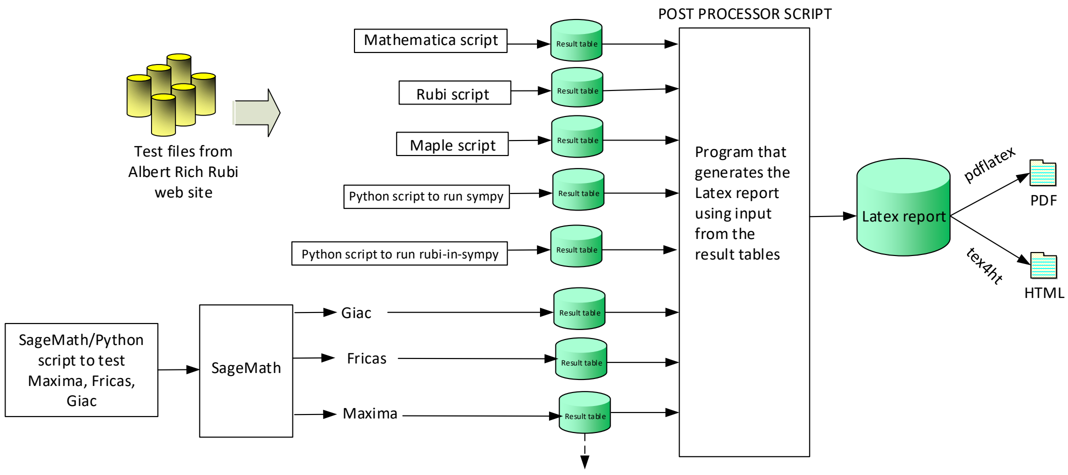
```
try:
  # 1.7 is a fudge factor since it is low side from actual leaf count
  leafCount = round(1.7*count_ops(anti))

  except Exception as ee:
         leafCount =1
```

When these cas systems have a buildin function to find the leaf size of expressions, it will be used instead, and these tests run again.

1.10 Design of the test system

The following diagram gives a high level view of the current test build system.



One record (line) per one integral result. The line is CSV comma separated. It contains 13 fields. This is description of each record (line)

1. integer, the problem number.
2. integer. 0 or 1 for failed or passed. (this is not the grade field)
3. integer. Leaf size of result.
4. integer. Leaf size of the optimal antiderivative.
5. number. CPU time used to solve this integral. 0 if failed.
6. string. The integral in Latex format
7. string. The input used in CAS own syntx.
8. string. The result (antiderivative) produced by CAS in Latex format
9. string. The optimal antiderivative in Latex format.
10. integer. 0 or 1. Indicates if problem has known antiderivative or not
11. String. The result (antiderivative) in CAS own syntax.
12. String. The grade of the antiderivative. Can be “A”, “B”, “C”, or “F”
13. String. The optimal antiderivative in CAS own syntax.

High level overview of the CAS independent integration test build system

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Chapter 2

detailed summary tables of results

2.1 List of integrals sorted by grade for each CAS

2.1.1 Rubi

A grade: { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174 }

B grade: { }

C grade: { }

F grade: { }

2.1.2 Mathematica

A grade: { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 66, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 100, 101, 102, 103, 108, 109, 110, 112, 113, 114, 115, 116, 117, 118, 122, 123, 124, 125, 126, 127, 128, 131, 132, 133, 134, 135, 136, 137, 138, 141, 142, 143, 144, 145, 146, 147, 148, 151, 152, 153, 154, 155, 156, 157, 158, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174 }

B grade: { 96, 97, 104 }

C grade: { 63, 64, 65, 67, 68, 98, 105, 106, 111, 119, 120, 121, 129, 130, 139, 140, 149, 150, 159, 160 }

F grade: { 99, 107, 161, 162, 163}

2.1.3 Maple

A grade: { 1, 2, 3, 4, 6, 7, 8, 9, 11, 13, 14, 18, 19, 22, 26, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 55, 58, 59, 60, 64, 65, 66, 69, 72, 73, 74, 75, 76, 77, 78, 79, 80, 83, 84, 85, 86, 87, 88, 89, 90, 114, 115, 116, 117, 118, 123, 124, 125, 126, 127, 128, 134, 135, 136, 137, 144, 145, 146, 147, 154, 155, 156, 157, 164, 165, 166, 167, 168, 169, 173, 174 }

B grade: { 5, 10, 12, 15, 16, 17, 20, 21, 23, 24, 25, 28, 29, 30, 31, 32, 56, 57, 61, 62, 63, 67, 68, 70, 71, 81, 82, 98, 105, 106 }

C grade: { 91, 92, 93, 94, 95, 96, 97, 99, 100, 101, 102, 103, 104, 107, 108, 109, 110 }

F grade: { 27, 53, 111, 112, 113, 119, 120, 121, 122, 129, 130, 131, 132, 133, 138, 139, 140, 141, 142, 143, 148, 149, 150, 151, 152, 153, 158, 159, 160, 161, 162, 163, 170, 171, 172 }

2.1.4 Maxima

A grade: { 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 20, 22, 29, 33, 34, 35, 39, 40, 41, 45, 46, 47, 54, 55, 56, 57, 58, 59, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 164, 165, 166, 167, 168, 169, 173, 174

B grade: { 31 }

C grade: { }

F grade: { 8, 16, 18, 19, 21, 23, 24, 25, 26, 27, 28, 30, 32, 36, 37, 38, 42, 43, 44, 48, 49, 50, 51, 52, 53, 60, 61, 62, 63, 64, 65, 66, 67, 68, 79, 80, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 170, 171, 172 }

2.1.5 FriCAS

A grade: { 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 20, 21, 22, 23, 29, 30, 31, 32, 33, 34, 35, 39, 40, 41, 45, 46, 47, 51, 52, 54, 55, 56, 57, 58, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 98, 111, 112, 113, 114, 115, 116, 117, 118, 121, 122, 123, 124, 125, 126, 127, 128, 131, 132, 133, 134, 135, 136, 137, 141, 142, 143, 144, 145, 146, 147, 154, 155, 156, 157, 164, 165, 166, 167, 168, 169, 173, 174 }

B grade: { 7, 17, 59, 61, 62, 105, 106, 151, 152, 153 }

C grade: { }

F grade: { 8, 16, 18, 19, 24, 25, 26, 27, 28, 36, 37, 38, 42, 43, 44, 48, 49, 50, 53, 60, 63, 64, 65, 66, 67, 68, 79, 80, 89, 90, 91, 92, 93, 94, 95, 96, 97, 99, 100, 101, 102, 103, 104, 107, 108, 109, 110, 119, 120, 129, 130, 138, 139, 140, 148, 149, 150, 158, 159, 160, 161, 162, 163, 170, 171, 172 }

2.1.6 Sympy

A grade: { 9, 33, 34, 35, 39, 40, 41, 45, 46, 47, 52, 54, 55, 114, 117, 118, 134, 137, 173 }

B grade: { }

C grade: { }

F grade: { 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 36, 37, 38, 42, 43, 44, 48, 49, 50, 51, 53, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 115, 116, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 135, 136, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 174 }

2.1.7 Giac

A grade: { 7, 33, 34, 35, 39, 40, 41, 45, 46, 47, 51, 52, 54, 55, 59, 114, 115, 116, 117, 118, 123, 124, 125, 126, 127, 128, 134, 135, 136, 137, 144, 145, 146, 147, 154, 155, 156, 157, 164, 165, 166, 167, 168, 169, 173, 174 }

B grade: { }

C grade: { }

F grade: { 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 36, 37, 38, 42, 43, 44, 48, 49, 50, 53, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 119, 120, 121, 122, 129, 130, 131, 132, 133, 138, 139, 140, 141, 142, 143, 148, 149, 150, 151, 152, 153, 158, 159, 160, 161, 162, 163, 170, 171, 172 }

2.2 Detailed conclusion table per each integral for all CAS systems

Detailed conclusion table per each integral is given by table below. The elapsed time is in seconds. For failed result it is given as F(-1) if the failure was due to timeout. It is given as F(-2) if the failure was due to an exception being raised, which could indicate a bug in the system. If the failure was due to integral not being evaluated within the time limit, then it is given just an F.

In this table,the column **normalized size** is defined as $\frac{\text{antiderivative leaf size}}{\text{optimal antiderivative leaf size}}$

Problem 1	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	114	114	107	177	219	275	0	0
normalized size	1	1.	0.94	1.55	1.92	2.41	0.	0.
time (sec)	N/A	0.061	0.133	0.19	0.987	3.107	0.	0.

Problem 2	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	89	89	72	83	109	143	0	0
normalized size	1	1.	0.81	0.93	1.22	1.61	0.	0.
time (sec)	N/A	0.041	0.081	0.16	0.987	2.78	0.	0.

Problem 3	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	89	89	97	150	177	248	0	0
normalized size	1	1.	1.09	1.69	1.99	2.79	0.	0.
time (sec)	N/A	0.046	0.069	0.19	1.007	2.79	0.	0.

Problem 4	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	64	64	62	74	81	119	0	0
normalized size	1	1.	0.97	1.16	1.27	1.86	0.	0.
time (sec)	N/A	0.027	0.1	0.162	0.977	2.665	0.	0.

Problem 5	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	64	64	85	123	132	219	0	0
normalized size	1	1.	1.33	1.92	2.06	3.42	0.	0.
time (sec)	N/A	0.035	0.05	0.162	1.028	2.67	0.	0.

Problem 6	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	39	39	50	65	50	90	0	0
normalized size	1	1.	1.28	1.67	1.28	2.31	0.	0.
time (sec)	N/A	0.012	0.021	0.161	0.995	2.686	0.	0.

Problem 7	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	B	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	32	32	59	38	72	154	0	62
normalized size	1	1.	1.84	1.19	2.25	4.81	0.	1.94
time (sec)	N/A	0.02	0.063	0.155	0.962	2.641	0.	1.132

Problem 8	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	64	64	59	86	0	0	0	0
normalized size	1	1.	0.92	1.34	0.	0.	0.	0.
time (sec)	N/A	0.084	0.016	0.281	0.	0.	0.	0.

Problem 9	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	31	31	40	62	45	62	36	0
normalized size	1	1.	1.29	2.	1.45	2.	1.16	0.
time (sec)	N/A	0.02	0.028	0.164	0.982	2.441	2.787	0.

Problem 10	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	51	51	66	118	112	93	0	0
normalized size	1	1.	1.29	2.31	2.2	1.82	0.	0.
time (sec)	N/A	0.033	0.033	0.163	1.445	2.852	0.	0.

Problem 11	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	60	60	59	75	78	97	0	0
normalized size	1	1.	0.98	1.25	1.3	1.62	0.	0.
time (sec)	N/A	0.039	0.045	0.161	0.97	2.655	0.	0.

Problem 12	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	76	76	78	147	169	122	0	0
normalized size	1	1.	1.03	1.93	2.22	1.61	0.	0.
time (sec)	N/A	0.045	0.059	0.16	1.497	2.685	0.	0.

Problem 13	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	82	82	69	83	103	123	0	0
normalized size	1	1.	0.84	1.01	1.26	1.5	0.	0.
time (sec)	N/A	0.049	0.066	0.165	0.977	2.722	0.	0.

Problem 14	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	101	101	88	174	223	150	0	0
normalized size	1	1.	0.87	1.72	2.21	1.49	0.	0.
time (sec)	N/A	0.059	0.071	0.16	1.464	2.489	0.	0.

Problem 15	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	107	107	124	208	220	339	0	0
normalized size	1	1.	1.16	1.94	2.06	3.17	0.	0.
time (sec)	N/A	0.107	0.21	0.248	2.094	2.845	0.	0.

Problem 16	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	147	147	225	343	0	0	0	0
normalized size	1	1.	1.53	2.33	0.	0.	0.	0.
time (sec)	N/A	0.123	1.197	0.392	0.	0.	0.	0.

Problem 17	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	B	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	56	56	90	134	117	266	0	0
normalized size	1	1.	1.61	2.39	2.09	4.75	0.	0.
time (sec)	N/A	0.068	0.149	0.249	1.02	2.757	0.	0.

Problem 18	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	92	92	163	212	0	0	0	0
normalized size	1	1.	1.77	2.3	0.	0.	0.	0.
time (sec)	N/A	0.072	0.166	0.294	0.	0.	0.	0.

Problem 19	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	93	93	129	215	0	0	0	0
normalized size	1	1.	1.39	2.31	0.	0.	0.	0.
time (sec)	N/A	0.119	0.12	0.358	0.	0.	0.	0.

Problem 20	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	50	50	75	117	105	140	0	0
normalized size	1	1.	1.5	2.34	2.1	2.8	0.	0.
time (sec)	N/A	0.059	0.123	0.24	1.022	2.666	0.	0.

Problem 21	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	94	94	102	199	0	196	0	0
normalized size	1	1.	1.09	2.12	0.	2.09	0.	0.
time (sec)	N/A	0.079	0.114	0.244	0.	2.389	0.	0.

Problem 22	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	102	102	108	154	221	224	0	0
normalized size	1	1.	1.06	1.51	2.17	2.2	0.	0.
time (sec)	N/A	0.094	0.184	0.243	2.186	2.226	0.	0.

Problem 23	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	134	134	148	265	0	275	0	0
normalized size	1	1.	1.1	1.98	0.	2.05	0.	0.
time (sec)	N/A	0.111	0.174	0.253	0.	2.211	0.	0.

Problem 24	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	207	207	288	447	0	0	0	0
normalized size	1	1.	1.39	2.16	0.	0.	0.	0.
time (sec)	N/A	0.211	0.836	0.472	0.	0.	0.	0.

Problem 25	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	236	236	403	687	0	0	0	0
normalized size	1	1.	1.71	2.91	0.	0.	0.	0.
time (sec)	N/A	0.192	1.322	0.52	0.	0.	0.	0.

Problem 26	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	126	126	184	285	0	0	0	0
normalized size	1	1.	1.46	2.26	0.	0.	0.	0.
time (sec)	N/A	0.142	0.46	0.401	0.	0.	0.	0.

Problem 27	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	158	158	289	0	0	0	0	0
normalized size	1	1.	1.83	0.	0.	0.	0.	0.
time (sec)	N/A	0.118	0.236	0.508	0.	0.	0.	0.

Problem 28	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	128	128	204	390	0	0	0	0
normalized size	1	1.	1.59	3.05	0.	0.	0.	0.
time (sec)	N/A	0.141	0.17	0.431	0.	0.	0.	0.

Problem 29	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	80	80	141	198	197	238	0	0
normalized size	1	1.	1.76	2.48	2.46	2.98	0.	0.
time (sec)	N/A	0.083	0.161	0.319	1.044	2.221	0.	0.

Problem 30	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	137	137	185	324	0	342	0	0
normalized size	1	1.	1.35	2.36	0.	2.5	0.	0.
time (sec)	N/A	0.105	0.202	0.323	0.	2.219	0.	0.

Problem 31	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	B	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	170	170	204	299	787	401	0	0
normalized size	1	1.	1.2	1.76	4.63	2.36	0.	0.
time (sec)	N/A	0.147	0.28	0.319	3.223	2.244	0.	0.

Problem 32	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	208	208	283	472	0	512	0	0
normalized size	1	1.	1.36	2.27	0.	2.46	0.	0.
time (sec)	N/A	0.173	0.336	0.342	0.	2.344	0.	0.

Problem 33	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	14	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.014	2.556	0.973	0.	0.	0.	0.

Problem 34	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	12	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.006	2.187	0.447	0.	0.	0.	0.

Problem 35	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	16	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.025	0.269	0.74	0.	0.	0.	0.

Problem 36	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	46	46	43	47	0	0	0	0
normalized size	1	1.	0.93	1.02	0.	0.	0.	0.
time (sec)	N/A	0.105	0.074	0.247	0.	0.	0.	0.

Problem 37	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	63	63	56	58	0	0	0	0
normalized size	1	1.	0.89	0.92	0.	0.	0.	0.
time (sec)	N/A	0.136	0.072	0.24	0.	0.	0.	0.

Problem 38	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	117	117	91	102	0	0	0	0
normalized size	1	1.	0.78	0.87	0.	0.	0.	0.
time (sec)	N/A	0.225	0.165	0.246	0.	0.	0.	0.

Problem 39	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	14	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.015	9.877	1.09	0.	0.	0.	0.

Problem 40	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	12	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.006	21.574	0.461	0.	0.	0.	0.

Problem 41	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	16	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.024	3.249	0.75	0.	0.	0.	0.

Problem 42	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	75	75	69	78	0	0	0	0
normalized size	1	1.	0.92	1.04	0.	0.	0.	0.
time (sec)	N/A	0.129	0.256	0.241	0.	0.	0.	0.

Problem 43	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	84	84	80	77	0	0	0	0
normalized size	1	1.	0.95	0.92	0.	0.	0.	0.
time (sec)	N/A	0.149	0.351	0.243	0.	0.	0.	0.

Problem 44	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	178	178	223	153	0	0	0	0
normalized size	1	1.	1.25	0.86	0.	0.	0.	0.
time (sec)	N/A	0.267	0.446	0.247	0.	0.	0.	0.

Problem 45	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	14	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.014	3.353	1.274	0.	0.	0.	0.

Problem 46	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	12	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.006	11.262	0.545	0.	0.	0.	0.

Problem 47	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	16	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.025	1.688	0.799	0.	0.	0.	0.

Problem 48	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	103	103	88	154	0	0	0	0
normalized size	1	1.	0.85	1.5	0.	0.	0.	0.
time (sec)	N/A	0.147	0.372	0.27	0.	0.	0.	0.

Problem 49	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	112	112	114	157	0	0	0	0
normalized size	1	1.	1.02	1.4	0.	0.	0.	0.
time (sec)	N/A	0.18	0.401	0.248	0.	0.	0.	0.

Problem 50	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	228	228	169	307	0	0	0	0
normalized size	1	1.	0.74	1.35	0.	0.	0.	0.
time (sec)	N/A	0.313	0.445	0.25	0.	0.	0.	0.

Problem 51	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	18	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.022	4.393	1.964	0.	0.	0.	0.

Problem 52	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	18	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.022	2.863	1.876	0.	0.	0.	0.

Problem 53	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	67	67	82	0	0	0	0	0
normalized size	1	1.	1.22	0.	0.	0.	0.	0.
time (sec)	N/A	0.043	0.24	1.828	0.	0.	0.	0.

Problem 54	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	18	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.026	0.245	1.791	0.	0.	0.	0.

Problem 55	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	18	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.024	0.5	1.411	0.	0.	0.	0.

Problem 56	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	167	167	166	486	367	633	0	0
normalized size	1	1.	0.99	2.91	2.2	3.79	0.	0.
time (sec)	N/A	0.401	0.279	0.135	0.976	4.563	0.	0.

Problem 57	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	124	124	124	362	270	462	0	0
normalized size	1	1.	1.	2.92	2.18	3.73	0.	0.
time (sec)	N/A	0.266	0.177	0.129	1.01	3.902	0.	0.

Problem 58	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	84	84	114	141	126	302	0	0
normalized size	1	1.	1.36	1.68	1.5	3.6	0.	0.
time (sec)	N/A	0.167	0.208	0.163	0.995	2.829	0.	0.

Problem 59	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	B	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	32	32	59	38	72	154	0	62
normalized size	1	1.	1.84	1.19	2.25	4.81	0.	1.94
time (sec)	N/A	0.022	0.051	0.158	0.982	2.824	0.	1.118

Problem 60	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	247	247	333	456	0	0	0	0
normalized size	1	1.	1.35	1.85	0.	0.	0.	0.
time (sec)	N/A	0.373	0.588	0.374	0.	0.	0.	0.

Problem 61	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F(-1)	B	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	104	104	142	214	0	960	0	0
normalized size	1	1.	1.37	2.06	0.	9.23	0.	0.
time (sec)	N/A	0.156	0.223	0.25	0.	3.283	0.	0.

Problem 62	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	F	B	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	172	172	247	1005	0	2223	0	0
normalized size	1	1.	1.44	5.84	0.	12.92	0.	0.
time (sec)	N/A	0.292	0.48	0.28	0.	7.152	0.	0.

Problem 63	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F(-2)	F(-1)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	372	372	333	812	0	0	0	0
normalized size	1	1.	0.9	2.18	0.	0.	0.	0.
time (sec)	N/A	0.759	1.406	0.371	0.	0.	0.	0.

Problem 64	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	A	F(-2)	F(-1)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	315	315	277	388	0	0	0	0
normalized size	1	1.	0.88	1.23	0.	0.	0.	0.
time (sec)	N/A	0.463	6.018	0.255	0.	0.	0.	0.

Problem 65	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	A	F(-2)	F	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	212	212	212	254	0	0	0	0
normalized size	1	1.	1.	1.2	0.	0.	0.	0.
time (sec)	N/A	0.304	2.658	0.257	0.	0.	0.	0.

Problem 66	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F(-2)	F(-1)	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	119	119	124	217	0	0	0	0
normalized size	1	1.	1.04	1.82	0.	0.	0.	0.
time (sec)	N/A	0.219	0.267	0.247	0.	0.	0.	0.

Problem 67	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	298	298	326	886	0	0	0	0
normalized size	1	1.	1.09	2.97	0.	0.	0.	0.
time (sec)	N/A	0.406	6.175	0.267	0.	0.	0.	0.

Problem 68	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F(-2)	F(-1)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	540	637	407	1640	0	0	0	0
normalized size	1	1.18	0.75	3.04	0.	0.	0.	0.
time (sec)	N/A	0.711	8.302	0.276	0.	0.	0.	0.

Problem 69	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	206	206	141	338	400	459	0	0
normalized size	1	1.	0.68	1.64	1.94	2.23	0.	0.
time (sec)	N/A	0.128	0.223	0.167	0.974	4.522	0.	0.

Problem 70	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	161	161	123	282	313	398	0	0
normalized size	1	1.	0.76	1.75	1.94	2.47	0.	0.
time (sec)	N/A	0.103	0.166	0.179	0.98	3.411	0.	0.

Problem 71	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	109	109	150	195	208	327	0	0
normalized size	1	1.	1.38	1.79	1.91	3.	0.	0.
time (sec)	N/A	0.051	0.264	0.171	0.965	2.541	0.	0.

Problem 72	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	87	87	104	137	120	286	0	0
normalized size	1	1.	1.2	1.57	1.38	3.29	0.	0.
time (sec)	N/A	0.063	0.118	0.172	0.981	2.321	0.	0.

Problem 73	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	105	105	69	121	127	157	0	0
normalized size	1	1.	0.66	1.15	1.21	1.5	0.	0.
time (sec)	N/A	0.075	0.079	0.171	0.983	1.999	0.	0.

Problem 74	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	152	152	94	140	185	217	0	0
normalized size	1	1.	0.62	0.92	1.22	1.43	0.	0.
time (sec)	N/A	0.094	0.125	0.172	0.985	1.835	0.	0.

Problem 75	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	197	197	110	158	232	273	0	0
normalized size	1	1.	0.56	0.8	1.18	1.39	0.	0.
time (sec)	N/A	0.117	0.144	0.184	0.991	2.058	0.	0.

Problem 76	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	196	196	118	152	250	304	0	0
normalized size	1	1.	0.6	0.78	1.28	1.55	0.	0.
time (sec)	N/A	0.147	0.224	0.181	0.963	2.411	0.	0.

Problem 77	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	153	153	98	134	194	247	0	0
normalized size	1	1.	0.64	0.88	1.27	1.61	0.	0.
time (sec)	N/A	0.122	0.253	0.171	0.968	2.182	0.	0.

Problem 78	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	138	138	79	115	135	192	0	0
normalized size	1	1.	0.57	0.83	0.98	1.39	0.	0.
time (sec)	N/A	0.093	0.099	0.171	0.979	2.05	0.	0.

Problem 79	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	124	124	104	142	0	0	0	0
normalized size	1	1.	0.84	1.15	0.	0.	0.	0.
time (sec)	N/A	0.284	0.122	0.531	0.	0.	0.	0.

Problem 80	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	137	137	136	145	0	0	0	0
normalized size	1	1.	0.99	1.06	0.	0.	0.	0.
time (sec)	N/A	0.291	0.442	0.386	0.	0.	0.	0.

Problem 81	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	252	252	186	494	547	641	0	0
normalized size	1	1.	0.74	1.96	2.17	2.54	0.	0.
time (sec)	N/A	0.236	0.355	0.167	1.022	4.634	0.	0.

Problem 82	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	B	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	191	191	153	372	400	547	0	0
normalized size	1	1.	0.8	1.95	2.09	2.86	0.	0.
time (sec)	N/A	0.115	0.229	0.168	0.999	3.529	0.	0.

Problem 83	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	162	162	136	286	267	502	0	0
normalized size	1	1.	0.84	1.77	1.65	3.1	0.	0.
time (sec)	N/A	0.127	0.195	0.174	0.993	2.58	0.	0.

Problem 84	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	158	158	127	255	215	501	0	0
normalized size	1	1.	0.8	1.61	1.36	3.17	0.	0.
time (sec)	N/A	0.131	0.213	0.179	0.973	2.227	0.	0.

Problem 85	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	183	183	127	191	244	302	0	0
normalized size	1	1.	0.69	1.04	1.33	1.65	0.	0.
time (sec)	N/A	0.157	0.211	0.177	0.974	1.67	0.	0.

Problem 86	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	241	241	153	223	325	401	0	0
normalized size	1	1.	0.63	0.93	1.35	1.66	0.	0.
time (sec)	N/A	0.193	0.229	0.175	1.001	1.658	0.	0.

Problem 87	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	242	242	162	214	346	431	0	0
normalized size	1	1.	0.67	0.88	1.43	1.78	0.	0.
time (sec)	N/A	0.224	0.275	0.171	0.986	2.189	0.	0.

Problem 88	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	A	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	195	195	125	182	259	336	0	0
normalized size	1	1.	0.64	0.93	1.33	1.72	0.	0.
time (sec)	N/A	0.148	0.286	0.166	0.974	1.934	0.	0.

Problem 89	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	186	186	160	242	0	0	0	0
normalized size	1	1.	0.86	1.3	0.	0.	0.	0.
time (sec)	N/A	0.412	0.333	0.714	0.	0.	0.	0.

Problem 90	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	A	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	189	189	187	218	0	0	0	0
normalized size	1	1.	0.99	1.15	0.	0.	0.	0.
time (sec)	N/A	0.417	0.638	0.608	0.	0.	0.	0.

Problem 91	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	546	546	1023	374	0	0	0	0
normalized size	1	1.	1.87	0.68	0.	0.	0.	0.
time (sec)	N/A	1.294	1.362	1.723	0.	0.	0.	0.

Problem 92	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	487	487	891	453	0	0	0	0
normalized size	1	1.	1.83	0.93	0.	0.	0.	0.
time (sec)	N/A	1.152	0.376	0.5	0.	0.	0.	0.

Problem 93	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	509	509	871	272	0	0	0	0
normalized size	1	1.	1.71	0.53	0.	0.	0.	0.
time (sec)	N/A	0.869	0.326	0.961	0.	0.	0.	0.

Problem 94	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	459	459	402	2933	0	0	0	0
normalized size	1	1.	0.88	6.39	0.	0.	0.	0.
time (sec)	N/A	0.896	0.828	0.605	0.	0.	0.	0.

Problem 95	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	551	551	997	331	0	0	0	0
normalized size	1	1.	1.81	0.6	0.	0.	0.	0.
time (sec)	N/A	1.096	1.291	1.541	0.	0.	0.	0.

Problem 96	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	B	C	F	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	608	608	1255	783	0	0	0	0
normalized size	1	1.	2.06	1.29	0.	0.	0.	0.
time (sec)	N/A	1.306	3.904	0.695	0.	0.	0.	0.

Problem 97	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	B	C	F	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	570	570	1213	594	0	0	0	0
normalized size	1	1.	2.13	1.04	0.	0.	0.	0.
time (sec)	N/A	1.216	1.113	0.647	0.	0.	0.	0.

Problem 98	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	131	131	286	354	0	833	0	0
normalized size	1	1.	2.18	2.7	0.	6.36	0.	0.
time (sec)	N/A	0.121	0.575	0.256	0.	1.943	0.	0.

Problem 99	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	F	C	F	F	F(-1)	F
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD
size	546	546	0	3095	0	0	0	0
normalized size	1	1.	0.	5.67	0.	0.	0.	0.
time (sec)	N/A	1.14	35.01	0.879	0.	0.	0.	0.

Problem 100	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	784	784	1331	1887	0	0	0	0
normalized size	1	1.	1.7	2.41	0.	0.	0.	0.
time (sec)	N/A	2.354	2.257	9.726	0.	0.	0.	0.

Problem 101	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	745	745	1245	1756	0	0	0	0
normalized size	1	1.	1.67	2.36	0.	0.	0.	0.
time (sec)	N/A	1.217	1.532	1.681	0.	0.	0.	0.

Problem 102	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	739	739	1239	1748	0	0	0	0
normalized size	1	1.	1.68	2.37	0.	0.	0.	0.
time (sec)	N/A	2.211	1.97	1.806	0.	0.	0.	0.

Problem 103	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	785	785	1291	1817	0	0	0	0
normalized size	1	1.	1.64	2.31	0.	0.	0.	0.
time (sec)	N/A	2.307	1.952	8.437	0.	0.	0.	0.

Problem 104	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	B	C	F	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	707	707	1805	1626	0	0	0	0
normalized size	1	1.	2.55	2.3	0.	0.	0.	0.
time (sec)	N/A	1.404	7.807	0.819	0.	0.	0.	0.

Problem 105	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F	B	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	157	157	389	1870	0	2093	0	0
normalized size	1	1.	2.48	11.91	0.	13.33	0.	0.
time (sec)	N/A	0.175	1.311	0.277	0.	4.356	0.	0.

Problem 106	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	B	F	B	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	193	193	386	1840	0	1839	0	0
normalized size	1	1.	2.	9.53	0.	9.53	0.	0.
time (sec)	N/A	0.19	0.877	0.262	0.	5.009	0.	0.

Problem 107	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	F	C	F	F	F(-1)	F
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD
size	685	685	0	5373	0	0	0	0
normalized size	1	1.	0.	7.84	0.	0.	0.	0.
time (sec)	N/A	1.291	50.101	1.949	0.	0.	0.	0.

Problem 108	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	1124	1124	1819	3223	0	0	0	0
normalized size	1	1.	1.62	2.87	0.	0.	0.	0.
time (sec)	N/A	1.583	6.177	2.084	0.	0.	0.	0.

Problem 109	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	1124	1124	1827	2357	0	0	0	0
normalized size	1	1.	1.63	2.1	0.	0.	0.	0.
time (sec)	N/A	3.022	6.113	2.354	0.	0.	0.	0.

Problem 110	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	C	F(-2)	F	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	1114	1114	1812	3214	0	0	0	0
normalized size	1	1.	1.63	2.89	0.	0.	0.	0.
time (sec)	N/A	3.791	6.055	2.15	0.	0.	0.	0.

Problem 111	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	403	403	366	0	0	3776	0	0
normalized size	1	1.	0.91	0.	0.	9.37	0.	0.
time (sec)	N/A	1.275	0.647	1.842	0.	33.813	0.	0.

Problem 112	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	294	294	327	0	0	3039	0	0
normalized size	1	1.	1.11	0.	0.	10.34	0.	0.
time (sec)	N/A	0.398	0.737	1.681	0.	15.325	0.	0.

Problem 113	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	195	195	266	0	0	2425	0	0
normalized size	1	1.	1.36	0.	0.	12.44	0.	0.
time (sec)	N/A	0.19	0.457	1.386	0.	6.691	0.	0.

Problem 114	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.098	4.094	1.288	0.	0.	0.	0.

Problem 115	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.101	4.428	1.26	0.	0.	0.	0.

Problem 116	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.094	8.824	1.629	0.	0.	0.	0.

Problem 117	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	22	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.034	4.207	1.29	0.	0.	0.	0.

Problem 118	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.086	1.408	1.257	0.	0.	0.	0.

Problem 119	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	328	328	247	0	0	0	0	0
normalized size	1	1.	0.75	0.	0.	0.	0.	0.
time (sec)	N/A	0.424	0.613	1.7	0.	0.	0.	0.

Problem 120	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	453	453	325	0	0	0	0	0
normalized size	1	1.	0.72	0.	0.	0.	0.	0.
time (sec)	N/A	0.601	0.667	2.864	0.	0.	0.	0.

Problem 121	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD
size	374	374	339	0	0	3771	0	0
normalized size	1	1.	0.91	0.	0.	10.08	0.	0.
time (sec)	N/A	0.508	0.595	1.519	0.	31.276	0.	0.

Problem 122	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	262	262	305	0	0	3004	0	0
normalized size	1	1.	1.16	0.	0.	11.47	0.	0.
time (sec)	N/A	0.27	0.714	1.191	0.	10.902	0.	0.

Problem 123	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.115	4.984	1.133	0.	0.	0.	0.

Problem 124	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.119	5.339	1.036	0.	0.	0.	0.

Problem 125	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.112	8.753	1.458	0.	0.	0.	0.

Problem 126	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	22	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.042	4.864	1.105	0.	0.	0.	0.

Problem 127	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.103	8.089	1.031	0.	0.	0.	0.

Problem 128	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.104	10.674	1.447	0.	0.	0.	0.

Problem 129	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	416	416	303	0	0	0	0	0
normalized size	1	1.	0.73	0.	0.	0.	0.	0.
time (sec)	N/A	0.539	0.642	1.676	0.	0.	0.	0.

Problem 130	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	554	554	383	0	0	0	0	0
normalized size	1	1.	0.69	0.	0.	0.	0.	0.
time (sec)	N/A	0.778	0.835	2.136	0.	0.	0.	0.

Problem 131	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	321	321	328	0	0	3060	0	0
normalized size	1	1.	1.02	0.	0.	9.53	0.	0.
time (sec)	N/A	1.012	0.718	2.826	0.	11.84	0.	0.

Problem 132	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	225	225	272	0	0	2452	0	0
normalized size	1	1.	1.21	0.	0.	10.9	0.	0.
time (sec)	N/A	0.308	0.507	2.027	0.	5.059	0.	0.

Problem 133	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	132	132	211	0	0	1925	0	0
normalized size	1	1.	1.6	0.	0.	14.58	0.	0.
time (sec)	N/A	0.146	0.22	1.591	0.	2.6	0.	0.

Problem 134	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.097	1.422	1.52	0.	0.	0.	0.

Problem 135	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.108	11.006	1.239	0.	0.	0.	0.

Problem 136	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.091	8.703	1.276	0.	0.	0.	0.

Problem 137	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	22	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.03	0.795	1.261	0.	0.	0.	0.

Problem 138	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	246	246	143	0	0	0	0	0
normalized size	1	1.	0.58	0.	0.	0.	0.	0.
time (sec)	N/A	0.255	0.194	1.273	0.	0.	0.	0.

Problem 139	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	362	362	249	0	0	0	0	0
normalized size	1	1.	0.69	0.	0.	0.	0.	0.
time (sec)	N/A	0.447	0.635	1.717	0.	0.	0.	0.

Problem 140	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	1006	1006	329	0	0	0	0	0
normalized size	1	1.	0.33	0.	0.	0.	0.	0.
time (sec)	N/A	1.78	0.806	1.97	0.	0.	0.	0.

Problem 141	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	252	252	303	0	0	3171	0	0
normalized size	1	1.	1.2	0.	0.	12.58	0.	0.
time (sec)	N/A	1.006	0.65	1.828	0.	4.994	0.	0.

Problem 142	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	157	157	221	0	0	2360	0	0
normalized size	1	1.	1.41	0.	0.	15.03	0.	0.
time (sec)	N/A	0.259	0.352	1.589	0.	3.339	0.	0.

Problem 143	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	A	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	80	80	95	0	0	626	0	0
normalized size	1	1.	1.19	0.	0.	7.82	0.	0.
time (sec)	N/A	0.102	0.145	1.233	0.	2.355	0.	0.

Problem 144	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.11	15.089	1.081	0.	0.	0.	0.

Problem 145	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.123	21.066	1.079	0.	0.	0.	0.

Problem 146	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.106	7.663	1.148	0.	0.	0.	0.

Problem 147	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.099	3.641	1.159	0.	0.	0.	0.

Problem 148	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	109	109	113	0	0	0	0	0
normalized size	1	1.	1.04	0.	0.	0.	0.	0.
time (sec)	N/A	0.088	0.188	1.088	0.	0.	0.	0.

Problem 149	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	274	274	212	0	0	0	0	0
normalized size	1	1.	0.77	0.	0.	0.	0.	0.
time (sec)	N/A	0.31	0.475	1.032	0.	0.	0.	0.

Problem 150	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	701	701	292	0	0	0	0	0
normalized size	1	1.	0.42	0.	0.	0.	0.	0.
time (sec)	N/A	1.392	0.717	1.481	0.	0.	0.	0.

Problem 151	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	B	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	244	244	312	0	0	4483	0	0
normalized size	1	1.	1.28	0.	0.	18.37	0.	0.
time (sec)	N/A	1.063	0.522	1.862	0.	5.146	0.	0.

Problem 152	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	B	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	163	163	172	0	0	1380	0	0
normalized size	1	1.	1.06	0.	0.	8.47	0.	0.
time (sec)	N/A	0.243	0.256	1.631	0.	3.348	0.	0.

Problem 153	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-2)	B	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	138	138	158	0	0	1189	0	0
normalized size	1	1.	1.14	0.	0.	8.62	0.	0.
time (sec)	N/A	0.131	0.205	1.233	0.	3.091	0.	0.

Problem 154	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.12	25.452	1.078	0.	0.	0.	0.

Problem 155	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.138	31.587	1.08	0.	0.	0.	0.

Problem 156	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.116	9.905	1.224	0.	0.	0.	0.

Problem 157	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	F(-2)	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.106	9.378	1.169	0.	0.	0.	0.

Problem 158	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	276	276	186	0	0	0	0	0
normalized size	1	1.	0.67	0.	0.	0.	0.	0.
time (sec)	N/A	0.276	0.285	1.157	0.	0.	0.	0.

Problem 159	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	296	296	248	0	0	0	0	0
normalized size	1	1.	0.84	0.	0.	0.	0.	0.
time (sec)	N/A	0.235	0.556	1.08	0.	0.	0.	0.

Problem 160	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	C	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	631	631	323	0	0	0	0	0
normalized size	1	1.	0.51	0.	0.	0.	0.	0.
time (sec)	N/A	1.396	0.791	1.022	0.	0.	0.	0.

Problem 161	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	F	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD
size	589	570	0	0	0	0	0	0
normalized size	1	0.97	0.	0.	0.	0.	0.	0.
time (sec)	N/A	2.415	0.212	4.007	0.	0.	0.	0.

Problem 162	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	F	F	F(-2)	F	F(-1)	F
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD
size	374	355	0	0	0	0	0	0
normalized size	1	0.95	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.432	0.141	3.049	0.	0.	0.	0.

Problem 163	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	F	F	F(-2)	F	F(-1)	F
verified	N/A	NO	N/A	TBD	TBD	TBD	TBD	TBD
size	178	204	0	0	0	0	0	0
normalized size	1	1.15	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.187	0.101	2.319	0.	0.	0.	0.

Problem 164	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.071	1.937	1.646	0.	0.	0.	0.

Problem 165	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	25	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.071	1.916	1.95	0.	0.	0.	0.

Problem 166	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	27	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.105	0.885	1.532	0.	0.	0.	0.

Problem 167	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	27	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.094	0.108	1.655	0.	0.	0.	0.

Problem 168	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	27	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.096	1.108	2.517	0.	0.	0.	0.

Problem 169	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	27	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.105	1.365	1.757	0.	0.	0.	0.

Problem 170	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-1)	F(-2)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	401	401	194	0	0	0	0	0
normalized size	1	1.	0.48	0.	0.	0.	0.	0.
time (sec)	N/A	2.484	0.249	17.217	0.	0.	0.	0.

Problem 171	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-1)	F(-2)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	268	268	159	0	0	0	0	0
normalized size	1	1.	0.59	0.	0.	0.	0.	0.
time (sec)	N/A	2.018	0.316	4.461	0.	0.	0.	0.

Problem 172	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	A	A	A	F	F(-1)	F(-2)	F(-1)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD
size	126	135	118	0	0	0	0	0
normalized size	1	1.07	0.94	0.	0.	0.	0.	0.
time (sec)	N/A	0.208	0.213	1.641	0.	0.	0.	0.

Problem 173	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	A	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	28	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.088	0.333	1.9	0.	0.	0.	0.

Problem 174	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac
grade	N/A	A	A	A	A	A	F(-1)	A
verified	N/A	N/A	N/A	TBD	TBD	TBD	TBD	TBD
size	28	0	0	0	0	0	0	0
normalized size	1	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.099	6.369	1.836	0.	0.	0.	0.

2.3 Detailed conclusion table specific for Rubi results

The following table is specific to Rubi. It gives additional statistics for each integral. the column **steps** is the number of steps used by Rubi to obtain the antiderivative. The **rules** column is the number of unique rules used. The **integrand size** column is the leaf size of the integrand. Finally the ratio $\frac{\text{number of rules}}{\text{integrand size}}$ is given. The larger this ratio is, the harder the integral was to solve. In this test, problem number [160] had the largest ratio of [0.7826]

Table 2.1: Rubi specific breakdown of results for each integral

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1	A	7	5	1.	12	0.417
2	A	4	3	1.	12	0.25
3	A	6	5	1.	12	0.417
4	A	3	3	1.	12	0.25
5	A	5	5	1.	12	0.417
6	A	2	2	1.	10	0.2
7	A	5	4	1.	8	0.5
8	A	6	6	1.	12	0.5
9	A	2	2	1.	12	0.167
10	A	4	4	1.	12	0.333
11	A	4	3	1.	12	0.25
12	A	5	4	1.	12	0.333
13	A	4	3	1.	12	0.25
14	A	6	4	1.	12	0.333
15	A	5	5	1.	14	0.357
16	A	8	6	1.	14	0.429
17	A	4	4	1.	12	0.333
18	A	7	5	1.	10	0.5
19	A	6	6	1.	14	0.429
20	A	4	3	1.	14	0.214

Continued on next page

Table 2.1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
21	A	4	3	1.	14	0.214
22	A	5	5	1.	14	0.357
23	A	5	3	1.	14	0.214
24	A	10	10	1.	14	0.714
25	A	11	8	1.	14	0.571
26	A	7	7	1.	12	0.583
27	A	9	6	1.	10	0.6
28	A	7	7	1.	14	0.5
29	A	5	3	1.	14	0.214
30	A	6	6	1.	14	0.429
31	A	8	6	1.	14	0.429
32	A	10	6	1.	14	0.429
33	A	0	0	0.	0	0.
34	A	0	0	0.	0	0.
35	A	0	0	0.	0	0.
36	A	4	4	1.	14	0.286
37	A	6	6	1.	14	0.429
38	A	9	5	1.	14	0.357
39	A	0	0	0.	0	0.
40	A	0	0	0.	0	0.
41	A	0	0	0.	0	0.
42	A	5	5	1.	14	0.357
43	A	7	7	1.	14	0.5
44	A	11	6	1.	14	0.429
45	A	0	0	0.	0	0.
46	A	0	0	0.	0	0.
47	A	0	0	0.	0	0.
48	A	6	5	1.	14	0.357
49	A	8	7	1.	14	0.5
50	A	13	6	1.	14	0.429
51	A	0	0	0.	0	0.
52	A	0	0	0.	0	0.
53	A	3	3	1.	14	0.214
54	A	0	0	0.	0	0.
55	A	0	0	0.	0	0.
56	A	11	9	1.	16	0.562
57	A	10	9	1.	16	0.562
58	A	9	9	1.	14	0.643
59	A	5	4	1.	8	0.5
60	A	4	2	1.	16	0.125
61	A	7	7	1.	16	0.438
62	A	8	8	1.	16	0.5
63	A	22	13	1.	18	0.722
64	A	15	11	1.	18	0.611

Continued on next page

Table 2.1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
65	A	9	9	1.	18	0.5
66	A	6	6	1.	18	0.333
67	A	12	11	1.	18	0.611
68	A	19	14	1.18	18	0.778
69	A	7	7	1.	19	0.368
70	A	6	7	1.	19	0.368
71	A	5	5	1.	16	0.312
72	A	4	5	1.	19	0.263
73	A	4	5	1.	19	0.263
74	A	5	6	1.	19	0.316
75	A	6	6	1.	19	0.316
76	A	5	5	1.	19	0.263
77	A	5	5	1.	19	0.263
78	A	6	5	1.	17	0.294
79	A	11	11	1.	19	0.579
80	A	13	13	1.	19	0.684
81	A	7	8	1.	21	0.381
82	A	6	7	1.	18	0.389
83	A	6	7	1.	21	0.333
84	A	6	7	1.	21	0.333
85	A	5	6	1.	21	0.286
86	A	6	7	1.	21	0.333
87	A	5	6	1.	21	0.286
88	A	6	5	1.	19	0.263
89	A	12	13	1.	21	0.619
90	A	14	15	1.	21	0.714
91	A	25	12	1.	21	0.571
92	A	26	9	1.	19	0.474
93	A	19	7	1.	18	0.389
94	A	19	7	1.	21	0.333
95	A	24	10	1.	21	0.476
96	A	31	14	1.	21	0.667
97	A	29	12	1.	21	0.571
98	A	7	5	1.	19	0.263
99	A	24	10	1.	21	0.476
100	A	51	15	1.	21	0.714
101	A	27	10	1.	21	0.476
102	A	47	11	1.	18	0.611
103	A	50	13	1.	21	0.619
104	A	33	13	1.	21	0.619
105	A	6	7	1.	21	0.333
106	A	8	6	1.	19	0.316
107	A	28	11	1.	21	0.524
108	A	35	11	1.	21	0.524

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Table 2.1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
109	A	63	12	1.	21	0.571
110	A	81	12	1.	18	0.667
111	A	12	12	1.	23	0.522
112	A	11	12	1.	23	0.522
113	A	9	9	1.	21	0.429
114	A	0	0	0.	0	0.
115	A	0	0	0.	0	0.
116	A	0	0	0.	0	0.
117	A	0	0	0.	0	0.
118	A	0	0	0.	0	0.
119	A	11	11	1.	23	0.478
120	A	12	12	1.	23	0.522
121	A	12	12	1.	23	0.522
122	A	10	10	1.	21	0.476
123	A	0	0	0.	0	0.
124	A	0	0	0.	0	0.
125	A	0	0	0.	0	0.
126	A	0	0	0.	0	0.
127	A	0	0	0.	0	0.
128	A	0	0	0.	0	0.
129	A	12	12	1.	23	0.522
130	A	13	12	1.	23	0.522
131	A	11	12	1.	23	0.522
132	A	10	12	1.	23	0.522
133	A	8	8	1.	21	0.381
134	A	0	0	0.	0	0.
135	A	0	0	0.	0	0.
136	A	0	0	0.	0	0.
137	A	0	0	0.	0	0.
138	A	11	11	1.	23	0.478
139	A	11	12	1.	23	0.522
140	A	32	15	1.	23	0.652
141	A	10	11	1.	23	0.478
142	A	9	11	1.	23	0.478
143	A	4	4	1.	21	0.19
144	A	0	0	0.	0	0.
145	A	0	0	0.	0	0.
146	A	0	0	0.	0	0.
147	A	0	0	0.	0	0.
148	A	5	5	1.	20	0.25
149	A	10	11	1.	23	0.478
150	A	25	14	1.	23	0.609
151	A	10	11	1.	23	0.478
152	A	7	8	1.	23	0.348

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Table 2.1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
153	A	5	5	1.	21	0.238
154	A	0	0	0.	0	0.
155	A	0	0	0.	0	0.
156	A	0	0	0.	0	0.
157	A	0	0	0.	0	0.
158	A	10	10	1.	23	0.435
159	A	10	11	1.	20	0.55
160	A	26	18	1.	23	0.783
161	A	6	7	0.97	23	0.304
162	A	6	7	0.95	23	0.304
163	A	5	6	1.15	21	0.286
164	A	0	0	0.	0	0.
165	A	0	0	0.	0	0.
166	A	0	0	0.	0	0.
167	A	0	0	0.	0	0.
168	A	0	0	0.	0	0.
169	A	0	0	0.	0	0.
170	A	16	11	1.	26	0.423
171	A	13	11	1.	26	0.423
172	A	8	9	1.07	26	0.346
173	A	0	0	0.	0	0.
174	A	0	0	0.	0	0.

Chapter 3

Listing of integrals

3.1 $\int x^6 \left(a + b \sec^{-1}(cx)\right) dx$

Optimal. Leaf size=114

$$\frac{1}{7}x^7 \left(a + b\sec^{-1}(cx)\right) - \frac{bx^6\sqrt{1-\frac{1}{c^2x^2}}}{42c} - \frac{5bx^4\sqrt{1-\frac{1}{c^2x^2}}}{168c^3} - \frac{5bx^2\sqrt{1-\frac{1}{c^2x^2}}}{112c^5} - \frac{5b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{112c^7}$$

```
[Out] (-5*b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(112*c^5) - (5*b*Sqrt[1 - 1/(c^2*x^2)]*x^4
)/(168*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^6)/(42*c) + (x^7*(a + b*ArcSec[c*x
]))/7 - (5*b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(112*c^7)
```

Rubi [A] time = 0.0608637, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.417, Rules used = {5220, 266, 51, 63, 208}

$$\frac{1}{7}x^7 \left(a + b\sec^{-1}(cx)\right) - \frac{bx^6\sqrt{1-\frac{1}{c^2x^2}}}{42c} - \frac{5bx^4\sqrt{1-\frac{1}{c^2x^2}}}{168c^3} - \frac{5bx^2\sqrt{1-\frac{1}{c^2x^2}}}{112c^5} - \frac{5b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{112c^7}$$

Antiderivative was successfully verified.

```
[In] Int[x^6*(a + b*ArcSec[c*x]),x]
```

```
[Out] (-5*b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(112*c^5) - (5*b*Sqrt[1 - 1/(c^2*x^2)]*x^4
)/(168*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^6)/(42*c) + (x^7*(a + b*ArcSec[c*x
]))/7 - (5*b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(112*c^7)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 51

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^(n + 1))/((b*c - a*d)*(m + 1)), x] - Dist[(d*(
m + n + 2))/((b*c - a*d)*(m + 1)), Int[(a + b*x)^(m + 1)*(c + d*x)^n, x], x
] /; FreeQ[{a, b, c, d, n}, x] && NeQ[b*c - a*d, 0] && LtQ[m, -1] &&  !(LtQ
[n, -1] && (EqQ[a, 0] || (NeQ[c, 0] && LtQ[m - n, 0] && IntegerQ[n]))) && I
ntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int x^6\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)-\frac{b\int\frac{x^5}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{7c}$$

$$=\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)+\frac{b\,\text{Subst}\left(\int\frac{1}{x^4\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{14c}$$

$$=-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^6}{42c}+\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)+\frac{(5b)\,\text{Subst}\left(\int\frac{1}{x^3\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{84c^3}$$

$$=-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^4}{168c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^6}{42c}+\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)+\frac{(5b)\,\text{Subst}\left(\int\frac{1}{x^2\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{112c^5}$$

$$=-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^2}{112c^5}-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^4}{168c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^6}{42c}+\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)+\frac{(5b)\,\text{Subst}\left(\int\right.}{22}$$

$$=-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^2}{112c^5}-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^4}{168c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^6}{42c}+\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)-\frac{(5b)\,\text{Subst}\left(\int\right.}{}$$

$$=-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^2}{112c^5}-\frac{5b\sqrt{1-\frac{1}{c^2x^2}}x^4}{168c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^6}{42c}+\frac{1}{7}x^7\left(a+b\sec^{-1}(cx)\right)-\frac{5b\tanh^{-1}\left(\sqrt{1}\right.}{112c^7}$$

Mathematica [A] time = 0.133162, size = 107, normalized size = 0.94

$$\frac{ax^7}{7}+b\sqrt{\frac{c^2x^2-1}{c^2x^2}}\left(-\frac{5x^4}{168c^3}-\frac{5x^2}{112c^5}-\frac{x^6}{42c}\right)-\frac{5b\log\left(x\left(\sqrt{\frac{c^2x^2-1}{c^2x^2}}+1\right)\right)}{112c^7}+\frac{1}{7}bx^7\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^6*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^7)/7 + b*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]*((-5*x^2)/(112*c^5) - (5*x^4)/
(168*c^3) - x^6/(42*c)) + (b*x^7*ArcSec[c*x])/7 - (5*b*Log[x*(1 + Sqrt[(-1
+ c^2*x^2)/(c^2*x^2)])])/(112*c^7)
```

Maple [A] time = 0.19, size = 177, normalized size = 1.6

$$\frac{x^7 a}{7} + \frac{bx^7 \operatorname{arcsec}(cx)}{7} - \frac{bx^6}{42c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{bx^4}{168c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{5bx^2}{336c^5}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + \frac{5b}{112c^7}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{5b}{112c^8x}\sqrt{c^2x^2-1}\ln\Big(cx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^6*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/7*x^7*a+1/7*b*x^7*arcsec(c*x)-1/42/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^6-1/
168/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^4-5/336/c^5*b/((c^2*x^2-1)/c^2/x^2)
^(1/2)*x^2+5/112/c^7*b/((c^2*x^2-1)/c^2/x^2)^(1/2)-5/112/c^8*b*(c^2*x^2-1)^
(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.987097, size = 219, normalized size = 1.92

$$\frac{1}{7}ax^7 + \frac{1}{672}\left(96x^7\operatorname{arcsec}(cx) - \frac{\frac{2\left(15\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}} - 40\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 33\sqrt{-\frac{1}{c^2x^2}+1}\right)}{c^6\left(\frac{1}{c^2x^2}-1\right)^3 + 3c^6\left(\frac{1}{c^2x^2}-1\right)^2 + 3c^6\left(\frac{1}{c^2x^2}-1\right) + c^6} + \frac{15\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^6} - \frac{15\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^6}}{c}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/7*a*x^7 + 1/672*(96*x^7*arcsec(c*x) - (2*(15*(-1/(c^2*x^2) + 1)^(5/2) - 4
0*(-1/(c^2*x^2) + 1)^(3/2) + 33*sqrt(-1/(c^2*x^2) + 1))/(c^6*(1/(c^2*x^2) -
 1)^3 + 3*c^6*(1/(c^2*x^2) - 1)^2 + 3*c^6*(1/(c^2*x^2) - 1) + c^6) + 15*log
(sqrt(-1/(c^2*x^2) + 1) + 1)/c^6 - 15*log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^6)/
c)*b
```

Fricas [A] time = 3.10748, size = 275, normalized size = 2.41

$$\frac{48ac^7x^7 + 96bc^7\arctan\left(-cx+\sqrt{c^2x^2-1}\right) + 48\left(bc^7x^7 - bc^7\right)\operatorname{arcsec}(cx) + 15b\log\left(-cx+\sqrt{c^2x^2-1}\right) - \left(8bc^5x^5 + \right.}{336c^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/336*(48*a*c^7*x^7 + 96*b*c^7*arctan(-c*x + sqrt(c^2*x^2 - 1)) + 48*(b*c^7
*x^7 - b*c^7)*arcsec(c*x) + 15*b*log(-c*x + sqrt(c^2*x^2 - 1)) - (8*b*c^5*x
^5 + 10*b*c^3*x^3 + 15*b*c*x)*sqrt(c^2*x^2 - 1))/c^7
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^6 (a + b \operatorname{asec}(cx)) \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**6*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**6*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)x^6 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^6, x)
```

3.2 $\int x^5 \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=89

$$\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)-\frac{bx^5\sqrt{1-\frac{1}{c^2x^2}}}{30c}-\frac{2bx^3\sqrt{1-\frac{1}{c^2x^2}}}{45c^3}-\frac{4bx\sqrt{1-\frac{1}{c^2x^2}}}{45c^5}$$

```
[Out] (-4*b*Sqrt[1 - 1/(c^2*x^2)]*x)/(45*c^5) - (2*b*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(
45*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^5)/(30*c) + (x^6*(a + b*ArcSec[c*x]))/
6
```

Rubi [A] time = 0.0413837, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25, Rules used = {5220, 271, 191}

$$\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)-\frac{bx^5\sqrt{1-\frac{1}{c^2x^2}}}{30c}-\frac{2bx^3\sqrt{1-\frac{1}{c^2x^2}}}{45c^3}-\frac{4bx\sqrt{1-\frac{1}{c^2x^2}}}{45c^5}$$

Antiderivative was successfully verified.

```
[In] Int[x^5*(a + b*ArcSec[c*x]),x]
```

```
[Out] (-4*b*Sqrt[1 - 1/(c^2*x^2)]*x)/(45*c^5) - (2*b*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(
45*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^5)/(30*c) + (x^6*(a + b*ArcSec[c*x]))/
6
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rubi steps

$$\int x^5\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)-\frac{b\int\frac{x^4}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{6c}$$
$$=-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^5}{30c}+\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)-\frac{(2b)\int\frac{x^2}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{15c^3}$$
$$=-\frac{2b\sqrt{1-\frac{1}{c^2x^2}}x^3}{45c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^5}{30c}+\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)-\frac{(4b)\int\frac{1}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{45c^5}$$
$$=-\frac{4b\sqrt{1-\frac{1}{c^2x^2}}x}{45c^5}-\frac{2b\sqrt{1-\frac{1}{c^2x^2}}x^3}{45c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^5}{30c}+\frac{1}{6}x^6\left(a+b\sec^{-1}(cx)\right)$$

Mathematica [A] time = 0.0811036, size = 72, normalized size = 0.81

$$\frac{ax^6}{6}+b\sqrt{\frac{c^2x^2-1}{c^2x^2}}\left(-\frac{2x^3}{45c^3}-\frac{4x}{45c^5}-\frac{x^5}{30c}\right)+\frac{1}{6}bx^6\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^5*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^6)/6 + b*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]*((-4*x)/(45*c^5) - (2*x^3)/(45
*c^3) - x^5/(30*c)) + (b*x^6*ArcSec[c*x])/6
```

Maple [A] time = 0.16, size = 83, normalized size = 0.9

$$\frac{1}{c^6}\left(\frac{c^6x^6a}{6}+b\left(\frac{c^6x^6\mathrm{arcsec}(cx)}{6}-\frac{(c^2x^2-1)(3c^4x^4+4c^2x^2+8)}{90cx}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^6*(1/6*c^6*x^6*a+b*(1/6*c^6*x^6*arcsec(c*x)-1/90*(c^2*x^2-1)*(3*c^4*x^4
+4*c^2*x^2+8)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.987436, size = 109, normalized size = 1.22

$$\frac{1}{6}ax^6+\frac{1}{90}\left(15x^6\mathrm{arcsec}(cx)-\frac{3c^4x^5\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}}+10c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}+15x\sqrt{-\frac{1}{c^2x^2}+1}}{c^5}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/6*a*x^6 + 1/90*(15*x^6*arcsec(c*x) - (3*c^4*x^5*(-1/(c^2*x^2) + 1)^(5/2)
+ 10*c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 15*x*sqrt(-1/(c^2*x^2) + 1))/c^5)*b
```

Fricas [A] time = 2.77975, size = 143, normalized size = 1.61

$$\frac{15\, bc^6x^6 \operatorname{arcsec}(cx) + 15\, ac^6x^6 - \left(3\, bc^4x^4 + 4\, bc^2x^2 + 8\, b\right)\sqrt{c^2x^2 - 1}}{90\, c^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/90*(15*b*c^6*x^6*arcsec(c*x) + 15*a*c^6*x^6 - (3*b*c^4*x^4 + 4*b*c^2*x^2
+ 8*b)*sqrt(c^2*x^2 - 1))/c^6
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^5 \left(a + b \operatorname{asec}(cx)\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**5*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)x^5\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5, x)
```

3.3 $\int x^4 \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=89

$$\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx^4\sqrt{1-\frac{1}{c^2x^2}}}{20c}-\frac{3bx^2\sqrt{1-\frac{1}{c^2x^2}}}{40c^3}-\frac{3b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{40c^5}$$

```
[Out] (-3*b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(40*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^4)/(
20*c) + (x^5*(a + b*ArcSec[c*x]))/5 - (3*b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/
(40*c^5)
```

Rubi [A] time = 0.0463687, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.417, Rules used = {5220, 266, 51, 63, 208}

$$\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx^4\sqrt{1-\frac{1}{c^2x^2}}}{20c}-\frac{3bx^2\sqrt{1-\frac{1}{c^2x^2}}}{40c^3}-\frac{3b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{40c^5}$$

Antiderivative was successfully verified.

```
[In] Int[x^4*(a + b*ArcSec[c*x]),x]
```

```
[Out] (-3*b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(40*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^4)/(
20*c) + (x^5*(a + b*ArcSec[c*x]))/5 - (3*b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/
(40*c^5)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 51

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^(n + 1))/((b*c - a*d)*(m + 1)), x] - Dist[(d*(
m + n + 2))/((b*c - a*d)*(m + 1)), Int[(a + b*x)^(m + 1)*(c + d*x)^n, x], x
] /; FreeQ[{a, b, c, d, n}, x] && NeQ[b*c - a*d, 0] && LtQ[m, -1] && !(LtQ
[n, -1] && (EqQ[a, 0] || (NeQ[c, 0] && LtQ[m - n, 0] && IntegerQ[n]))) && I
ntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$
\begin{aligned}
\int x^4\left(a+b\sec^{-1}(cx)\right)dx &= \frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)-\frac{b\int\frac{x^3}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{5c}\\
&= \frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)+\frac{b\,\mathrm{Subst}\left(\int\frac{1}{x^3\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{10c}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^4}{20c}+\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)+\frac{(3b)\,\mathrm{Subst}\left(\int\frac{1}{x^2\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{40c^3}\\
&= -\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x^2}{40c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^4}{20c}+\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)+\frac{(3b)\,\mathrm{Subst}\left(\int\frac{1}{x\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{80c^5}\\
&= -\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x^2}{40c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^4}{20c}+\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)-\frac{(3b)\,\mathrm{Subst}\left(\int\frac{1}{c^2-c^2x^2}\,dx,x,\sqrt{\ldots}\right)}{40c^3}\\
&= -\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x^2}{40c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^4}{20c}+\frac{1}{5}x^5\left(a+b\sec^{-1}(cx)\right)-\frac{3b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{40c^5}
\end{aligned}
$$

Mathematica [A] time = 0.0688045, size = 97, normalized size = 1.09

$$\frac{ax^5}{5}+b\sqrt{\frac{c^2x^2-1}{c^2x^2}}\left(-\frac{3x^2}{40c^3}-\frac{x^4}{20c}\right)-\frac{3b\log\left(x\left(\sqrt{\frac{c^2x^2-1}{c^2x^2}}+1\right)\right)}{40c^5}+\frac{1}{5}bx^5\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^4*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^5)/5 + b*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]*((-3*x^2)/(40*c^3) - x^4/(20*c
)) + (b*x^5*ArcSec[c*x])/5 - (3*b*Log[x*(1 + Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]
)])/(40*c^5)
```

Maple [A] time = 0.19, size = 150, normalized size = 1.7

$$\frac{ax^5}{5}+\frac{x^5b\mathrm{arcsec}\,(cx)}{5}-\frac{bx^4}{20\,c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bx^2}{40\,c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{3\,b}{40\,c^5}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{3\,b}{40\,c^6x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right)\frac{1}{\sqrt{\frac{c^2x^2-\ldots}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/5*a*x^5+1/5*x^5*b*arcsec(c*x)-1/20/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^4-1/
40/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2+3/40/c^5*b/((c^2*x^2-1)/c^2/x^2)^(
1/2)-3/40/c^6*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*ln(c*x+(c^2
```

```
*x^2-1)^(1/2))
```

Maxima [A] time = 1.00718, size = 177, normalized size = 1.99

$$\frac{1}{5}\,ax^5+\frac{1}{80}\left(16\,x^5\operatorname{arcsec}\left(cx\right)+\frac{\frac{2\left(3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-5\sqrt{-\frac{1}{c^2x^2}+1}\right)}{c^4\left(\frac{1}{c^2x^2}-1\right)^2+2\,c^4\left(\frac{1}{c^2x^2}-1\right)+c^4}-\frac{3\,\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^4}+\frac{3\,\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^4}}{c}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/5*a*x^5 + 1/80*(16*x^5*arcsec(c*x) + (2*(3*(-1/(c^2*x^2) + 1)^(3/2) - 5*s
qrt(-1/(c^2*x^2) + 1))/(c^4*(1/(c^2*x^2) - 1)^2 + 2*c^4*(1/(c^2*x^2) - 1) +
 c^4) - 3*log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^4 + 3*log(sqrt(-1/(c^2*x^2) + 1
) - 1)/c^4)/c)*b
```

Fricas [A] time = 2.79015, size = 248, normalized size = 2.79

$$\frac{8\,ac^5x^5+16\,bc^5\arctan\left(-cx+\sqrt{c^2x^2-1}\right)+8\left(bc^5x^5-bc^5\right)\operatorname{arcsec}\left(cx\right)+3\,b\log\left(-cx+\sqrt{c^2x^2-1}\right)-\left(2\,bc^3x^3+3\,bcx\right)}{40\,c^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/40*(8*a*c^5*x^5 + 16*b*c^5*arctan(-c*x + sqrt(c^2*x^2 - 1)) + 8*(b*c^5*x^
5 - b*c^5)*arcsec(c*x) + 3*b*log(-c*x + sqrt(c^2*x^2 - 1)) - (2*b*c^3*x^3 +
 3*b*c*x)*sqrt(c^2*x^2 - 1))/c^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^4\left(a+b\operatorname{asec}\left(cx\right)\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**4*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\left(b\operatorname{arcsec}\left(cx\right)+a\right)x^4\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^4, x)
```

3.4 $\int x^3 \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=64

$$\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}}{12c}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}}{6c^3}$$

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(12*c)
 + (x^4*(a + b*ArcSec[c*x]))/4
```

Rubi [A] time = 0.0265671, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25, Rules used = {5220, 271, 191}

$$\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}}{12c}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}}{6c^3}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(12*c)
 + (x^4*(a + b*ArcSec[c*x]))/4
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rubi steps

$$\begin{aligned}
\int x^3\left(a+b\sec^{-1}(cx)\right) dx &= \frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)-\frac{b\int \frac{x^2}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{4c}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}+\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)-\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{6c^3}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}+\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)
\end{aligned}$$

Mathematica [A] time = 0.100045, size = 62, normalized size = 0.97

$$\frac{ax^4}{4}+b\sqrt{\frac{c^2x^2-1}{c^2x^2}}\left(-\frac{x}{6c^3}-\frac{x^3}{12c}\right)+\frac{1}{4}bx^4\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^4)/4 + b*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]*(-x/(6*c^3) - x^3/(12*c)) + (b
*x^4*ArcSec[c*x])/4
```

Maple [A] time = 0.162, size = 74, normalized size = 1.2

$$\frac{1}{c^4}\left(\frac{c^4x^4a}{4}+b\left(\frac{c^4x^4\operatorname{arcsec}(cx)}{4}-\frac{(c^2x^2-1)(c^2x^2+2)}{12\,cx}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^4*(1/4*c^4*x^4*a+b*(1/4*c^4*x^4*arcsec(c*x)-1/12*(c^2*x^2-1)*(c^2*x^2+2
)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.976702, size = 81, normalized size = 1.27

$$\frac{1}{4}\,ax^4+\frac{1}{12}\left(3\,x^4\operatorname{arcsec}(cx)-\frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}+3\,x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/4*a*x^4 + 1/12*(3*x^4*arcsec(c*x) - (c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 3
*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*b
```

Fricas [A] time = 2.66535, size = 119, normalized size = 1.86

$$\frac{3\,bc^4x^4\operatorname{arcsec}(cx)+3\,ac^4x^4-\left(bc^2x^2+2\,b\right)\sqrt{c^2x^2-1}}{12\,c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/12*(3*b*c^4*x^4*arcsec(c*x) + 3*a*c^4*x^4 - (b*c^2*x^2 + 2*b)*sqrt(c^2*x^
2 - 1))/c^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3 (a + b \operatorname{asec}(cx)) \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**3*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)x^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3, x)
```

3.5 $\int x^2 \left(a + b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=64

$$\frac{1}{3}x^3 \left(a + b\sec^{-1}(cx)\right) - \frac{bx^2\sqrt{1 - \frac{1}{c^2x^2}}}{6c} - \frac{b\tanh^{-1}\left(\sqrt{1 - \frac{1}{c^2x^2}}\right)}{6c^3}$$

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(6*c) + (x^3*(a + b*ArcSec[c*x]))/3 - (b*Arc
Tanh[Sqrt[1 - 1/(c^2*x^2)]])/(6*c^3)
```

Rubi [A] time = 0.0348788, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.417, Rules used = {5220, 266, 51, 63, 208}

$$\frac{1}{3}x^3 \left(a + b\sec^{-1}(cx)\right) - \frac{bx^2\sqrt{1 - \frac{1}{c^2x^2}}}{6c} - \frac{b\tanh^{-1}\left(\sqrt{1 - \frac{1}{c^2x^2}}\right)}{6c^3}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(6*c) + (x^3*(a + b*ArcSec[c*x]))/3 - (b*Arc
Tanh[Sqrt[1 - 1/(c^2*x^2)]])/(6*c^3)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 51

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^(n + 1))/((b*c - a*d)*(m + 1)), x] - Dist[(d*(
m + n + 2))/((b*c - a*d)*(m + 1)), Int[(a + b*x)^(m + 1)*(c + d*x)^n, x], x
] /; FreeQ[{a, b, c, d, n}, x] && NeQ[b*c - a*d, 0] && LtQ[m, -1] &&  !(LtQ
[n, -1] && (EqQ[a, 0] || (NeQ[c, 0] && LtQ[m - n, 0] && IntegerQ[n]))) && I
ntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\begin{aligned}
\int x^2\left(a+b\sec^{-1}(cx)\right)dx &= \frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)-\frac{b\int\frac{x}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{3c}\\
&= \frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)+\frac{b\,\mathrm{Subst}\left(\int\frac{1}{x^2\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{6c}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}\,x^2}{6c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)+\frac{b\,\mathrm{Subst}\left(\int\frac{1}{x\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{12c^3}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}\,x^2}{6c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)-\frac{b\,\mathrm{Subst}\left(\int\frac{1}{c^2-c^2x^2}\,dx,x,\sqrt{1-\frac{1}{c^2x^2}}\right)}{6c}\\
&= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}\,x^2}{6c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{6c^3}
\end{aligned}$$

Mathematica [A] time = 0.0503631, size = 85, normalized size = 1.33

$$\frac{ax^3}{3}-\frac{bx^2\sqrt{\frac{c^2x^2-1}{c^2x^2}}}{6c}-\frac{b\log\left(x\left(\sqrt{\frac{c^2x^2-1}{c^2x^2}}+1\right)\right)}{6c^3}+\frac{1}{3}bx^3\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^3)/3 - (b*x^2*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])/(6*c) + (b*x^3*ArcSec[c*
x])/3 - (b*Log[x*(1 + Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])])/(6*c^3)
```

Maple [B] time = 0.162, size = 123, normalized size = 1.9

$$\frac{x^3a}{3}+\frac{x^3b\operatorname{arcsec}(cx)}{3}-\frac{bx^2}{6c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{b}{6c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{b}{6c^4x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/3*x^3*a+1/3*x^3*b*arcsec(c*x)-1/6/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2+1/6
/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)-1/6/c^4*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)
/c^2/x^2)^(1/2)/x*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 1.02803, size = 132, normalized size = 2.06

$$\frac{1}{3}\,ax^3+\frac{1}{12}\left(4\,x^3\,\mathrm{arcsec}\,(cx)-\frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2}+\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2}-\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/3*a*x^3 + 1/12*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c^
2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^2
*x^2) + 1) - 1)/c^2)/c)*b
```

Fricas [A] time = 2.67018, size = 219, normalized size = 3.42

$$\frac{2\,ac^3x^3+4\,bc^3\arctan\left(-cx+\sqrt{c^2x^2-1}\right)-\sqrt{c^2x^2-1}bcx+2\left(bc^3x^3-bc^3\right)\mathrm{arcsec}\,(cx)+b\log\left(-cx+\sqrt{c^2x^2-1}\right)}{6\,c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/6*(2*a*c^3*x^3 + 4*b*c^3*arctan(-c*x + sqrt(c^2*x^2 - 1)) - sqrt(c^2*x^2
- 1)*b*c*x + 2*(b*c^3*x^3 - b*c^3)*arcsec(c*x) + b*log(-c*x + sqrt(c^2*x^2
- 1)))/c^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2\left(a+b\,\mathrm{asec}\,(cx)\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b\,\mathrm{arcsec}\,(cx)+a)x^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2, x)
```

3.6 $\int x\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=39

$$\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}}{2c}$$

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) + (x^2*(a + b*ArcSec[c*x]))/2
```

Rubi [A] time = 0.0119012, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 10, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2, Rules used = {5220, 191}

$$\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}}{2c}$$

Antiderivative was successfully verified.

```
[In] Int[x*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) + (x^2*(a + b*ArcSec[c*x]))/2
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rubi steps

$$\begin{aligned}\int x\left(a+b\sec^{-1}(cx)\right)\,dx&=\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)-\frac{b\int\frac{1}{\sqrt{1-\frac{1}{c^2x^2}}}\,dx}{2c}\\&=-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)\end{aligned}$$

Mathematica [A] time = 0.0213695, size = 50, normalized size = 1.28

$$\frac{ax^2}{2}-\frac{bx\sqrt{\frac{c^2x^2-1}{c^2x^2}}}{2c}+\frac{1}{2}bx^2\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^2)/2 - (b*x*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])/(2*c) + (b*x^2*ArcSec[c*x]
)/2
```

Maple [A] time = 0.161, size = 65, normalized size = 1.7

$$\frac{1}{c^2}\left(\frac{c^2x^2a}{2}+b\left(\frac{c^2x^2\mathrm{arcsec}\,(cx)}{2}-\frac{c^2x^2-1}{2\,cx}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^2*(1/2*c^2*x^2*a+b*(1/2*c^2*x^2*arcsec(c*x)-1/2/((c^2*x^2-1)/c^2/x^2)^(
1/2)/c/x*(c^2*x^2-1)))
```

Maxima [A] time = 0.995462, size = 50, normalized size = 1.28

$$\frac{1}{2}\,ax^2+\frac{1}{2}\left(x^2\,\mathrm{arcsec}\,(cx)-\frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/2*a*x^2 + 1/2*(x^2*arcsec(c*x) - x*sqrt(-1/(c^2*x^2) + 1)/c)*b
```

Fricas [A] time = 2.68638, size = 90, normalized size = 2.31

$$\frac{bc^2x^2\,\mathrm{arcsec}\,(cx)+ac^2x^2-\sqrt{c^2x^2-1}b}{2\,c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/2*(b*c^2*x^2*arcsec(c*x) + a*c^2*x^2 - sqrt(c^2*x^2 - 1)*b)/c^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\,(a+b\,\mathrm{asec}\,(cx))\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b\,\mathrm{arcsec}\,(cx) + a)x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x, x)
```

3.7 $\int \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=32

$$ax-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}+bx\sec^{-1}(cx)$$

```
[Out] a*x + b*x*ArcSec[c*x] - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rubi [A] time = 0.0203169, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 8, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5214, 266, 63, 208}

$$ax-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}+bx\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Int[a + b*ArcSec[c*x],x]
```

```
[Out] a*x + b*x*ArcSec[c*x] - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rule 5214

```
Int[ArcSec[(c_.)*(x_)], x_Symbol] :> Simp[x*ArcSec[c*x], x] - Dist[1/c, Int
[1/(x*Sqrt[1 - 1/(c^2*x^2)]), x], x] /; FreeQ[c, x]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int \left(a+b\sec^{-1}(cx)\right)dx = ax+b\int \sec^{-1}(cx)\,dx$$
$$= ax+bx\sec^{-1}(cx)-\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x}\,dx}{c}$$
$$= ax+bx\sec^{-1}(cx)+\frac{b\,\text{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x}{c^2}}}\,dx,x,\frac{1}{x^2}\right)}{2c}$$
$$= ax+bx\sec^{-1}(cx)-(bc)\,\text{Subst}\left(\int \frac{1}{c^2-c^2x^2}\,dx,x,\sqrt{1-\frac{1}{c^2x^2}}\right)$$
$$= ax+bx\sec^{-1}(cx)-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}$$

Mathematica [A] time = 0.0628324, size = 59, normalized size = 1.84

$$ax-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2-1}}+bx\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[a + b*ArcSec[c*x],x]
```

```
[Out] a*x + b*x*ArcSec[c*x] - (b*Sqrt[1 - 1/(c^2*x^2)]*x*ArcTanh[(c*x)/Sqrt[-1 +
c^2*x^2]])/Sqrt[-1 + c^2*x^2]
```

Maple [A] time = 0.155, size = 38, normalized size = 1.2

$$ax+bx\text{arcsec}\,(cx)-\frac{b}{c}\ln\left(cx+cx\sqrt{1-\frac{1}{c^2x^2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(a+b*arcsec(c*x),x)
```

```
[Out] a*x+b*x*arcsec(c*x)-b/c*ln(c*x+c*x*(1-1/c^2/x^2)^(1/2))
```

Maxima [A] time = 0.961775, size = 72, normalized size = 2.25

$$ax+\frac{\left(2\,cx\,\text{arcsec}\,(cx)-\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)+\log\left(-\sqrt{-\frac{1}{c^2x^2}+1}+1\right)\right)b}{2\,c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="maxima")
```

```
[Out] a*x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(
-1/(c^2*x^2) + 1) + 1))*b/c
```

Fricas [B] time = 2.64069, size = 154, normalized size = 4.81

$$\frac{acx + 2\,bc\arctan\left(-cx + \sqrt{c^2x^2 - 1}\right) + (bcx - bc)\,\text{arcsec}\,(cx) + b\log\left(-cx + \sqrt{c^2x^2 - 1}\right)}{c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="fricas")
```

```
[Out] (a*c*x + 2*b*c*arctan(-c*x + sqrt(c^2*x^2 - 1)) + (b*c*x - b*c)*arcsec(c*x)
 + b*log(-c*x + sqrt(c^2*x^2 - 1)))/c
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\,\text{asec}\,(cx))\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*asec(c*x),x)
```

```
[Out] Integral(a + b*asec(c*x), x)
```

Giac [A] time = 1.13203, size = 62, normalized size = 1.94

$$\left(x\arccos\left(\frac{1}{cx}\right) + \frac{c\log\left(\left|-x|c| + \sqrt{c^2x^2 - 1}\right|\right)}{|c|^2\text{sgn}\,(x)}\right)b + ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="giac")
```

```
[Out] (x*arccos(1/(c*x)) + c*log(abs(-x*abs(c) + sqrt(c^2*x^2 - 1)))/(abs(c)^2*sg
n(x)))*b + a*x
```

3.8 $\int \frac{a+b\sec^{-1}(cx)}{x}\,dx$

Optimal. Leaf size=64

$$\frac{1}{2}ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b}-\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)$$

```
[Out] ((I/2)*(a + b*ArcSec[c*x])^2)/b - (a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcS
ec[c*x])] + (I/2)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])]
```

Rubi [A] time = 0.0843917, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5218, 4626, 3719, 2190, 2279, 2391}

$$\frac{1}{2}ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b}-\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x,x]
```

```
[Out] ((I/2)*(a + b*ArcSec[c*x])^2)/b - (a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcS
ec[c*x])] + (I/2)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])]
```

Rule 5218

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))/(x_), x_Symbol] :> -Subst[Int[(a + b
*ArcCos[x/c])/x, x], x, 1/x] /; FreeQ[{a, b, c}, x]
```

Rule 4626

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> -Subst[Int[
(a + b*x)^n/Cot[x], x], x, ArcCos[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0
]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x}\,dx = -\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x}\,dx, x, \frac{1}{x}\right)$$
$$= \operatorname{Subst}\left(\int (a+bx)\tan(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b} - 2i\operatorname{Subst}\left(\int \frac{e^{2ix}(a+bx)}{1+e^{2ix}}\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b} - \left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right) + b\operatorname{Subst}\left(\int \log\left(1+e^{2ix}\right)\,dx, x,$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b} - \left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right) - \frac{1}{2}(ib)\operatorname{Subst}\left(\int \frac{\log(1+x)}{x}\,dx,$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2b} - \left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right) + \frac{1}{2}ib\operatorname{Li}_2\left(-e^{2i\sec^{-1}(cx)}\right)$$

Mathematica [A] time = 0.0164604, size = 59, normalized size = 0.92

$$\frac{1}{2}ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+a\log(x)+\frac{1}{2}ib\sec^{-1}(cx)^2-b\sec^{-1}(cx)\log\left(1+e^{2i\sec^{-1}(cx)}\right)$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/x,x]
```

```
[Out] (I/2)*b*ArcSec[c*x]^2 - b*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] + a*Lo
g[x] + (I/2)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])]
```

Maple [A] time = 0.281, size = 86, normalized size = 1.3

$$a\ln(cx)+\frac{i}{2}b\left(\operatorname{arcsec}(cx)\right)^2-b\operatorname{arcsec}(cx)\ln\left(1+\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)^2\right)+\frac{i}{2}b\operatorname{polylog}\left(2,-\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)^2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x,x)
```

```
[Out] a*ln(c*x)+1/2*I*b*arcsec(c*x)^2-b*arcsec(c*x)*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(
1/2))^2)+1/2*I*b*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\left(c^2\int \frac{\sqrt{cx+1}\sqrt{cx-1}\log(x)}{c^4x^3-c^2x}\,dx-\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)\log(x)\right)b+a\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x,x, algorithm="maxima")
```

```
[Out] -(c^2*integrate(sqrt(c*x + 1)*sqrt(c*x - 1)*log(x)/(c^4*x^3 - c^2*x), x) -
arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x))*b + a*log(x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\text{arcsec}\,(cx)+a}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\,\text{asec}\,(cx)}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x,x)
```

```
[Out] Integral((a + b*asec(c*x))/x, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\text{arcsec}\,(cx)+a}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x, x)
```

3.9 $\int \frac{a+b\sec^{-1}(cx)}{x^2}\,dx$

Optimal. Leaf size=31

$$bc\sqrt{1-\frac{1}{c^2x^2}}-\frac{a+b\sec^{-1}(cx)}{x}$$

```
[Out] b*c*Sqrt[1 - 1/(c^2*x^2)] - (a + b*ArcSec[c*x])/x
```

Rubi [A] time = 0.0202613, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167, Rules used = {5220, 261}

$$bc\sqrt{1-\frac{1}{c^2x^2}}-\frac{a+b\sec^{-1}(cx)}{x}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^2,x]
```

```
[Out] b*c*Sqrt[1 - 1/(c^2*x^2)] - (a + b*ArcSec[c*x])/x
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 261

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a + b*x^n)
^(p + 1)/(b*n*(p + 1)), x] /; FreeQ[{a, b, m, n, p}, x] && EqQ[m, n - 1] &&
 NeQ[p, -1]
```

Rubi steps

$$\begin{aligned}\int \frac{a+b\sec^{-1}(cx)}{x^2}\,dx &= -\frac{a+b\sec^{-1}(cx)}{x}+\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^3}\,dx}{c}\\ &= bc\sqrt{1-\frac{1}{c^2x^2}}-\frac{a+b\sec^{-1}(cx)}{x}\end{aligned}$$

Mathematica [A] time = 0.0276364, size = 40, normalized size = 1.29

$$-\frac{a}{x}+bc\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{b\sec^{-1}(cx)}{x}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^2,x]
```

```
[Out] -(a/x) + b*c*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)] - (b*ArcSec[c*x])/x
```

Maple [A] time = 0.164, size = 62, normalized size = 2.

$$c\left(-\frac{a}{cx}+b\left(-\frac{\operatorname{arcsec}(cx)}{cx}+\frac{c^2x^2-1}{c^2x^2}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2,x)
```

```
[Out] c*(-1/c/x*a+b*(-1/c/x*arcsec(c*x)+1/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^2/x^2*(c^
2*x^2-1)))
```

Maxima [A] time = 0.981653, size = 45, normalized size = 1.45

$$\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\operatorname{arcsec}(cx)}{x}\right)b-\frac{a}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2,x, algorithm="maxima")
```

```
[Out] (c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b - a/x
```

Fricas [A] time = 2.44086, size = 62, normalized size = 2.

$$-\frac{b\operatorname{arcsec}(cx)-\sqrt{c^2x^2-1}b+a}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2,x, algorithm="fricas")
```

```
[Out] -(b*arcsec(c*x) - sqrt(c^2*x^2 - 1)*b + a)/x
```

Sympy [A] time = 2.78728, size = 36, normalized size = 1.16

$$\begin{cases}-\frac{a}{x}+bc\sqrt{1-\frac{1}{c^2x^2}}-\frac{b\operatorname{asec}(cx)}{x} & \text{for } c\neq 0\\ -\frac{a+\tilde{\infty}b}{x} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2,x)
```

```
[Out] Piecewise((-a/x + b*c*sqrt(1 - 1/(c**2*x**2)) - b*asec(c*x)/x, Ne(c, 0)), (
-(a + zoo*b)/x, True))
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^2, x)
```

3.10 $\int \frac{a+b\sec^{-1}(cx)}{x^3}\,dx$

Optimal. Leaf size=51

$$-\frac{a+b\sec^{-1}(cx)}{2x^2}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{4x}-\frac{1}{4}bc^2\csc^{-1}(cx)$$

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*c^2*ArcCsc[c*x])/4 - (a + b*ArcSec[c
*x])/(2*x^2)
```

Rubi [A] time = 0.0332673, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5220, 335, 321, 216}

$$-\frac{a+b\sec^{-1}(cx)}{2x^2}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{4x}-\frac{1}{4}bc^2\csc^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^3,x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*c^2*ArcCsc[c*x])/4 - (a + b*ArcSec[c
*x])/(2*x^2)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 335

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Subst[Int[(a +
b/x^n)^p/x^(m + 2), x], x, 1/x] /; FreeQ[{a, b, p}, x] && ILtQ[n, 0] && Int
egerQ[m]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^3}\,dx = -\frac{a+b\sec^{-1}(cx)}{2x^2} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^4}\,dx}{2c}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2x^2} - \frac{b\,\text{Subst}\left(\int \frac{x^2}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2c}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{a+b\sec^{-1}(cx)}{2x^2} - \frac{1}{4}(bc)\,\text{Subst}\left(\int \frac{1}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2\csc^{-1}(cx) - \frac{a+b\sec^{-1}(cx)}{2x^2}$$

Mathematica [A] time = 0.0325762, size = 66, normalized size = 1.29

$$-\frac{a}{2x^2} + \frac{bc\sqrt{\frac{c^2x^2-1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2\sin^{-1}\left(\frac{1}{cx}\right) - \frac{b\sec^{-1}(cx)}{2x^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^3,x]
```

```
[Out] -a/(2*x^2) + (b*c*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])/(4*x) - (b*ArcSec[c*x])/(
2*x^2) - (b*c^2*ArcSin[1/(c*x)])/4
```

Maple [B] time = 0.163, size = 118, normalized size = 2.3

$$-\frac{a}{2x^2} - \frac{b\text{arcsec}(cx)}{2x^2} - \frac{cb}{4x}\sqrt{c^2x^2-1}\arctan\left(\frac{1}{\sqrt{c^2x^2-1}}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + \frac{cb}{4x}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{b}{4cx^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^3,x)
```

```
[Out] -1/2*a/x^2-1/2*b/x^2*arcsec(c*x)-1/4*c*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2
/x^2)^(1/2)/x*arctan(1/(c^2*x^2-1)^(1/2))+1/4*c*b/((c^2*x^2-1)/c^2/x^2)^(1/
2)/x-1/4/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^3
```

Maxima [A] time = 1.44524, size = 112, normalized size = 2.2

$$-\frac{1}{4}b\left(\frac{\frac{c^4x\sqrt{-\frac{1}{c^2x^2}+1}}{c^2x^2\left(\frac{1}{c^2x^2}-1\right)-1} - c^3\arctan\left(cx\sqrt{-\frac{1}{c^2x^2}+1}\right)}{c} + \frac{2\,\text{arcsec}(cx)}{x^2}\right) - \frac{a}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3,x, algorithm="maxima")
```

```
[Out] -1/4*b*((c^4*x*sqrt(-1/(c^2*x^2) + 1)/(c^2*x^2*(1/(c^2*x^2) - 1) - 1) - c^3
*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)))/c + 2*arcsec(c*x)/x^2) - 1/2*a/x^2
```

Fricas [A] time = 2.8523, size = 93, normalized size = 1.82

$$\frac{\left(bc^2x^2 - 2\,b\right)\operatorname{arcsec}\left(cx\right) + \sqrt{c^2x^2 - 1}b - 2\,a}{4\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3,x, algorithm="fricas")
```

```
[Out] 1/4*((b*c^2*x^2 - 2*b)*arcsec(c*x) + sqrt(c^2*x^2 - 1)*b - 2*a)/x^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a + b\operatorname{asec}\left(cx\right)}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**3,x)
```

```
[Out] Integral((a + b*asec(c*x))/x**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}\left(cx\right) + a}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^3, x)
```

3.11 $\int \frac{a+b\sec^{-1}(cx)}{x^4}\,dx$

Optimal. Leaf size=60

$$-\frac{a+b\sec^{-1}(cx)}{3x^3}-\frac{1}{9}bc^3\left(1-\frac{1}{c^2x^2}\right)^{3/2}+\frac{1}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}}$$

```
[Out] (b*c^3*Sqrt[1 - 1/(c^2*x^2)])/3 - (b*c^3*(1 - 1/(c^2*x^2))^(3/2))/9 - (a +
b*ArcSec[c*x])/(3*x^3)
```

Rubi [A] time = 0.0390767, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25, Rules used = {5220, 266, 43}

$$-\frac{a+b\sec^{-1}(cx)}{3x^3}-\frac{1}{9}bc^3\left(1-\frac{1}{c^2x^2}\right)^{3/2}+\frac{1}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^4,x]
```

```
[Out] (b*c^3*Sqrt[1 - 1/(c^2*x^2)])/3 - (b*c^3*(1 - 1/(c^2*x^2))^(3/2))/9 - (a +
b*ArcSec[c*x])/(3*x^3)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^4}\,dx = -\frac{a+b\sec^{-1}(cx)}{3x^3} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^5}\,dx}{3c}$$
$$= -\frac{a+b\sec^{-1}(cx)}{3x^3} - \frac{b\,\text{Subst}\left(\int \frac{x}{\sqrt{1-\frac{x}{c^2}}}\,dx, x, \frac{1}{x^2}\right)}{6c}$$
$$= -\frac{a+b\sec^{-1}(cx)}{3x^3} - \frac{b\,\text{Subst}\left(\int \left(\frac{c^2}{\sqrt{1-\frac{x}{c^2}}} - c^2\sqrt{1-\frac{x}{c^2}}\right)dx, x, \frac{1}{x^2}\right)}{6c}$$
$$= \frac{1}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}} - \frac{1}{9}bc^3\left(1-\frac{1}{c^2x^2}\right)^{3/2} - \frac{a+b\sec^{-1}(cx)}{3x^3}$$

Mathematica [A] time = 0.0453873, size = 59, normalized size = 0.98

$$-\frac{a}{3x^3} + b\left(\frac{2c^3}{9} + \frac{c}{9x^2}\right)\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{b\sec^{-1}(cx)}{3x^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^4,x]
```

```
[Out] -a/(3*x^3) + b*((2*c^3)/9 + c/(9*x^2))*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)] - (b*
ArcSec[c*x])/(3*x^3)
```

Maple [A] time = 0.161, size = 75, normalized size = 1.3

$$c^3\left(-\frac{a}{3c^3x^3} + b\left(-\frac{\operatorname{arcsec}(cx)}{3c^3x^3} + \frac{(c^2x^2-1)(2c^2x^2+1)}{9c^4x^4}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^4,x)
```

```
[Out] c^3*(-1/3*a/c^3/x^3+b*(-1/3/c^3/x^3*arcsec(c*x)+1/9*(c^2*x^2-1)*(2*c^2*x^2+
1)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^4/x^4))
```

Maxima [A] time = 0.969521, size = 78, normalized size = 1.3

$$-\frac{1}{9}b\left(\frac{c^4\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} - 3c^4\sqrt{-\frac{1}{c^2x^2}+1}}{c} + \frac{3\operatorname{arcsec}(cx)}{x^3}\right) - \frac{a}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4,x, algorithm="maxima")
```

```
[Out] -1/9*b*((c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c + 3
*arcsec(c*x)/x^3) - 1/3*a/x^3
```

Fricas [A] time = 2.65475, size = 97, normalized size = 1.62

$$-\frac{3\,b\,\mathrm{arcsec}\,(cx) - \left(2\,bc^2x^2 + b\right)\sqrt{c^2x^2 - 1} + 3\,a}{9\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4,x, algorithm="fricas")
```

```
[Out] -1/9*(3*b*arcsec(c*x) - (2*b*c^2*x^2 + b)*sqrt(c^2*x^2 - 1) + 3*a)/x^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{asec}\,(cx)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**4,x)
```

```
[Out] Integral((a + b*asec(c*x))/x**4, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx) + a}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^4, x)
```

3.12 $\int \frac{a+b\sec^{-1}(cx)}{x^5}\,dx$

Optimal. Leaf size=76

$$-\frac{a+b\sec^{-1}(cx)}{4x^4}+\frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}}{32x}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16x^3}-\frac{3}{32}bc^4\csc^{-1}(cx)$$

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*x^3) + (3*b*c^3*Sqrt[1 - 1/(c^2*x^2)])/(32*
x) - (3*b*c^4*ArcCsc[c*x])/32 - (a + b*ArcSec[c*x])/(4*x^4)
```

Rubi [A] time = 0.0453043, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5220, 335, 321, 216}

$$-\frac{a+b\sec^{-1}(cx)}{4x^4}+\frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}}{32x}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16x^3}-\frac{3}{32}bc^4\csc^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^5,x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*x^3) + (3*b*c^3*Sqrt[1 - 1/(c^2*x^2)])/(32*
x) - (3*b*c^4*ArcCsc[c*x])/32 - (a + b*ArcSec[c*x])/(4*x^4)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 335

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Subst[Int[(a +
b/x^n)^p/x^(m + 2), x], x, 1/x] /; FreeQ[{a, b, p}, x] && ILtQ[n, 0] && Int
egerQ[m]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^5}\,dx = -\frac{a+b\sec^{-1}(cx)}{4x^4} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^6}\,dx}{4c}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4x^4} - \frac{b\,\text{Subst}\left(\int \frac{x^4}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{4c}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16x^3} - \frac{a+b\sec^{-1}(cx)}{4x^4} - \frac{1}{16}(3bc)\,\text{Subst}\left(\int \frac{x^2}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16x^3} + \frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}}{32x} - \frac{a+b\sec^{-1}(cx)}{4x^4} - \frac{1}{32}\left(3bc^3\right)\text{Subst}\left(\int \frac{1}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16x^3} + \frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}}{32x} - \frac{3}{32}bc^4\csc^{-1}(cx) - \frac{a+b\sec^{-1}(cx)}{4x^4}$$

Mathematica [A] time = 0.0587985, size = 78, normalized size = 1.03

$$-\frac{a}{4x^4} + b\left(\frac{3c^3}{32x} + \frac{c}{16x^3}\right)\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{3}{32}bc^4\sin^{-1}\left(\frac{1}{cx}\right) - \frac{b\sec^{-1}(cx)}{4x^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^5,x]
```

```
[Out] -a/(4*x^4) + b*(c/(16*x^3) + (3*c^3)/(32*x))*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)]
 - (b*ArcSec[c*x])/(4*x^4) - (3*b*c^4*ArcSin[1/(c*x)])/32
```

Maple [B] time = 0.16, size = 147, normalized size = 1.9

$$-\frac{a}{4\,x^4} - \frac{b\mathrm{arcsec}\,(cx)}{4\,x^4} - \frac{3\,bc^3}{32\,x}\sqrt{c^2x^2-1}\arctan\left(\frac{1}{\sqrt{c^2x^2-1}}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + \frac{3\,bc^3}{32\,x}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{cb}{32\,x^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{b}{16\,cx^5}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^5,x)
```

```
[Out] -1/4*a/x^4-1/4*b/x^4*arcsec(c*x)-3/32*c^3*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/
c^2/x^2)^(1/2)/x*arctan(1/(c^2*x^2-1)^(1/2))+3/32*c^3*b/((c^2*x^2-1)/c^2/x^
2)^(1/2)/x-1/32*c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^3-1/16/c*b/((c^2*x^2-1)/c
^2/x^2)^(1/2)/x^5
```

Maxima [A] time = 1.49674, size = 169, normalized size = 2.22

$$\frac{1}{32}b\left(\frac{3\,c^5\arctan\left(cx\sqrt{-\frac{1}{c^2x^2}+1}\right) + \frac{3\,c^8x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 5\,c^6x\sqrt{-\frac{1}{c^2x^2}+1}}{c^4x^4\left(\frac{1}{c^2x^2}-1\right)^2 - 2\,c^2x^2\left(\frac{1}{c^2x^2}-1\right)+1}}{c} - \frac{8\,\mathrm{arcsec}\,(cx)}{x^4}\right) - \frac{a}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5,x, algorithm="maxima")
```

```
[Out] 1/32*b*((3*c^5*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)) + (3*c^8*x^3*(-1/(c^2*x^2
) + 1)^(3/2) + 5*c^6*x*sqrt(-1/(c^2*x^2) + 1))/(c^4*x^4*(1/(c^2*x^2) - 1)^2
 - 2*c^2*x^2*(1/(c^2*x^2) - 1) + 1))/c - 8*arcsec(c*x)/x^4) - 1/4*a/x^4
```

Fricas [A] time = 2.68544, size = 122, normalized size = 1.61

$$\frac{\left(3\,bc^4x^4-8\,b\right)\operatorname{arcsec}\left(cx\right)+\left(3\,bc^2x^2+2\,b\right)\sqrt{c^2x^2-1}-8\,a}{32\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5,x, algorithm="fricas")
```

```
[Out] 1/32*((3*b*c^4*x^4 - 8*b)*arcsec(c*x) + (3*b*c^2*x^2 + 2*b)*sqrt(c^2*x^2 -
1) - 8*a)/x^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\operatorname{asec}\left(cx\right)}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**5,x)
```

```
[Out] Integral((a + b*asec(c*x))/x**5, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}\left(cx\right)+a}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^5, x)
```

3.13 $\int \frac{a+b\sec^{-1}(cx)}{x^6}\,dx$

Optimal. Leaf size=82

$$-\frac{a+b\sec^{-1}(cx)}{5x^5}+\frac{1}{25}bc^5\left(1-\frac{1}{c^2x^2}\right)^{5/2}-\frac{2}{15}bc^5\left(1-\frac{1}{c^2x^2}\right)^{3/2}+\frac{1}{5}bc^5\sqrt{1-\frac{1}{c^2x^2}}$$

```
[Out] (b*c^5*Sqrt[1 - 1/(c^2*x^2)])/5 - (2*b*c^5*(1 - 1/(c^2*x^2))^(3/2))/15 + (b
*c^5*(1 - 1/(c^2*x^2))^(5/2))/25 - (a + b*ArcSec[c*x])/(5*x^5)
```

Rubi [A] time = 0.0493282, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25, Rules used = {5220, 266, 43}

$$-\frac{a+b\sec^{-1}(cx)}{5x^5}+\frac{1}{25}bc^5\left(1-\frac{1}{c^2x^2}\right)^{5/2}-\frac{2}{15}bc^5\left(1-\frac{1}{c^2x^2}\right)^{3/2}+\frac{1}{5}bc^5\sqrt{1-\frac{1}{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^6,x]
```

```
[Out] (b*c^5*Sqrt[1 - 1/(c^2*x^2)])/5 - (2*b*c^5*(1 - 1/(c^2*x^2))^(3/2))/15 + (b
*c^5*(1 - 1/(c^2*x^2))^(5/2))/25 - (a + b*ArcSec[c*x])/(5*x^5)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^6}\,dx = -\frac{a+b\sec^{-1}(cx)}{5x^5} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^7}\,dx}{5c}$$
$$= -\frac{a+b\sec^{-1}(cx)}{5x^5} - \frac{b\,\text{Subst}\left(\int \frac{x^2}{\sqrt{1-\frac{x}{c^2}}}\,dx, x, \frac{1}{x^2}\right)}{10c}$$
$$= -\frac{a+b\sec^{-1}(cx)}{5x^5} - \frac{b\,\text{Subst}\left(\int \left(\frac{c^4}{\sqrt{1-\frac{x}{c^2}}} - 2c^4\sqrt{1-\frac{x}{c^2}} + c^4\left(1-\frac{x}{c^2}\right)^{3/2}\right)dx, x, \frac{1}{x^2}\right)}{10c}$$
$$= \frac{1}{5}bc^5\sqrt{1-\frac{1}{c^2x^2}} - \frac{2}{15}bc^5\left(1-\frac{1}{c^2x^2}\right)^{3/2} + \frac{1}{25}bc^5\left(1-\frac{1}{c^2x^2}\right)^{5/2} - \frac{a+b\sec^{-1}(cx)}{5x^5}$$

Mathematica [A] time = 0.0656741, size = 69, normalized size = 0.84

$$-\frac{a}{5x^5} + b\left(\frac{4c^3}{75x^2} + \frac{8c^5}{75} + \frac{c}{25x^4}\right)\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{b\sec^{-1}(cx)}{5x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^6,x]
```

```
[Out] -a/(5*x^5) + b*((8*c^5)/75 + c/(25*x^4) + (4*c^3)/(75*x^2))*Sqrt[(-1 + c^2*
x^2)/(c^2*x^2)] - (b*ArcSec[c*x])/(5*x^5)
```

Maple [A] time = 0.165, size = 83, normalized size = 1.

$$c^5\left(-\frac{a}{5\,c^5x^5} + b\left(-\frac{\operatorname{arcsec}(cx)}{5\,c^5x^5} + \frac{\left(c^2x^2-1\right)\left(8\,c^4x^4+4\,c^2x^2+3\right)}{75\,c^6x^6}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^6,x)
```

```
[Out] c^5*(-1/5*a/c^5/x^5+b*(-1/5/c^5/x^5*arcsec(c*x)+1/75*(c^2*x^2-1)*(8*c^4*x^4
+4*c^2*x^2+3)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^6/x^6))
```

Maxima [A] time = 0.976573, size = 103, normalized size = 1.26

$$\frac{1}{75}b\left(\frac{3\,c^6\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}} - 10\,c^6\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 15\,c^6\sqrt{-\frac{1}{c^2x^2}+1}}{c} - \frac{15\,\operatorname{arcsec}(cx)}{x^5}\right) - \frac{a}{5\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6,x, algorithm="maxima")
```

```
[Out] 1/75*b*((3*c^6*(-1/(c^2*x^2) + 1)^(5/2) - 10*c^6*(-1/(c^2*x^2) + 1)^(3/2) +
 15*c^6*sqrt(-1/(c^2*x^2) + 1))/c - 15*arcsec(c*x)/x^5) - 1/5*a/x^5
```

Fricas [A] time = 2.72224, size = 123, normalized size = 1.5

$$-\frac{15\,b\operatorname{arcsec}\left(cx\right)-\left(8\,bc^{4}x^{4}+4\,bc^{2}x^{2}+3\,b\right)\sqrt{c^{2}x^{2}-1}+15\,a}{75\,x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6,x, algorithm="fricas")
```

```
[Out] -1/75*(15*b*arcsec(c*x) - (8*b*c^4*x^4 + 4*b*c^2*x^2 + 3*b)*sqrt(c^2*x^2 -
1) + 15*a)/x^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\operatorname{asec}\left(cx\right)}{x^{6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**6,x)
```

```
[Out] Integral((a + b*asec(c*x))/x**6, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\operatorname{arcsec}\left(cx\right)+a}{x^{6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^6, x)
```

3.14 $\int \frac{a+b\sec^{-1}(cx)}{x^7}\,dx$

Optimal. Leaf size=101

$$-\frac{a+b\sec^{-1}(cx)}{6x^6}+\frac{5bc^5\sqrt{1-\frac{1}{c^2x^2}}}{96x}+\frac{5bc^3\sqrt{1-\frac{1}{c^2x^2}}}{144x^3}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5}-\frac{5}{96}bc^6\csc^{-1}(cx)$$

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(36*x^5) + (5*b*c^3*Sqrt[1 - 1/(c^2*x^2)])/(144
*x^3) + (5*b*c^5*Sqrt[1 - 1/(c^2*x^2)])/(96*x) - (5*b*c^6*ArcCsc[c*x])/96 -
 (a + b*ArcSec[c*x])/(6*x^6)
```

Rubi [A] time = 0.0588217, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5220, 335, 321, 216}

$$-\frac{a+b\sec^{-1}(cx)}{6x^6}+\frac{5bc^5\sqrt{1-\frac{1}{c^2x^2}}}{96x}+\frac{5bc^3\sqrt{1-\frac{1}{c^2x^2}}}{144x^3}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5}-\frac{5}{96}bc^6\csc^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/x^7,x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(36*x^5) + (5*b*c^3*Sqrt[1 - 1/(c^2*x^2)])/(144
*x^3) + (5*b*c^5*Sqrt[1 - 1/(c^2*x^2)])/(96*x) - (5*b*c^6*ArcCsc[c*x])/96 -
 (a + b*ArcSec[c*x])/(6*x^6)
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 335

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Subst[Int[(a +
b/x^n)^p/x^(m + 2), x], x, 1/x] /; FreeQ[{a, b, p}, x] && ILtQ[n, 0] && Int
egerQ[m]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^7}\,dx = -\frac{a+b\sec^{-1}(cx)}{6x^6} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^8}\,dx}{6c}$$

$$= -\frac{a+b\sec^{-1}(cx)}{6x^6} - \frac{b\,\text{Subst}\left(\int \frac{x^6}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{6c}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5} - \frac{a+b\sec^{-1}(cx)}{6x^6} - \frac{1}{36}(5bc)\,\text{Subst}\left(\int \frac{x^4}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5} + \frac{5bc^3\sqrt{1-\frac{1}{c^2x^2}}}{144x^3} - \frac{a+b\sec^{-1}(cx)}{6x^6} - \frac{1}{48}\left(5bc^3\right)\text{Subst}\left(\int \frac{x^2}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5} + \frac{5bc^3\sqrt{1-\frac{1}{c^2x^2}}}{144x^3} + \frac{5bc^5\sqrt{1-\frac{1}{c^2x^2}}}{96x} - \frac{a+b\sec^{-1}(cx)}{6x^6} - \frac{1}{96}\left(5bc^5\right)\text{Subst}\left(\int \frac{1}{\sqrt{1 \ldots}}\right.$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{36x^5} + \frac{5bc^3\sqrt{1-\frac{1}{c^2x^2}}}{144x^3} + \frac{5bc^5\sqrt{1-\frac{1}{c^2x^2}}}{96x} - \frac{5}{96}bc^6\csc^{-1}(cx) - \frac{a+b\sec^{-1}(cx)}{6x^6}$$

Mathematica [A] time = 0.0707693, size = 88, normalized size = 0.87

$$-\frac{a}{6x^6} + b\left(\frac{5c^3}{144x^3} + \frac{5c^5}{96x} + \frac{c}{36x^5}\right)\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{5}{96}bc^6\sin^{-1}\left(\frac{1}{cx}\right) - \frac{b\sec^{-1}(cx)}{6x^6}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/x^7,x]
```

```
[Out] -a/(6*x^6) + b*(c/(36*x^5) + (5*c^3)/(144*x^3) + (5*c^5)/(96*x))*Sqrt[(-1 +
 c^2*x^2)/(c^2*x^2)] - (b*ArcSec[c*x])/(6*x^6) - (5*b*c^6*ArcSin[1/(c*x)])/
96
```

Maple [A] time = 0.16, size = 174, normalized size = 1.7

$$-\frac{a}{6x^6} - \frac{b\,\text{arcsec}(cx)}{6x^6} - \frac{5c^5b}{96x}\sqrt{c^2x^2-1}\arctan\left(\frac{1}{\sqrt{c^2x^2-1}}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + \frac{5c^5b}{96x}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{5bc^3}{288x^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{cb}{144x^5}\frac{1}{\sqrt{\frac{c^2 \ldots}{c \ldots}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^7,x)
```

```
[Out] -1/6*a/x^6-1/6*b/x^6*arcsec(c*x)-5/96*c^5*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/
c^2/x^2)^(1/2)/x*arctan(1/(c^2*x^2-1)^(1/2))+5/96*c^5*b/((c^2*x^2-1)/c^2/x^
2)^(1/2)/x-5/288*c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^3-1/144*c*b/((c^2*x^2-
1)/c^2/x^2)^(1/2)/x^5-1/36/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^7
```

Maxima [A] time = 1.4639, size = 223, normalized size = 2.21

$$\frac{1}{288}\,b\left(\frac{15\,c^{7}\arctan\left(cx\sqrt{-\frac{1}{c^{2}x^{2}}+1}\right)-\frac{15\,c^{12}x^{5}\left(-\frac{1}{c^{2}x^{2}}+1\right)^{\frac{5}{2}}+40\,c^{10}x^{3}\left(-\frac{1}{c^{2}x^{2}}+1\right)^{\frac{3}{2}}+33\,c^{8}x\sqrt{-\frac{1}{c^{2}x^{2}}+1}}{c^{6}x^{6}\left(\frac{1}{c^{2}x^{2}}-1\right)^{3}-3\,c^{4}x^{4}\left(\frac{1}{c^{2}x^{2}}-1\right)^{2}+3\,c^{2}x^{2}\left(\frac{1}{c^{2}x^{2}}-1\right)-1}}{c}-\frac{48\,\mathrm{arcsec}\left(cx\right)}{x^{6}}\right)-\frac{a}{6\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^7,x, algorithm="maxima")
```

```
[Out] 1/288*b*((15*c^7*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)) - (15*c^12*x^5*(-1/(c^2
*x^2) + 1)^(5/2) + 40*c^10*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 33*c^8*x*sqrt(-1/
(c^2*x^2) + 1))/(c^6*x^6*(1/(c^2*x^2) - 1)^3 - 3*c^4*x^4*(1/(c^2*x^2) - 1)^
2 + 3*c^2*x^2*(1/(c^2*x^2) - 1) - 1))/c - 48*arcsec(c*x)/x^6) - 1/6*a/x^6
```

Fricas [A] time = 2.48944, size = 150, normalized size = 1.49

$$\frac{3\left(5\,bc^{6}x^{6}-16\,b\right)\mathrm{arcsec}\left(cx\right)+\left(15\,bc^{4}x^{4}+10\,bc^{2}x^{2}+8\,b\right)\sqrt{c^{2}x^{2}-1}-48\,a}{288\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^7,x, algorithm="fricas")
```

```
[Out] 1/288*(3*(5*b*c^6*x^6 - 16*b)*arcsec(c*x) + (15*b*c^4*x^4 + 10*b*c^2*x^2 +
8*b)*sqrt(c^2*x^2 - 1) - 48*a)/x^6
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{asec}\left(cx\right)}{x^{7}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**7,x)
```

```
[Out] Integral((a + b*asec(c*x))/x**7, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\left(cx\right)+a}{x^{7}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^7,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/x^7, x)
```

3.15 $\int x^3 \left(a+b\sec^{-1}(cx)\right)^2 \, dx$

Optimal. Leaf size=107

$$-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{6c}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{3c^3}+\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2x^2}{12c^2}+\frac{b^2\log(x)}{3c^4}$$

```
[Out] (b^2*x^2)/(12*c^2) - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(a + b*ArcSec[c*x]))/(3*c^3
) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3*(a + b*ArcSec[c*x]))/(6*c) + (x^4*(a + b*A
rcSec[c*x])^2)/4 + (b^2*Log[x])/(3*c^4)
```

Rubi [A] time = 0.106724, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.357, Rules used = {5222, 4409, 4185, 4184, 3475}

$$-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{6c}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{3c^3}+\frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2x^2}{12c^2}+\frac{b^2\log(x)}{3c^4}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (b^2*x^2)/(12*c^2) - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(a + b*ArcSec[c*x]))/(3*c^3
) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3*(a + b*ArcSec[c*x]))/(6*c) + (x^4*(a + b*A
rcSec[c*x])^2)/4 + (b^2*Log[x])/(3*c^4)
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4185

```
Int[(csc[(e_.) + (f_.)*(x_)]*(b_.))^(n_)*((c_.) + (d_.)*(x_)), x_Symbol] :>
 -Simp[(b^2*(c + d*x)*Cot[e + f*x]*(b*Csc[e + f*x])^(n - 2))/(f*(n - 1)), x
] + (Dist[(b^2*(n - 2))/(n - 1), Int[(c + d*x)*(b*Csc[e + f*x])^(n - 2), x]
, x] - Simp[(b^2*d*(b*Csc[e + f*x])^(n - 2))/(f^2*(n - 1)*(n - 2)), x]) /;
FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1] && NeQ[n, 2]
```

Rule 4184

```
Int[csc[(e_.) + (f_.)*(x_)]^2*((c_.) + (d_.)*(x_))^(m_.), x_Symbol] :> -Sim
p[((c + d*x)^m*Cot[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Co
t[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 3475

```
Int[tan[(c_.) + (d_.)*(x_)], x_Symbol] :> -Simp[Log[RemoveContent[Cos[c + d
*x], x]]/d, x] /; FreeQ[{c, d}, x]
```

Rubi steps

$$\int x^3 \left(a+b\sec^{-1}(cx)\right)^2\,dx = \frac{\text{Subst}\left(\int (a+bx)^2\sec^4(x)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{c^4}$$

$$= \frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^2 - \frac{b\,\text{Subst}\left(\int (a+bx)\sec^4(x)\,dx, x, \sec^{-1}(cx)\right)}{2c^4}$$

$$= \frac{b^2x^2}{12c^2} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3\left(a+b\sec^{-1}(cx)\right)}{6c} + \frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^2 - \frac{b\,\text{Subst}\left(\int (a+bx)\sec^2(\right.}{3c^4}$$

$$= \frac{b^2x^2}{12c^2} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)}{3c^3} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3\left(a+b\sec^{-1}(cx)\right)}{6c} + \frac{1}{4}x^4\left(a+b\sec^{-1}(\right.$$

$$= \frac{b^2x^2}{12c^2} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)}{3c^3} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3\left(a+b\sec^{-1}(cx)\right)}{6c} + \frac{1}{4}x^4\left(a+b\sec^{-1}(\right.$$

Mathematica [A] time = 0.210462, size = 124, normalized size = 1.16

$$\frac{cx\left(3a^2c^3x^3 - 2ab\sqrt{1-\frac{1}{c^2x^2}}\left(c^2x^2+2\right)+b^2cx\right) - 2bcx\sec^{-1}(cx)\left(b\sqrt{1-\frac{1}{c^2x^2}}\left(c^2x^2+2\right)-3ac^3x^3\right) + 3b^2c^4x^4\sec^{-1}(cx)^2 +}{12c^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^3*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (c*x*(b^2*c*x + 3*a^2*c^3*x^3 - 2*a*b*Sqrt[1 - 1/(c^2*x^2)]*(2 + c^2*x^2))
- 2*b*c*x*(-3*a*c^3*x^3 + b*Sqrt[1 - 1/(c^2*x^2)]*(2 + c^2*x^2))*ArcSec[c*x
] + 3*b^2*c^4*x^4*ArcSec[c*x]^2 + 4*b^2*Log[x])/(12*c^4)
```

Maple [B] time = 0.248, size = 208, normalized size = 1.9

$$\frac{a^2x^4}{4} + \frac{b^2\left(\text{arcsec}\,(cx)\right)^2x^4}{4} - \frac{b^2\text{arcsec}\,(cx)\,x^3}{6\,c}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{b^2x^2}{12\,c^2} - \frac{b^2\text{arcsec}\,(cx)\,x}{3\,c^3}\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{b^2}{3\,c^4}\ln\left(\frac{1}{cx}\right) + \frac{abx^4\text{arc}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))^2,x)
```

```
[Out] 1/4*a^2*x^4+1/4*b^2*arcsec(c*x)^2*x^4-1/6/c*b^2*arcsec(c*x)*x^3*((c^2*x^2-1
)/c^2/x^2)^(1/2)+1/12*b^2*x^2/c^2-1/3/c^3*b^2*arcsec(c*x)*x*((c^2*x^2-1)/c^
2/x^2)^(1/2)-1/3/c^4*b^2*ln(1/c/x)+1/2*a*b*x^4*arcsec(c*x)-1/6/c*a*b/((c^2*
x^2-1)/c^2/x^2)^(1/2)*x^3-1/6/c^3*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x+1/3/c^5
*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x
```

Maxima [A] time = 2.09367, size = 220, normalized size = 2.06

$$\frac{1}{4}\,b^2x^4\,\text{arcsec}\,(cx)^2 + \frac{1}{4}\,a^2x^4 + \frac{1}{6}\left(3\,x^4\,\text{arcsec}\,(cx) - \frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 3\,x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)ab + \frac{\left(\left(c^2x^2+2\,\log\left(x^2\right)\right)\sqrt{cx+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] 1/4*b^2*x^4*arcsec(c*x)^2 + 1/4*a^2*x^4 + 1/6*(3*x^4*arcsec(c*x) - (c^2*x^3
*(-1/(c^2*x^2) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*a*b + 1/12*((c
^2*x^2 + 2*log(x^2))*sqrt(c*x + 1)*sqrt(c*x - 1) - 2*(c^4*x^4 + c^2*x^2 - 2
)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)))*b^2/(sqrt(c*x + 1)*sqrt(c*x - 1)*c^4
)
```

Fricas [A] time = 2.84531, size = 339, normalized size = 3.17

$$\frac{3\,b^2c^4x^4\,\mathrm{arcsec}\,(cx)^2+3\,a^2c^4x^4+12\,abc^4\arctan\left(-cx+\sqrt{c^2x^2-1}\right)+b^2c^2x^2+4\,b^2\log\left(x\right)+6\left(abc^4x^4-abc^4\right)\mathrm{arcse}}{12\,c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^2*c^4*x^4*arcsec(c*x)^2 + 3*a^2*c^4*x^4 + 12*a*b*c^4*arctan(-c*x
+ sqrt(c^2*x^2 - 1)) + b^2*c^2*x^2 + 4*b^2*log(x) + 6*(a*b*c^4*x^4 - a*b*c^
4)*arcsec(c*x) - 2*(a*b*c^2*x^2 + 2*a*b + (b^2*c^2*x^2 + 2*b^2)*arcsec(c*x)
)*sqrt(c^2*x^2 - 1))/c^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3\,(a+b\,\mathrm{asec}\,(cx))^2\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(x**3*(a + b*asec(c*x))**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b\,\mathrm{arcsec}\,(cx)+a)^2x^3\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2*x^3, x)
```

3.16 $\int x^2 \left(a+b\sec^{-1}(cx)\right)^2 dx$

Optimal. Leaf size=147

$$-\frac{ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)}{3c^3}+\frac{ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)}{3c^3}-\frac{bx^2\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{2ib\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)\left(a\right.}{3c^3}$$

```
[Out] (b^2*x)/(3*c^2) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^2*(a + b*ArcSec[c*x]))/(3*c) +
 (x^3*(a + b*ArcSec[c*x])^2)/3 + (((2*I)/3)*b*(a + b*ArcSec[c*x])*ArcTan[E^
(I*ArcSec[c*x])])/c^3 - ((I/3)*b^2*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c^3
+ ((I/3)*b^2*PolyLog[2, I*E^(I*ArcSec[c*x])])/c^3
```

Rubi [A] time = 0.123132, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4409, 4185, 4181, 2279, 2391}

$$-\frac{ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)}{3c^3}+\frac{ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)}{3c^3}-\frac{bx^2\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{2ib\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)\left(a\right.}{3c^3}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (b^2*x)/(3*c^2) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^2*(a + b*ArcSec[c*x]))/(3*c) +
 (x^3*(a + b*ArcSec[c*x])^2)/3 + (((2*I)/3)*b*(a + b*ArcSec[c*x])*ArcTan[E^
(I*ArcSec[c*x])])/c^3 - ((I/3)*b^2*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c^3
+ ((I/3)*b^2*PolyLog[2, I*E^(I*ArcSec[c*x])])/c^3
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4185

```
Int[(csc[(e_.) + (f_.)*(x_)]*(b_.))^(n_)*((c_.) + (d_.)*(x_)), x_Symbol] :>
 -Simp[(b^2*(c + d*x)*Cot[e + f*x]*(b*Csc[e + f*x])^(n - 2))/(f*(n - 1)), x
] + (Dist[(b^2*(n - 2))/(n - 1), Int[(c + d*x)*(b*Csc[e + f*x])^(n - 2), x]
, x] - Simp[(b^2*d*(b*Csc[e + f*x])^(n - 2))/(f^2*(n - 1)*(n - 2)), x]) /;
FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1] && NeQ[n, 2]
```

Rule 4181

```
Int[csc[(e_.) + Pi*(k_.) + (f_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.), x_Symbol
] :> Simp[(-2*(c + d*x)^m*ArcTanh[E^(I*k*Pi)*E^(I*(e + f*x))])/f, x] + (-Di
st[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 - E^(I*k*Pi)*E^(I*(e + f*x))], x],
```

```
x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 + E^(I*k*Pi)*E^(I*(e + f*x))
], x], x]) /; FreeQ[{c, d, e, f}, x] && IntegerQ[2*k] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int x^2\left(a+b\sec^{-1}(cx)\right)^2\,dx=\frac{\text{Subst}\left(\int(a+bx)^2\sec^3(x)\tan(x)\,dx,x,\sec^{-1}(cx)\right)}{c^3}$$

$$=\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^2-\frac{(2b)\,\text{Subst}\left(\int(a+bx)\sec^3(x)\,dx,x,\sec^{-1}(cx)\right)}{3c^3}$$

$$=\frac{b^2x}{3c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^2-\frac{b\,\text{Subst}\left(\int(a+bx)\,\text{se}\right.}{3c}$$

$$=\frac{b^2x}{3c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^2+\frac{2ib\left(a+b\sec^{-1}(cx)\right)\text{t}}{3c^3}$$

$$=\frac{b^2x}{3c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^2+\frac{2ib\left(a+b\sec^{-1}(cx)\right)\text{t}}{3c^3}$$

$$=\frac{b^2x}{3c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)}{3c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^2+\frac{2ib\left(a+b\sec^{-1}(cx)\right)\text{t}}{3c^3}$$

Mathematica [A] time = 1.1968, size = 225, normalized size = 1.53

$$\frac{1}{3}\left(\frac{b^2\left(-i\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)+i\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)+c^3x^3\sec^{-1}(cx)^2-c^2x^2\sqrt{1-\frac{1}{c^2x^2}}\sec^{-1}(cx)+cx-\text{sec}\right.}{c^3}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x^2*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (a^2*x^3 + (a*b*(2*x^4*ArcSec[c*x] - (-(c*x) + c^3*x^3 + Sqrt[-1 + c^2*x^2]
*ArcTanh[(c*x)/Sqrt[-1 + c^2*x^2]])/(c^4*Sqrt[1 - 1/(c^2*x^2)])))/x + (b^2*
(c*x - c^2*Sqrt[1 - 1/(c^2*x^2)]*x^2*ArcSec[c*x] + c^3*x^3*ArcSec[c*x]^2 -
ArcSec[c*x]*Log[1 - I*E^(I*ArcSec[c*x])] + ArcSec[c*x]*Log[1 + I*E^(I*ArcSe
c[c*x])] - I*PolyLog[2, (-I)*E^(I*ArcSec[c*x])] + I*PolyLog[2, I*E^(I*ArcSe
c[c*x])]))/c^3)/3
```

Maple [B] time = 0.392, size = 343, normalized size = 2.3

$$\frac{x^3a^2}{3} + \frac{x^3b^2 (\operatorname{arcsec}(cx))^2}{3} - \frac{b^2\operatorname{arcsec}(cx)\,x^2}{3c}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{b^2x}{3c^2} + \frac{b^2\operatorname{arcsec}(cx)}{3c^3}\ln\left(1+i\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)\right) - \frac{b^2\operatorname{arcse}}{3c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))^2,x)
```

```
[Out] 1/3*x^3*a^2+1/3*x^3*b^2*arcsec(c*x)^2-1/3/c*b^2*((c^2*x^2-1)/c^2/x^2)^(1/2)
*arcsec(c*x)*x^2+1/3*b^2*x/c^2+1/3/c^3*b^2*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1
/c^2/x^2)^(1/2)))-1/3/c^3*b^2*arcsec(c*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/
2)))-1/3*I/c^3*b^2*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+1/3*I/c^3*b^2*d
ilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+2/3*x^3*a*b*arcsec(c*x)-1/3/c*a*b/(
(c^2*x^2-1)/c^2/x^2)^(1/2)*x^2+1/3/c^3*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)-1/3/
c^4*a*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*ln(c*x+(c^2*x^2-1)^
(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] 1/3*a^2*x^3 + 1/6*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c
^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^
2*x^2) + 1) - 1)/c^2)/c)*a*b + 1/12*(4*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x -
1))^2 - x^3*log(c^2*x^2)^2 - 2*c^2*(2*(c^2*x^3 + 3*x)/c^4 - 3*log(c*x + 1)/
c^5 + 3*log(c*x - 1)/c^5)*log(c)^2 + 36*c^2*integrate(1/3*x^4*log(c^2*x^2)/
(c^2*x^2 - 1), x)*log(c) - 72*c^2*integrate(1/3*x^4*log(x)/(c^2*x^2 - 1), x
)*log(c) + 36*c^2*integrate(1/3*x^4*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) -
 36*c^2*integrate(1/3*x^4*log(x)^2/(c^2*x^2 - 1), x) + 12*c^2*integrate(1/3
*x^4*log(c^2*x^2)/(c^2*x^2 - 1), x) + 6*(2*x/c^2 - log(c*x + 1)/c^3 + log(c
*x - 1)/c^3)*log(c)^2 - 36*integrate(1/3*x^2*log(c^2*x^2)/(c^2*x^2 - 1), x)
*log(c) + 72*integrate(1/3*x^2*log(x)/(c^2*x^2 - 1), x)*log(c) - 24*integra
te(1/3*sqrt(c*x + 1)*sqrt(c*x - 1)*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/
(c^2*x^2 - 1), x) - 36*integrate(1/3*x^2*log(c^2*x^2)*log(x)/(c^2*x^2 - 1),
 x) + 36*integrate(1/3*x^2*log(x)^2/(c^2*x^2 - 1), x) - 12*integrate(1/3*x^
2*log(c^2*x^2)/(c^2*x^2 - 1), x))*b^2
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(b^2x^2\operatorname{arcsec}(cx)^2 + 2\,abx^2\operatorname{arcsec}(cx) + a^2x^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(b^2*x^2*arcsec(c*x)^2 + 2*a*b*x^2*arcsec(c*x) + a^2*x^2, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2 (a + b \operatorname{asec}(cx))^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x))**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)^2 x^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2*x^2, x)
```

3.17 $\int x \left(a+b \sec^{-1}(cx)\right)^2 \, dx$

Optimal. Leaf size=56

$$-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2\log(x)}{c^2}$$

```
[Out] -((b*Sqrt[1 - 1/(c^2*x^2)]*x*(a + b*ArcSec[c*x]))/c) + (x^2*(a + b*ArcSec[c
*x])^2)/2 + (b^2*Log[x])/c^2
```

Rubi [A] time = 0.0682639, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5222, 4409, 4184, 3475}

$$-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2\log(x)}{c^2}$$

Antiderivative was successfully verified.

```
[In] Int[x*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] -((b*Sqrt[1 - 1/(c^2*x^2)]*x*(a + b*ArcSec[c*x]))/c) + (x^2*(a + b*ArcSec[c
*x])^2)/2 + (b^2*Log[x])/c^2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4184

```
Int[csc[(e_.) + (f_.)*(x_)]^2*((c_.) + (d_.)*(x_))^(m_.), x_Symbol] :> -Sim
p[((c + d*x)^m*Cot[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Co
t[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 3475

```
Int[tan[(c_.) + (d_.)*(x_)], x_Symbol] :> -Simp[Log[RemoveContent[Cos[c + d
*x], x]]/d, x] /; FreeQ[{c, d}, x]
```

Rubi steps

$$\begin{aligned}\int x\left(a+b\sec^{-1}(cx)\right)^2\,dx &= \frac{\text{Subst}\left(\int (a+bx)^2\sec^2(x)\tan(x)\,dx,x,\sec^{-1}(cx)\right)}{c^2}\\ &= \frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^2-\frac{b\,\text{Subst}\left(\int (a+bx)\sec^2(x)\,dx,x,\sec^{-1}(cx)\right)}{c^2}\\ &= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2\,\text{Subst}\left(\int \tan(x)\,dx,x,\sec\right.}{c^2}\\ &= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^2+\frac{b^2\log(x)}{c^2}\end{aligned}$$

Mathematica [A] time = 0.149093, size = 90, normalized size = 1.61

$$\frac{acx\left(acx-2b\sqrt{1-\frac{1}{c^2x^2}}\right)+2bcx\sec^{-1}(cx)\left(acx-b\sqrt{1-\frac{1}{c^2x^2}}\right)+b^2c^2x^2\sec^{-1}(cx)^2+2b^2\log(cx)}{2c^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (a*c*x*(-2*b*Sqrt[1 - 1/(c^2*x^2)] + a*c*x) + 2*b*c*x*(-(b*Sqrt[1 - 1/(c^2*
x^2)]) + a*c*x)*ArcSec[c*x] + b^2*c^2*x^2*ArcSec[c*x]^2 + 2*b^2*Log[c*x])/(
2*c^2)
```

Maple [B] time = 0.249, size = 134, normalized size = 2.4

$$\frac{a^2x^2}{2}+\frac{x^2b^2\left(\operatorname{arcsec}(cx)\right)^2}{2}-\frac{b^2\operatorname{arcsec}(cx)\,x}{c}\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{b^2}{c^2}\ln\left(\frac{1}{cx}\right)+abx^2\operatorname{arcsec}(cx)-\frac{xab}{c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{ab}{c^3x}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))^2,x)
```

```
[Out] 1/2*a^2*x^2+1/2*x^2*b^2*arcsec(c*x)^2-1/c*b^2*arcsec(c*x)*x*((c^2*x^2-1)/c^
2/x^2)^(1/2)-1/c^2*b^2*ln(1/c/x)+a*b*x^2*arcsec(c*x)-1/c*a*b/((c^2*x^2-1)/c
^2/x^2)^(1/2)*x+1/c^3*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x
```

Maxima [A] time = 1.0201, size = 117, normalized size = 2.09

$$\frac{1}{2}b^2x^2\operatorname{arcsec}(cx)^2+\frac{1}{2}a^2x^2+\left(x^2\operatorname{arcsec}(cx)-\frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)ab-\left(\frac{x\sqrt{-\frac{1}{c^2x^2}+1}\operatorname{arcsec}(cx)}{c}-\frac{\log(x)}{c^2}\right)b^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] 1/2*b^2*x^2*arcsec(c*x)^2 + 1/2*a^2*x^2 + (x^2*arcsec(c*x) - x*sqrt(-1/(c^2
*x^2) + 1)/c)*a*b - (x*sqrt(-1/(c^2*x^2) + 1)*arcsec(c*x)/c - log(x)/c^2)*b
```

```
^2
```

Fricas [B] time = 2.75695, size = 266, normalized size = 4.75

$$\frac{b^2c^2x^2 \operatorname{arcsec}(cx)^2 + a^2c^2x^2 + 4\,abc^2 \arctan\left(-cx + \sqrt{c^2x^2 - 1}\right) + 2\,b^2 \log(x) + 2\left(abc^2x^2 - abc^2\right) \operatorname{arcsec}(cx) - 2\,\sqrt{c^2x^2 -}}{2\,c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] 1/2*(b^2*c^2*x^2*arcsec(c*x)^2 + a^2*c^2*x^2 + 4*a*b*c^2*arctan(-c*x + sqrt
(c^2*x^2 - 1)) + 2*b^2*log(x) + 2*(a*b*c^2*x^2 - a*b*c^2)*arcsec(c*x) - 2*s
qrt(c^2*x^2 - 1)*(b^2*arcsec(c*x) + a*b))/c^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\left(a + b \operatorname{asec}(cx)\right)^2\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(x*(a + b*asec(c*x))**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(b \operatorname{arcsec}(cx) + a\right)^2 x\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2*x, x)
```

3.18 $\int \left(a+b\sec^{-1}(cx)\right)^2\,dx$

Optimal. Leaf size=92

$$-\frac{2ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)}{c}+\frac{2ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)}{c}+x\left(a+b\sec^{-1}(cx)\right)^2+\frac{4ib\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)\left(a+b\sec\right.}{c}$$

```
[Out] x*(a + b*ArcSec[c*x])^2 + ((4*I)*b*(a + b*ArcSec[c*x])*ArcTan[E^(I*ArcSec[c
*x])])/c - ((2*I)*b^2*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c + ((2*I)*b^2*Po
lyLog[2, I*E^(I*ArcSec[c*x])])/c
```

Rubi [A] time = 0.0719971, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 10, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5216, 4409, 4181, 2279, 2391}

$$-\frac{2ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)}{c}+\frac{2ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)}{c}+x\left(a+b\sec^{-1}(cx)\right)^2+\frac{4ib\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)\left(a+b\sec\right.}{c}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2,x]
```

```
[Out] x*(a + b*ArcSec[c*x])^2 + ((4*I)*b*(a + b*ArcSec[c*x])*ArcTan[E^(I*ArcSec[c
*x])])/c - ((2*I)*b^2*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c + ((2*I)*b^2*Po
lyLog[2, I*E^(I*ArcSec[c*x])])/c
```

Rule 5216

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_), x_Symbol] :> Dist[1/c, Subst[I
nt[(a + b*x)^n*Sec[x]*Tan[x], x], x, ArcSec[c*x]], x] /; FreeQ[{a, b, c, n}
, x] && IGtQ[n, 0]
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4181

```
Int[csc[(e_.) + Pi*(k_.) + (f_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.), x_Symbol
] :> Simp[(-2*(c + d*x)^m*ArcTanh[E^(I*k*Pi)*E^(I*(e + f*x))])/f, x] + (-Di
st[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 - E^(I*k*Pi)*E^(I*(e + f*x))], x],
x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 + E^(I*k*Pi)*E^(I*(e + f*x))
], x], x]) /; FreeQ[{c, d, e, f}, x] && IntegerQ[2*k] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \left(a+b\sec^{-1}(cx)\right)^2 dx = \frac{\text{Subst}\left(\int (a+bx)^2\sec(x)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{c}$$
$$= x\left(a+b\sec^{-1}(cx)\right)^2 - \frac{(2b)\,\text{Subst}\left(\int (a+bx)\sec(x)\,dx, x, \sec^{-1}(cx)\right)}{c}$$
$$= x\left(a+b\sec^{-1}(cx)\right)^2 + \frac{4ib\left(a+b\sec^{-1}(cx)\right)\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} + \frac{\left(2b^2\right)\text{Subst}\left(\int \log\left(1-ie^{ix}\right)\right.}{c}$$
$$= x\left(a+b\sec^{-1}(cx)\right)^2 + \frac{4ib\left(a+b\sec^{-1}(cx)\right)\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} - \frac{\left(2ib^2\right)\text{Subst}\left(\int \frac{\log(1-ix)}{x}\,dx, x\right.}{c}$$
$$= x\left(a+b\sec^{-1}(cx)\right)^2 + \frac{4ib\left(a+b\sec^{-1}(cx)\right)\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} - \frac{2ib^2\text{Li}_2\left(-ie^{i\sec^{-1}(cx)}\right)}{c} + \frac{2ib^2\text{L}}{}$$

Mathematica [A] time = 0.166325, size = 163, normalized size = 1.77

$$\frac{b^2\left(-2i\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)+2i\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)+\sec^{-1}(cx)\left(cx\sec^{-1}(cx)-2\log\left(1-ie^{i\sec^{-1}(cx)}\right)+2\log\left(1\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^2,x]
```

```
[Out] (a^2*c*x + 2*a*b*(c*x*ArcSec[c*x] + Log[Cos[ArcSec[c*x]/2] - Sin[ArcSec[c*x
]/2]] - Log[Cos[ArcSec[c*x]/2] + Sin[ArcSec[c*x]/2]]) + b^2*(ArcSec[c*x]*(c
*x*ArcSec[c*x] - 2*Log[1 - I*E^(I*ArcSec[c*x])] + 2*Log[1 + I*E^(I*ArcSec[c
*x])]) - (2*I)*PolyLog[2, (-I)*E^(I*ArcSec[c*x])] + (2*I)*PolyLog[2, I*E^(I
*ArcSec[c*x])]))/c
```

Maple [A] time = 0.294, size = 212, normalized size = 2.3

$$xb^2\left(\text{arcsec}\,(cx)\right)^2 + 2\,xab\text{arcsec}\,(cx) - 2\,\frac{b^2\text{arcsec}\,(cx)}{c}\ln\left(1-i\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)\right) + 2\,\frac{b^2\text{arcsec}\,(cx)}{c}\ln\left(1+i\left(\frac{1}{cx}+i\sqrt{\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2,x)
```

```
[Out] x*b^2*arcsec(c*x)^2+2*x*a*b*arcsec(c*x)-2/c*b^2*arcsec(c*x)*ln(1-I*(1/c/x+I
*(1-1/c^2/x^2)^(1/2)))+2/c*b^2*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1
/2)))-2*I/c*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))*b^2+2*I/c*dilog(1-I*(1
/c/x+I*(1-1/c^2/x^2)^(1/2)))*b^2+a^2*x-2/c*ln(c*x+c*x*(1-1/c^2/x^2)^(1/2))*
a*b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{4}\left(2\,c^2\left(\frac{2\,x}{c^2}-\frac{\log(cx+1)}{c^3}+\frac{\log(cx-1)}{c^3}\right)\log(c)^2 - 4\,c^2\int\frac{x^2\log\left(c^2x^2\right)}{c^2x^2-1}\,dx\log(c) + 8\,c^2\int\frac{x^2\log(x)}{c^2x^2-1}\,dx\log(c) - 4\,x\,\text{a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -1/4*(2*c^2*(2*x/c^2 - log(c*x + 1)/c^3 + log(c*x - 1)/c^3)*log(c)^2 - 4*c^
2*integrate(x^2*log(c^2*x^2)/(c^2*x^2 - 1), x)*log(c) + 8*c^2*integrate(x^2
*log(x)/(c^2*x^2 - 1), x)*log(c) - 4*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^
2 - 4*c^2*integrate(x^2*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) + 4*c^2*integ
rate(x^2*log(x)^2/(c^2*x^2 - 1), x) - 4*c^2*integrate(x^2*log(c^2*x^2)/(c^2
*x^2 - 1), x) + x*log(c^2*x^2)^2 + 2*(log(c*x + 1)/c - log(c*x - 1)/c)*log(
c)^2 + 4*integrate(log(c^2*x^2)/(c^2*x^2 - 1), x)*log(c) - 8*integrate(log(
x)/(c^2*x^2 - 1), x)*log(c) + 8*integrate(sqrt(c*x + 1)*sqrt(c*x - 1)*arcta
n(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^2 - 1), x) + 4*integrate(log(c^2*x^2)
*log(x)/(c^2*x^2 - 1), x) - 4*integrate(log(x)^2/(c^2*x^2 - 1), x) + 4*inte
grate(log(c^2*x^2)/(c^2*x^2 - 1), x))*b^2 + a^2*x + (2*c*x*arcsec(c*x) - lo
g(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*a*b/c
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(b^2 \operatorname{arcsec}(cx)^2 + 2\,ab \operatorname{arcsec}(cx) + a^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b \operatorname{asec}(cx))^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2,x)
```

```
[Out] Integral((a + b*asec(c*x))**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2, x)
```

3.19 $\int \frac{(a+b\sec^{-1}(cx))^2}{x}\,dx$

Optimal. Leaf size=93

$$ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)-\frac{1}{2}b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right)+\frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b}-\log\left(1+e^{2i\sec^{-1}(cx)}\right)$$

```
[Out] ((I/3)*(a + b*ArcSec[c*x])^3)/b - (a + b*ArcSec[c*x])^2*Log[1 + E^((2*I)*Ar
cSec[c*x])] + I*b*(a + b*ArcSec[c*x])*PolyLog[2, -E^((2*I)*ArcSec[c*x])] -
(b^2*PolyLog[3, -E^((2*I)*ArcSec[c*x])])/2
```

Rubi [A] time = 0.118987, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 3719, 2190, 2531, 2282, 6589}

$$ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)-\frac{1}{2}b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right)+\frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b}-\log\left(1+e^{2i\sec^{-1}(cx)}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2/x,x]
```

```
[Out] ((I/3)*(a + b*ArcSec[c*x])^3)/b - (a + b*ArcSec[c*x])^2*Log[1 + E^((2*I)*Ar
cSec[c*x])] + I*b*(a + b*ArcSec[c*x])*PolyLog[2, -E^((2*I)*ArcSec[c*x])] -
(b^2*PolyLog[3, -E^((2*I)*ArcSec[c*x])])/2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2531

```
Int[Log[1 + (e_.)*((F_)^((c_.)*((a_.) + (b_.)*(x_))))^(n_.)]*((f_.) + (g_.)
*(x_))^(m_.), x_Symbol] :> -Simp[((f + g*x)^m*PolyLog[2, -(e*(F^(c*(a + b*x
)))^n)])/(b*c*n*Log[F]), x] + Dist[(g*m)/(b*c*n*Log[F]), Int[(f + g*x)^(m -
 1)*PolyLog[2, -(e*(F^(c*(a + b*x)))^n)], x], x] /; FreeQ[{F, a, b, c, e, f
```

```
, g, n}, x] && GtQ[m, 0]
```

Rule 2282

```
Int[u_, x_Symbol] :> With[{v = FunctionOfExponential[u, x]}, Dist[v/D[v, x]
, Subst[Int[FunctionOfExponentialFunction[u, x]/x, x], x, v], x]] /; Functi
onOfExponentialQ[u, x] &&  !MatchQ[u, (w_)*((a_.)*(v_)^(n_))^(m_) /; FreeQ[
{a, m, n}, x] && IntegerQ[m*n]] &&  !MatchQ[u, E^((c_.)*((a_.) + (b_.)*x))*
(F_)[v_] /; FreeQ[{a, b, c}, x] && InverseFunctionQ[F[x]]]
```

Rule 6589

```
Int[PolyLog[n_, (c_.)*((a_.) + (b_.)*(x_))^(p_.)]/((d_.) + (e_.)*(x_)), x_S
ymbol] :> Simp[PolyLog[n + 1, c*(a + b*x)^p]/(e*p), x] /; FreeQ[{a, b, c, d
, e, n, p}, x] && EqQ[b*d, a*e]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}\,dx = \text{Subst}\left(\int (a+bx)^2\tan(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b} - 2i\,\text{Subst}\left(\int \frac{e^{2ix}(a+bx)^2}{1+e^{2ix}}\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b} - \left(a+b\sec^{-1}(cx)\right)^2\log\left(1+e^{2i\sec^{-1}(cx)}\right) + (2b)\,\text{Subst}\left(\int (a+bx)\log\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b} - \left(a+b\sec^{-1}(cx)\right)^2\log\left(1+e^{2i\sec^{-1}(cx)}\right) + ib\left(a+b\sec^{-1}(cx)\right)\text{Li}_2\left(-e^{2}\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b} - \left(a+b\sec^{-1}(cx)\right)^2\log\left(1+e^{2i\sec^{-1}(cx)}\right) + ib\left(a+b\sec^{-1}(cx)\right)\text{Li}_2\left(-e^{2}\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^3}{3b} - \left(a+b\sec^{-1}(cx)\right)^2\log\left(1+e^{2i\sec^{-1}(cx)}\right) + ib\left(a+b\sec^{-1}(cx)\right)\text{Li}_2\left(-e^{2}\right.$$

Mathematica [A] time = 0.120485, size = 129, normalized size = 1.39

$$ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right) - \frac{1}{2}b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right) + a^2\log(cx) + iab\sec^{-1}(cx)^2 - 2ab\sec^{-1}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])^2/x,x]
```

```
[Out] I*a*b*ArcSec[c*x]^2 + (I/3)*b^2*ArcSec[c*x]^3 - 2*a*b*ArcSec[c*x]*Log[1 + E
^((2*I)*ArcSec[c*x])] - b^2*ArcSec[c*x]^2*Log[1 + E^((2*I)*ArcSec[c*x])] +
a^2*Log[c*x] + I*b*(a + b*ArcSec[c*x])*PolyLog[2, -E^((2*I)*ArcSec[c*x])] -
 (b^2*PolyLog[3, -E^((2*I)*ArcSec[c*x])])/2
```

Maple [A] time = 0.358, size = 215, normalized size = 2.3

$$a^2\ln(cx) + \frac{i}{3}b^2(\text{arcsec}(cx))^3 - b^2(\text{arcsec}(cx))^2\ln\left(1+\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)^2\right) + ib^2\text{arcsec}(cx)\,\text{polylog}\left(2,-\left(\frac{1}{cx}+i\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2/x,x)
```

```
[Out] a^2*ln(c*x)+1/3*I*b^2*arcsec(c*x)^3-b^2*arcsec(c*x)^2*ln(1+(1/c/x+I*(1-1/c^
2/x^2)^(1/2))^2)+I*b^2*arcsec(c*x)*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))
^2)-1/2*b^2*polylog(3,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+I*a*b*arcsec(c*x)^2
-2*a*b*arcsec(c*x)*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+I*a*b*polylog(2,-(
1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{2}b^2c^2\left(\frac{\log(cx+1)}{c^2}+\frac{\log(cx-1)}{c^2}\right)\log(c)^2+b^2c^2\int\frac{x^2\log\left(c^2x^2\right)}{c^2x^3-x}\,dx\log(c)-2\,b^2c^2\int\frac{x^2\log(x)}{c^2x^3-x}\,dx\log(c)+2\,b^2c^2\int$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x,x, algorithm="maxima")
```

```
[Out] -1/2*b^2*c^2*(log(c*x + 1)/c^2 + log(c*x - 1)/c^2)*log(c)^2 + b^2*c^2*integ
rate(x^2*log(c^2*x^2)/(c^2*x^3 - x), x)*log(c) - 2*b^2*c^2*integrate(x^2*lo
g(x)/(c^2*x^3 - x), x)*log(c) + 2*b^2*c^2*integrate(x^2*log(c^2*x^2)*log(x)
/(c^2*x^3 - x), x) - b^2*c^2*integrate(x^2*log(x)^2/(c^2*x^3 - x), x) + 2*a
*b*c^2*integrate(x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^3 - x), x)
+ 1/2*b^2*(log(c*x + 1) + log(c*x - 1) - 2*log(x))*log(c)^2 + b^2*arctan(sq
rt(c*x + 1)*sqrt(c*x - 1))^2*log(x) - 1/4*b^2*log(c^2*x^2)^2*log(x) - b^2*i
ntegrate(log(c^2*x^2)/(c^2*x^3 - x), x)*log(c) + 2*b^2*integrate(log(x)/(c^
2*x^3 - x), x)*log(c) - 2*b^2*integrate(sqrt(c*x + 1)*sqrt(c*x - 1)*arctan(
sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^3 - x), x) - 2*b^2*integrate(log
(c^2*x^2)*log(x)/(c^2*x^3 - x), x) + b^2*integrate(log(x)^2/(c^2*x^3 - x),
x) - 2*a*b*integrate(arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^3 - x), x)
+ a^2*log(x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^2\,\text{arcsec}(cx)^2+2\,ab\,\text{arcsec}(cx)+a^2}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x,x, algorithm="fricas")
```

```
[Out] integral((b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2)/x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(a+b\,\text{asec}(cx))^2}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2/x,x)
```

```
[Out] Integral((a + b*asec(c*x))**2/x, x)
```

<u>**Giac**</u> **[F]** time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)^2}{x} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2/x, x)
```

3.20 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^2}\,dx$

Optimal. Leaf size=50

$$2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}+\frac{2b^2}{x}$$

```
[Out] (2*b^2)/x + 2*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]) - (a + b*ArcSec
[c*x])^2/x
```

Rubi [A] time = 0.0586854, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214, Rules used = {5222, 3296, 2638}

$$2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}+\frac{2b^2}{x}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2/x^2,x]
```

```
[Out] (2*b^2)/x + 2*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]) - (a + b*ArcSec
[c*x])^2/x
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3296

```
Int[((c_.) + (d_.)*(x_))^(m_.)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> -Simp[
((c + d*x)^m*Cos[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Cos[
e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 2638

```
Int[sin[(c_.) + (d_.)*(x_)], x_Symbol] :> -Simp[Cos[c + d*x]/d, x] /; FreeQ
[{c, d}, x]
```

Rubi steps

$$\begin{aligned}
\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^2}\,dx &= c\,\text{Subst}\left(\int (a+bx)^2\sin(x)\,dx,x,\sec^{-1}(cx)\right)\\
&= -\frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}+(2bc)\,\text{Subst}\left(\int (a+bx)\cos(x)\,dx,x,\sec^{-1}(cx)\right)\\
&= 2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}-\left(2b^2c\right)\text{Subst}\left(\int \sin(x)\,dx,x,\sec^{-1}(cx)\right)\\
&= \frac{2b^2}{x}+2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{x}
\end{aligned}$$

Mathematica [A] time = 0.122778, size = 75, normalized size = 1.5

$$\frac{-a^2+2abcx\sqrt{1-\frac{1}{c^2x^2}}+2b\sec^{-1}(cx)\left(bcx\sqrt{1-\frac{1}{c^2x^2}}-a\right)-b^2\sec^{-1}(cx)^2+2b^2}{x}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^2/x^2,x]
```

```
[Out] (-a^2 + 2*b^2 + 2*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x + 2*b*(-a + b*c*Sqrt[1 - 1/
(c^2*x^2)]*x)*ArcSec[c*x] - b^2*ArcSec[c*x]^2)/x
```

Maple [B] time = 0.24, size = 117, normalized size = 2.3

$$c\left(-\frac{a^2}{cx}+b^2\left(-\frac{(\mathrm{arcsec}\,(cx))^2}{cx}+2\frac{1}{cx}+2\,\mathrm{arcsec}\,(cx)\sqrt{\frac{c^2x^2-1}{c^2x^2}}\right)+2\,ab\left(-\frac{\mathrm{arcsec}\,(cx)}{cx}+\frac{c^2x^2-1}{c^2x^2}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2/x^2,x)
```

```
[Out] c*(-a^2/c/x+b^2*(-1/c/x*arcsec(c*x)^2+2/c/x+2*arcsec(c*x)*((c^2*x^2-1)/c^2/
x^2)^(1/2))+2*a*b*(-1/c/x*arcsec(c*x)+1/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^2/x^2
*(c^2*x^2-1)))
```

Maxima [A] time = 1.0221, size = 105, normalized size = 2.1

$$2\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\mathrm{arcsec}\,(cx)}{x}\right)ab+2\left(c\sqrt{-\frac{1}{c^2x^2}+1}\,\mathrm{arcsec}\,(cx)+\frac{1}{x}\right)b^2-\frac{b^2\,\mathrm{arcsec}\,(cx)^2}{x}-\frac{a^2}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^2,x, algorithm="maxima")
```

```
[Out] 2*(c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*a*b + 2*(c*sqrt(-1/(c^2*x^2) +
 1)*arcsec(c*x) + 1/x)*b^2 - b^2*arcsec(c*x)^2/x - a^2/x
```

Fricas [A] time = 2.66604, size = 140, normalized size = 2.8

$$-\frac{b^2\,\mathrm{arcsec}\,(cx)^2+2\,ab\,\mathrm{arcsec}\,(cx)+a^2-2\,b^2-2\,\sqrt{c^2x^2-1}\left(b^2\,\mathrm{arcsec}\,(cx)+ab\right)}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^2,x, algorithm="fricas")
```

```
[Out] -(b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2 - 2*b^2 - 2*sqrt(c^2*x^2 - 1)
*(b^2*arcsec(c*x) + a*b))/x
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b \operatorname{asec}(cx))^2}{x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2/x**2,x)
```

```
[Out] Integral((a + b*asec(c*x))**2/x**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)^2}{x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2/x^2, x)
```

3.21 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^3}\,dx$

Optimal. Leaf size=94

$$\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{2x}+\frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^2-\frac{1}{2}abc^2\sec^{-1}(cx)-\frac{1}{4}b^2c^2\sec^{-1}(cx)^2+\frac{b^2}{4x^2}$$

```
[Out] b^2/(4*x^2) - (a*b*c^2*ArcSec[c*x])/2 - (b^2*c^2*ArcSec[c*x]^2)/4 + (b*c*Sq
rt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(2*x) + ((c^2 - x^(-2))*(a + b*Arc
Sec[c*x])^2)/2
```

Rubi [A] time = 0.0793479, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214, Rules used = {5222, 4404, 3310}

$$\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{2x}+\frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^2-\frac{1}{2}abc^2\sec^{-1}(cx)-\frac{1}{4}b^2c^2\sec^{-1}(cx)^2+\frac{b^2}{4x^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2/x^3,x]
```

```
[Out] b^2/(4*x^2) - (a*b*c^2*ArcSec[c*x])/2 - (b^2*c^2*ArcSec[c*x]^2)/4 + (b*c*Sq
rt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(2*x) + ((c^2 - x^(-2))*(a + b*Arc
Sec[c*x])^2)/2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4404

```
Int[Cos[(a_.) + (b_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b_.)*(x
_)]^(n_.), x_Symbol] :> Simp[((c + d*x)^m*Sin[a + b*x]^(n + 1))/(b*(n + 1))
, x] - Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Sin[a + b*x]^(n + 1),
x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3310

```
Int[((c_.) + (d_.)*(x_))*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbol] :>
 Simp[(d*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist[(b^2*(n - 1))/n, Int[(c
+ d*x)*(b*Sin[e + f*x])^(n - 2), x], x] - Simp[(b*(c + d*x)*Cos[e + f*x]*(b
*Sin[e + f*x])^(n - 1))/(f*n), x]) /; FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1
]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^3}\,dx = c^2\,\text{Subst}\left(\int (a+bx)^2\cos(x)\sin(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^2 - \left(bc^2\right)\text{Subst}\left(\int (a+bx)\sin^2(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{b^2}{4x^2} + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{2x} + \frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^2 - \frac{1}{2}\left(bc^2\right)\text{Subst}\left(\int (a$$
$$= \frac{b^2}{4x^2} - \frac{1}{2}abc^2\sec^{-1}(cx) - \frac{1}{4}b^2c^2\sec^{-1}(cx)^2 + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{2x} + \frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+\right.$$

Mathematica [A] time = 0.113702, size = 102, normalized size = 1.09

$$\frac{-2a^2+2abcx\sqrt{1-\frac{1}{c^2x^2}}-2abc^2x^2\sin^{-1}\left(\frac{1}{cx}\right)+2b\sec^{-1}(cx)\left(bcx\sqrt{1-\frac{1}{c^2x^2}}-2a\right)+b^2\left(c^2x^2-2\right)\sec^{-1}(cx)^2+b^2}{4x^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^2/x^3,x]
```

```
[Out] (-2*a^2 + b^2 + 2*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x + 2*b*(-2*a + b*c*Sqrt[1 -
1/(c^2*x^2)]*x)*ArcSec[c*x] + b^2*(-2 + c^2*x^2)*ArcSec[c*x]^2 - 2*a*b*c^2*
x^2*ArcSin[1/(c*x)])/(4*x^2)
```

Maple [B] time = 0.244, size = 199, normalized size = 2.1

$$-\frac{a^2}{2x^2} - \frac{b^2\left(\text{arcsec}(cx)\right)^2}{2x^2} + \frac{b^2c^2\left(\text{arcsec}(cx)\right)^2}{4} + \frac{cb^2\text{arcsec}(cx)}{2x}\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{b^2c^2}{4} + \frac{b^2}{4x^2} - \frac{ab\text{arcsec}(cx)}{x^2} - \frac{acb}{2x}\sqrt{c^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2/x^3,x)
```

```
[Out] -1/2*a^2/x^2-1/2*b^2/x^2*arcsec(c*x)^2+1/4*b^2*c^2*arcsec(c*x)^2+1/2*c*b^2*
arcsec(c*x)/x*((c^2*x^2-1)/c^2/x^2)^(1/2)-1/4*b^2*c^2+1/4*b^2/x^2-a*b/x^2*a
rcsec(c*x)-1/2*c*a*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*arctan
(1/(c^2*x^2-1)^(1/2))+1/2*c*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x-1/2/c*a*b/((c
^2*x^2-1)/c^2/x^2)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^3,x, algorithm="maxima")
```

```
[Out] -1/2*a*b*((c^4*x*sqrt(-1/(c^2*x^2) + 1)/(c^2*x^2*(1/(c^2*x^2) - 1) - 1) - c
^3*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)))/c + 2*arcsec(c*x)/x^2) - 1/8*(4*(c^2
```

```
*(log(c*x + 1) + log(c*x - 1) - 2*log(x))*log(c)^2 - 4*c^2*integrate(1/2*x^
2*log(c^2*x^2)/(c^2*x^5 - x^3), x)*log(c) + 8*c^2*integrate(1/2*x^2*log(x)/
(c^2*x^5 - x^3), x)*log(c) - 4*c^2*integrate(1/2*x^2*log(c^2*x^2)*log(x)/(c
^2*x^5 - x^3), x) + 4*c^2*integrate(1/2*x^2*log(x)^2/(c^2*x^5 - x^3), x) +
2*c^2*integrate(1/2*x^2*log(c^2*x^2)/(c^2*x^5 - x^3), x) - (c^2*log(c*x + 1
) + c^2*log(c*x - 1) - 2*c^2*log(x) + 1/x^2)*log(c)^2 + 4*integrate(1/2*log
(c^2*x^2)/(c^2*x^5 - x^3), x)*log(c) - 8*integrate(1/2*log(x)/(c^2*x^5 - x^
3), x)*log(c) - 4*integrate(1/2*sqrt(c*x + 1)*sqrt(c*x - 1)*arctan(sqrt(c*x
 + 1)*sqrt(c*x - 1))/(c^2*x^5 - x^3), x) + 4*integrate(1/2*log(c^2*x^2)*log
(x)/(c^2*x^5 - x^3), x) - 4*integrate(1/2*log(x)^2/(c^2*x^5 - x^3), x) - 2*
integrate(1/2*log(c^2*x^2)/(c^2*x^5 - x^3), x))*x^2 + 4*arctan(sqrt(c*x + 1
)*sqrt(c*x - 1))^2 - log(c^2*x^2)^2)*b^2/x^2 - 1/2*a^2/x^2
```

Fricas [A] time = 2.38939, size = 196, normalized size = 2.09

$$\frac{\left(b^2c^2x^2 - 2\,b^2\right)\operatorname{arcsec}(cx)^2 - 2\,a^2 + b^2 + 2\left(abc^2x^2 - 2\,ab\right)\operatorname{arcsec}(cx) + 2\,\sqrt{c^2x^2-1}\left(b^2\operatorname{arcsec}(cx) + ab\right)}{4\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^3,x, algorithm="fricas")
```

```
[Out] 1/4*((b^2*c^2*x^2 - 2*b^2)*arcsec(c*x)^2 - 2*a^2 + b^2 + 2*(a*b*c^2*x^2 - 2
*a*b)*arcsec(c*x) + 2*sqrt(c^2*x^2 - 1)*(b^2*arcsec(c*x) + a*b))/x^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(a + b\operatorname{asec}(cx)\right)^2}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2/x**3,x)
```

```
[Out] Integral((a + b*asec(c*x))**2/x**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(b\operatorname{arcsec}(cx) + a\right)^2}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2/x^3, x)
```

3.22 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^4}\,dx$

Optimal. Leaf size=102

$$\frac{4}{9}bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)+\frac{2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{9x^2}-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{3x^3}+\frac{4b^2c^2}{9x}+\frac{2b^2}{27x^3}$$

```
[Out] (2*b^2)/(27*x^3) + (4*b^2*c^2)/(9*x) + (4*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a +
b*ArcSec[c*x]))/9 + (2*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(9*x^
2) - (a + b*ArcSec[c*x])^2/(3*x^3)
```

Rubi [A] time = 0.0940474, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.357, Rules used = {5222, 4405, 3310, 3296, 2638}

$$\frac{4}{9}bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)+\frac{2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{9x^2}-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{3x^3}+\frac{4b^2c^2}{9x}+\frac{2b^2}{27x^3}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2/x^4,x]
```


```
[Out] (2*b^2)/(27*x^3) + (4*b^2*c^2)/(9*x) + (4*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a +
b*ArcSec[c*x]))/9 + (2*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(9*x^
2) - (a + b*ArcSec[c*x])^2/(3*x^3)
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4405

```
Int[Cos[(a_.) + (b_.)*(x_)]^(n_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)], x_Symbol] :> -Simp[((c + d*x)^m*Cos[a + b*x]^(n + 1))/(b*(n + 1)
), x] + Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Cos[a + b*x]^(n + 1),
 x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3310

```
Int[((c_.) + (d_.)*(x_))*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbol] :>
 Simp[(d*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist[(b^2*(n - 1))/n, Int[(c
+ d*x)*(b*Sin[e + f*x])^(n - 2), x], x] - Simp[(b*(c + d*x)*Cos[e + f*x]*(b
*Sin[e + f*x])^(n - 1))/(f*n), x]) /; FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1
]
```

Rule 3296

```
Int[((c_.) + (d_.)*(x_))^(m_.)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> -Simp[
((c + d*x)^m*Cos[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Cos[
e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 2638

```
Int[sin[(c_.) + (d_.)*(x_)], x_Symbol] :> -Simp[Cos[c + d*x]/d, x] /; FreeQ
[{c, d}, x]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^4}\,dx = c^3\,\text{Subst}\left(\int (a+bx)^2\cos^2(x)\sin(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= -\frac{\left(a+b\sec^{-1}(cx)\right)^2}{3x^3}+\frac{1}{3}\left(2bc^3\right)\text{Subst}\left(\int (a+bx)\cos^3(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{2b^2}{27x^3}+\frac{2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{9x^2}-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{3x^3}+\frac{1}{9}\left(4bc^3\right)\text{Subst}\left(\int (a+bx)\right.$$
$$= \frac{2b^2}{27x^3}+\frac{4}{9}bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)+\frac{2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{9x^2}-\frac{\left(a+b\sec^{-1}\right.}{3x^3}$$
$$= \frac{2b^2}{27x^3}+\frac{4b^2c^2}{9x}+\frac{4}{9}bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)+\frac{2bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{9x^2}-\frac{(a}{}$$

Mathematica [A] time = 0.183608, size = 108, normalized size = 1.06

$$\frac{-9a^2+6abcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2x^2+1\right)+6b\sec^{-1}(cx)\left(bcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2x^2+1\right)-3a\right)+2b^2\left(6c^2x^2+1\right)-9b^2\sec^{-1}(cx)^2}{27x^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^2/x^4,x]
```

```
[Out] (-9*a^2 + 6*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 2*c^2*x^2) + 2*b^2*(1 + 6*c^
2*x^2) + 6*b*(-3*a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 2*c^2*x^2))*ArcSec[c*
x] - 9*b^2*ArcSec[c*x]^2)/(27*x^3)
```

Maple [A] time = 0.243, size = 154, normalized size = 1.5

$$c^3\left(-\frac{a^2}{3c^3x^3}+b^2\left(-\frac{(\text{arcsec}\,(cx))^2}{3c^3x^3}+\frac{2\,\text{arcsec}\,(cx)\left(2c^2x^2+1\right)}{9c^2x^2}\sqrt{\frac{c^2x^2-1}{c^2x^2}}+\frac{2}{27c^3x^3}+\frac{4}{9cx}\right)+2ab\left(-1/3\frac{\text{arcsec}\,(cx)}{c^3x^3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2/x^4,x)
```

```
[Out] c^3*(-1/3*a^2/c^3/x^3+b^2*(-1/3/c^3/x^3*arcsec(c*x)^2+2/9*arcsec(c*x)*(2*c^
2*x^2+1)/c^2/x^2*((c^2*x^2-1)/c^2/x^2)^(1/2)+2/27/c^3/x^3+4/9/c/x)+2*a*b*(-
1/3/c^3/x^3*arcsec(c*x)+1/9*(c^2*x^2-1)*(2*c^2*x^2+1)/((c^2*x^2-1)/c^2/x^2)
^(1/2)/c^4/x^4))
```

Maxima [A] time = 2.18582, size = 221, normalized size = 2.17

$$-\frac{2}{9}\,ab\left(\frac{c^4\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-3\,c^4\sqrt{-\frac{1}{c^2x^2}+1}}{c}+\frac{3\,\mathrm{arcsec}\,(cx)}{x^3}\right)-\frac{b^2\,\mathrm{arcsec}\,(cx)^2}{3\,x^3}-\frac{a^2}{3\,x^3}+\frac{2\left(\left(6\,c^3x^2+c\right)\sqrt{cx+1}\sqrt{cx-1}+3\,(\ldots\right.}{27\,\sqrt{\ldots}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^4,x, algorithm="maxima")
```

```
[Out] -2/9*a*b*((c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c +
 3*arcsec(c*x)/x^3) - 1/3*b^2*arcsec(c*x)^2/x^3 - 1/3*a^2/x^3 + 2/27*((6*c^
3*x^2 + c)*sqrt(c*x + 1)*sqrt(c*x - 1) + 3*(2*c^5*x^4 - c^3*x^2 - c)*arctan
(sqrt(c*x + 1)*sqrt(c*x - 1)))*b^2/(sqrt(c*x + 1)*sqrt(c*x - 1)*c*x^3)
```

Fricas [A] time = 2.22573, size = 224, normalized size = 2.2

$$\frac{12\,b^2c^2x^2-9\,b^2\,\mathrm{arcsec}\,(cx)^2-18\,ab\,\mathrm{arcsec}\,(cx)-9\,a^2+2\,b^2+6\left(2\,abc^2x^2+ab+\left(2\,b^2c^2x^2+b^2\right)\mathrm{arcsec}\,(cx)\right)\sqrt{c^2x^2-1}}{27\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^4,x, algorithm="fricas")
```

```
[Out] 1/27*(12*b^2*c^2*x^2 - 9*b^2*arcsec(c*x)^2 - 18*a*b*arcsec(c*x) - 9*a^2 + 2
*b^2 + 6*(2*a*b*c^2*x^2 + a*b + (2*b^2*c^2*x^2 + b^2)*arcsec(c*x))*sqrt(c^2
*x^2 - 1))/x^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\,\mathrm{asec}\,(cx))^2}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2/x**4,x)
```

```
[Out] Integral((a + b*asec(c*x))**2/x**4, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx)+a)^2}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^4,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2/x^4, x)
```

3.23 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^5}\,dx$

Optimal. Leaf size=134

$$\frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{16x}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{8x^3}+\frac{3}{16}abc^4\sec^{-1}(cx)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{4x^4}+\frac{3b^2c^2}{32x^2}+$$

```
[Out] b^2/(32*x^4) + (3*b^2*c^2)/(32*x^2) + (3*a*b*c^4*ArcSec[c*x])/16 + (3*b^2*c
^4*ArcSec[c*x]^2)/32 + (b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(8*x
^3) + (3*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(16*x) - (a + b*A
rcSec[c*x])^2/(4*x^4)
```

Rubi [A] time = 0.111133, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214, Rules used = {5222, 4405, 3310}

$$\frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{16x}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{8x^3}+\frac{3}{16}abc^4\sec^{-1}(cx)-\frac{\left(a+b\sec^{-1}(cx)\right)^2}{4x^4}+\frac{3b^2c^2}{32x^2}+$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^2/x^5,x]
```

```
[Out] b^2/(32*x^4) + (3*b^2*c^2)/(32*x^2) + (3*a*b*c^4*ArcSec[c*x])/16 + (3*b^2*c
^4*ArcSec[c*x]^2)/32 + (b*c*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(8*x
^3) + (3*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x]))/(16*x) - (a + b*A
rcSec[c*x])^2/(4*x^4)
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4405

```
Int[Cos[(a_.) + (b_.)*(x_)]^(n_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)], x_Symbol] :> -Simp[((c + d*x)^m*Cos[a + b*x]^(n + 1))/(b*(n + 1)
), x] + Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Cos[a + b*x]^(n + 1),
 x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3310

```
Int[((c_.) + (d_.)*(x_))*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbol] :>
 Simp[(d*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist[(b^2*(n - 1))/n, Int[(c
+ d*x)*(b*Sin[e + f*x])^(n - 2), x], x] - Simp[(b*(c + d*x)*Cos[e + f*x]*(b
*Sin[e + f*x])^(n - 1))/(f*n), x]) /; FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1
]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^2}{x^5}\,dx = c^4\,\text{Subst}\left(\int (a+bx)^2\cos^3(x)\sin(x)\,dx,x,\sec^{-1}(cx)\right)$$
$$= -\frac{\left(a+b\sec^{-1}(cx)\right)^2}{4x^4} + \frac{1}{2}\left(bc^4\right)\text{Subst}\left(\int (a+bx)\cos^4(x)\,dx,x,\sec^{-1}(cx)\right)$$
$$= \frac{b^2}{32x^4} + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{8x^3} - \frac{\left(a+b\sec^{-1}(cx)\right)^2}{4x^4} + \frac{1}{8}\left(3bc^4\right)\text{Subst}\left(\int (a+bx)\cos^2\right.$$
$$= \frac{b^2}{32x^4} + \frac{3b^2c^2}{32x^2} + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{8x^3} + \frac{3bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{16x} - \frac{\left(a+b\sec\right.}{4x}$$
$$= \frac{b^2}{32x^4} + \frac{3b^2c^2}{32x^2} + \frac{3}{16}abc^4\sec^{-1}(cx) + \frac{3}{32}b^2c^4\sec^{-1}(cx)^2 + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)}{8x^3} + \frac{3bc}{}$$

Mathematica [A] time = 0.173987, size = 148, normalized size = 1.1

$$\frac{-8a^2+6abc^3x^3\sqrt{1-\frac{1}{c^2x^2}}+4abcx\sqrt{1-\frac{1}{c^2x^2}}-6abc^4x^4\sin^{-1}\left(\frac{1}{cx}\right)+2b\sec^{-1}(cx)\left(bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3c^2x^2+2\right)-8a\right)+3b^2c^2}{32x^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^2/x^5,x]
```

```
[Out] (-8*a^2 + b^2 + 4*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x + 3*b^2*c^2*x^2 + 6*a*b*c^3
*Sqrt[1 - 1/(c^2*x^2)]*x^3 + 2*b*(-8*a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(2 + 3
*c^2*x^2))*ArcSec[c*x] + b^2*(-8 + 3*c^4*x^4)*ArcSec[c*x]^2 - 6*a*b*c^4*x^4
*ArcSin[1/(c*x)])/(32*x^4)
```

Maple [B] time = 0.253, size = 265, normalized size = 2.

$$-\frac{a^2}{4x^4} - \frac{b^2\left(\text{arcsec}\left(cx\right)\right)^2}{4x^4} + \frac{3b^2c^4\left(\text{arcsec}\left(cx\right)\right)^2}{32} + \frac{3c^3b^2\text{arcsec}\left(cx\right)}{16x}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{cb^2\text{arcsec}\left(cx\right)}{8x^3}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{b^2}{32x^4} +$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^2/x^5,x)
```

```
[Out] -1/4*a^2/x^4-1/4*b^2/x^4*arcsec(c*x)^2+3/32*b^2*c^4*arcsec(c*x)^2+3/16*c^3*
b^2*arcsec(c*x)/x*((c^2*x^2-1)/c^2/x^2)^(1/2)+1/8*c*b^2*arcsec(c*x)/x^3*((c
^2*x^2-1)/c^2/x^2)^(1/2)+1/32*b^2/x^4+3/32*b^2*c^2/x^2-1/2*a*b/x^4*arcsec(c
*x)-3/16*c^3*a*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*arctan(1/(
c^2*x^2-1)^(1/2))+3/16*c^3*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x-1/16*c*a*b/((c
^2*x^2-1)/c^2/x^2)^(1/2)/x^3-1/8/c*a*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^5,x, algorithm="maxima")
```

```
[Out] 1/16*a*b*((3*c^5*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)) + (3*c^8*x^3*(-1/(c^2*x
^2) + 1)^(3/2) + 5*c^6*x*sqrt(-1/(c^2*x^2) + 1))/(c^4*x^4*(1/(c^2*x^2) - 1)
^2 - 2*c^2*x^2*(1/(c^2*x^2) - 1) + 1))/c - 8*arcsec(c*x)/x^4) - 1/16*(4*(2*
(c^2*log(c*x + 1) + c^2*log(c*x - 1) - 2*c^2*log(x) + 1/x^2)*c^2*log(c)^2 -
 16*c^2*integrate(1/4*x^2*log(c^2*x^2)/(c^2*x^7 - x^5), x)*log(c) + 32*c^2*
integrate(1/4*x^2*log(x)/(c^2*x^7 - x^5), x)*log(c) - 16*c^2*integrate(1/4*
x^2*log(c^2*x^2)*log(x)/(c^2*x^7 - x^5), x) + 16*c^2*integrate(1/4*x^2*log(
x)^2/(c^2*x^7 - x^5), x) + 4*c^2*integrate(1/4*x^2*log(c^2*x^2)/(c^2*x^7 -
x^5), x) - (2*c^4*log(c*x + 1) + 2*c^4*log(c*x - 1) - 4*c^4*log(x) + (2*c^2
*x^2 + 1)/x^4)*log(c)^2 + 16*integrate(1/4*log(c^2*x^2)/(c^2*x^7 - x^5), x)
*log(c) - 32*integrate(1/4*log(x)/(c^2*x^7 - x^5), x)*log(c) - 8*integrate(
1/4*sqrt(c*x + 1)*sqrt(c*x - 1)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^
7 - x^5), x) + 16*integrate(1/4*log(c^2*x^2)*log(x)/(c^2*x^7 - x^5), x) - 1
6*integrate(1/4*log(x)^2/(c^2*x^7 - x^5), x) - 4*integrate(1/4*log(c^2*x^2)
/(c^2*x^7 - x^5), x))*x^4 + 4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - log(c
^2*x^2)^2)*b^2/x^4 - 1/4*a^2/x^4
```

Fricas [A] time = 2.21055, size = 275, normalized size = 2.05

$$\frac{3\,b^2c^2x^2 + \left(3\,b^2c^4x^4 - 8\,b^2\right)\operatorname{arcsec}(cx)^2 - 8\,a^2 + b^2 + 2\left(3\,abc^4x^4 - 8\,ab\right)\operatorname{arcsec}(cx) + 2\left(3\,abc^2x^2 + 2\,ab + \left(3\,b^2c^2x^2\right.\right.}{32\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^5,x, algorithm="fricas")
```

```
[Out] 1/32*(3*b^2*c^2*x^2 + (3*b^2*c^4*x^4 - 8*b^2)*arcsec(c*x)^2 - 8*a^2 + b^2 +
 2*(3*a*b*c^4*x^4 - 8*a*b)*arcsec(c*x) + 2*(3*a*b*c^2*x^2 + 2*a*b + (3*b^2*
c^2*x^2 + 2*b^2)*arcsec(c*x))*sqrt(c^2*x^2 - 1))/x^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\operatorname{asec}(cx))^2}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**2/x**5,x)
```

```
[Out] Integral((a + b*asec(c*x))**2/x**5, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx) + a)^2}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^2/x^5,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2/x^5, x)
```

3.24 $\int x^3 \left(a+b\sec^{-1}(cx)\right)^3\,dx$

Optimal. Leaf size=207

$$\frac{ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2c^4}+\frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2}-\frac{b^2\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^4}-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec\right.}{4c}$$

```
[Out] -(b^3*Sqrt[1 - 1/(c^2*x^2)]*x)/(4*c^3) + (b^2*x^2*(a + b*ArcSec[c*x]))/(4*c
^2) + ((I/2)*b*(a + b*ArcSec[c*x])^2)/c^4 - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(a +
 b*ArcSec[c*x])^2)/(2*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3*(a + b*ArcSec[c*x
])^2)/(4*c) + (x^4*(a + b*ArcSec[c*x])^3)/4 - (b^2*(a + b*ArcSec[c*x])*Log[
1 + E^((2*I)*ArcSec[c*x])])/c^4 + ((I/2)*b^3*PolyLog[2, -E^((2*I)*ArcSec[c*
x])])/c^4
```

Rubi [A] time = 0.211203, antiderivative size = 207, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 10, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.714, Rules used = {5222, 4409, 4186, 3767, 8, 4184, 3719, 2190, 2279, 2391}

$$\frac{ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2c^4}+\frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2}-\frac{b^2\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^4}-\frac{bx^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec\right.}{4c}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(a + b*ArcSec[c*x])^3,x]
```


```
[Out] -(b^3*Sqrt[1 - 1/(c^2*x^2)]*x)/(4*c^3) + (b^2*x^2*(a + b*ArcSec[c*x]))/(4*c
^2) + ((I/2)*b*(a + b*ArcSec[c*x])^2)/c^4 - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(a +
 b*ArcSec[c*x])^2)/(2*c^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x^3*(a + b*ArcSec[c*x
])^2)/(4*c) + (x^4*(a + b*ArcSec[c*x])^3)/4 - (b^2*(a + b*ArcSec[c*x])*Log[
1 + E^((2*I)*ArcSec[c*x])])/c^4 + ((I/2)*b^3*PolyLog[2, -E^((2*I)*ArcSec[c*
x])])/c^4
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4186

```
Int[(csc[(e_.) + (f_.)*(x_)]*(b_.))^(n_)*((c_.) + (d_.)*(x_))^(m_), x_Symbo
l] :> -Simp[(b^2*(c + d*x)^m*Cot[e + f*x]*(b*Csc[e + f*x])^(n - 2))/(f*(n -
 1)), x] + (Dist[(b^2*d^2*m*(m - 1))/(f^2*(n - 1)*(n - 2)), Int[(c + d*x)^(
m - 2)*(b*Csc[e + f*x])^(n - 2), x], x] + Dist[(b^2*(n - 2))/(n - 1), Int[(
c + d*x)^m*(b*Csc[e + f*x])^(n - 2), x], x] - Simp[(b^2*d*m*(c + d*x)^(m -
1)*(b*Csc[e + f*x])^(n - 2))/(f^2*(n - 1)*(n - 2)), x]) /; FreeQ[{b, c, d,
e, f}, x] && GtQ[n, 1] && NeQ[n, 2] && GtQ[m, 1]
```

Rule 3767

```
Int[csc[(c_.) + (d_.)*(x_)]^(n_), x_Symbol] :> -Dist[d^(-1), Subst[Int[Expa
ndIntegrand[(1 + x^2)^(n/2 - 1), x], x], x, Cot[c + d*x]], x] /; FreeQ[{c,
d}, x] && IGtQ[n/2, 0]
```

Rule 8

```
Int[a_, x_Symbol] :> Simp[a*x, x] /; FreeQ[a, x]
```

Rule 4184

```
Int[csc[(e_.) + (f_.)*(x_)]^2*((c_.) + (d_.)*(x_))^(m_.), x_Symbol] :> -Sim
p[((c + d*x)^m*Cot[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Co
t[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int x^3\left(a+b\sec^{-1}(cx)\right)^3 dx = \frac{\text{Subst}\left(\int (a+bx)^3\sec^4(x)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{c^4}$$
$$= \frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^3 - \frac{(3b)\,\text{Subst}\left(\int (a+bx)^2\sec^4(x)\,dx, x, \sec^{-1}(cx)\right)}{4c^4}$$
$$= \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3\left(a+b\sec^{-1}(cx)\right)^2}{4c} + \frac{1}{4}x^4\left(a+b\sec^{-1}(cx)\right)^3 - \frac{b\,\text{Sub}}{}$$
$$= \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c^3} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x^3\left(a+b\sec^{-1}(cx)\right)^2}{4c}$$
$$= -\frac{b^3\sqrt{1-\frac{1}{c^2x^2}}x}{4c^3} + \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} + \frac{ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^4} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}\right.}{2c^3}$$
$$= -\frac{b^3\sqrt{1-\frac{1}{c^2x^2}}x}{4c^3} + \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} + \frac{ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^4} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}\right.}{2c^3}$$
$$= -\frac{b^3\sqrt{1-\frac{1}{c^2x^2}}x}{4c^3} + \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} + \frac{ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^4} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}\right.}{2c^3}$$
$$= -\frac{b^3\sqrt{1-\frac{1}{c^2x^2}}x}{4c^3} + \frac{b^2x^2\left(a+b\sec^{-1}(cx)\right)}{4c^2} + \frac{ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^4} - \frac{b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}\right.}{2c^3}$$

Mathematica [A] time = 0.835647, size = 288, normalized size = 1.39

$$\frac{2ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right) + b\sec^{-1}(cx)\left(cx\left(3a^2c^3x^3 - 2ab\sqrt{1-\frac{1}{c^2x^2}}\left(c^2x^2+2\right) + b^2cx\right) - 4b^2\log\left(1+e^{2i\sec^{-1}(cx)}\right)\right) -}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x^3*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (-2*a^2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x - b^3*c*Sqrt[1 - 1/(c^2*x^2)]*x + a*b^2
*c^2*x^2 - a^2*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*x^3 + a^3*c^4*x^4 - b^2*(-3*a*c^
4*x^4 + b*(-2*I + 2*c*Sqrt[1 - 1/(c^2*x^2)]*x + c^3*Sqrt[1 - 1/(c^2*x^2)]*x
^3))*ArcSec[c*x]^2 + b^3*c^4*x^4*ArcSec[c*x]^3 + b*ArcSec[c*x]*(c*x*(b^2*c*
x + 3*a^2*c^3*x^3 - 2*a*b*Sqrt[1 - 1/(c^2*x^2)]*(2 + c^2*x^2)) - 4*b^2*Log[
1 + E^((2*I)*ArcSec[c*x])]) - 4*a*b^2*Log[1/(c*x)] + (2*I)*b^3*PolyLog[2, -
E^((2*I)*ArcSec[c*x])])/(4*c^4)
```

Maple [B] time = 0.472, size = 447, normalized size = 2.2

$$\frac{x^4a^3}{4} + \frac{b^3\left(\text{arcsec}\,(cx)\right)^3x^4}{4} - \frac{b^3\left(\text{arcsec}\,(cx)\right)^2x^3}{4\,c}\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{b^3\left(\text{arcsec}\,(cx)\right)^2x}{2\,c^3}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{\frac{i}{2}b^3\left(\text{arcsec}\,(cx)\right)^2}{c^4} + \frac{b^3a}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))^3,x)
```

```
[Out] 1/4*x^4*a^3+1/4*b^3*arcsec(c*x)^3*x^4-1/4/c*b^3*((c^2*x^2-1)/c^2/x^2)^(1/2)
*arcsec(c*x)^2*x^3-1/2/c^3*b^3*arcsec(c*x)^2*((c^2*x^2-1)/c^2/x^2)^(1/2)*x+
1/2*I/c^4*b^3*arcsec(c*x)^2+1/4/c^2*b^3*arcsec(c*x)*x^2-1/4/c^3*b^3*((c^2*x
^2-1)/c^2/x^2)^(1/2)*x+1/2*I*b^3*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2
```

```
)/c^4-1/c^4*b^3*arcsec(c*x)*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)-1/4*I/c^4
*b^3+3/4*a^2*b*x^4*arcsec(c*x)-1/4/c*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^3-
1/4/c^3*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x+1/2/c^5*a^2*b/((c^2*x^2-1)/c^2/
x^2)^(1/2)/x+3/4*a*b^2*arcsec(c*x)^2*x^4-1/2/c*a*b^2*((c^2*x^2-1)/c^2/x^2)^
(1/2)*arcsec(c*x)*x^3+1/4/c^2*x^2*a*b^2-1/c^3*a*b^2*((c^2*x^2-1)/c^2/x^2)^(
1/2)*arcsec(c*x)*x-1/c^4*a*b^2*ln(1/c/x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{3}{4}ab^2x^4\operatorname{arcsec}(cx)^2 + \frac{1}{4}a^3x^4 + \frac{1}{4}\left(3x^4\operatorname{arcsec}(cx) - \frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 3x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)a^2b + \frac{1}{16}\left(4x^4\arctan\left(\sqrt{cx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] 3/4*a*b^2*x^4*arcsec(c*x)^2 + 1/4*a^3*x^4 + 1/4*(3*x^4*arcsec(c*x) - (c^2*x
^3*(-1/(c^2*x^2) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*a^2*b + 1/16
*(4*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 3*x^4*arctan(sqrt(c*x + 1)*
sqrt(c*x - 1))*log(c^2*x^2)^2 - 16*integrate(3/16*((4*x^3*arctan(sqrt(c*x +
 1)*sqrt(c*x - 1))^2 - x^3*log(c^2*x^2)^2)*sqrt(c*x + 1)*sqrt(c*x - 1) + 4*
(4*c^2*x^5*log(c)^2 - 4*x^3*log(c)^2 + 4*(c^2*x^5 - x^3)*log(x)^2 - ((4*c^2
*log(c) + c^2)*x^5 - x^3*(4*log(c) + 1) + 4*(c^2*x^5 - x^3)*log(x))*log(c^2
*x^2) + 8*(c^2*x^5*log(c) - x^3*log(c))*log(x))*arctan(sqrt(c*x + 1)*sqrt(c
*x - 1)))/(c^2*x^2 - 1), x))*b^3 + 1/4*((c^2*x^2 + 2*log(x^2))*sqrt(c*x + 1
)*sqrt(c*x - 1) - 2*(c^4*x^4 + c^2*x^2 - 2)*arctan(sqrt(c*x + 1)*sqrt(c*x -
 1)))*a*b^2/(sqrt(c*x + 1)*sqrt(c*x - 1)*c^4)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(b^3x^3\operatorname{arcsec}(cx)^3 + 3\,ab^2x^3\operatorname{arcsec}(cx)^2 + 3\,a^2bx^3\operatorname{arcsec}(cx) + a^3x^3, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(b^3*x^3*arcsec(c*x)^3 + 3*a*b^2*x^3*arcsec(c*x)^2 + 3*a^2*b*x^3*ar
csec(c*x) + a^3*x^3, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3\left(a + b\operatorname{asec}(cx)\right)^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(x**3*(a + b*asec(c*x))**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)^3 x^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3*x^3, x)
```

3.25 $\int x^2 \left(a+b\sec^{-1}(cx)\right)^3 dx$

Optimal. Leaf size=236

$$-\frac{ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^3}+\frac{ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^3}+\frac{b^3\text{PolyLog}\left(3,-ie^{is}\right.}{c^3}$$

```
[Out] (b^2*x*(a + b*ArcSec[c*x]))/c^2 - (b*Sqrt[1 - 1/(c^2*x^2)]*x^2*(a + b*ArcSe
c[c*x])^2)/(2*c) + (x^3*(a + b*ArcSec[c*x])^3)/3 + (I*b*(a + b*ArcSec[c*x])
^2*ArcTan[E^(I*ArcSec[c*x])])/c^3 - (b^3*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c^
3 - (I*b^2*(a + b*ArcSec[c*x])*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c^3 + (I
*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*E^(I*ArcSec[c*x])])/c^3 + (b^3*PolyLo
g[3, (-I)*E^(I*ArcSec[c*x])])/c^3 - (b^3*PolyLog[3, I*E^(I*ArcSec[c*x])])/c
^3
```

Rubi [A] time = 0.192231, antiderivative size = 236, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 8, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.571, Rules used = {5222, 4409, 4186, 3770, 4181, 2531, 2282, 6589}

$$-\frac{ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^3}+\frac{ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^3}+\frac{b^3\text{PolyLog}\left(3,-ie^{is}\right.}{c^3}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (b^2*x*(a + b*ArcSec[c*x]))/c^2 - (b*Sqrt[1 - 1/(c^2*x^2)]*x^2*(a + b*ArcSe
c[c*x])^2)/(2*c) + (x^3*(a + b*ArcSec[c*x])^3)/3 + (I*b*(a + b*ArcSec[c*x])
^2*ArcTan[E^(I*ArcSec[c*x])])/c^3 - (b^3*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c^
3 - (I*b^2*(a + b*ArcSec[c*x])*PolyLog[2, (-I)*E^(I*ArcSec[c*x])])/c^3 + (I
*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*E^(I*ArcSec[c*x])])/c^3 + (b^3*PolyLo
g[3, (-I)*E^(I*ArcSec[c*x])])/c^3 - (b^3*PolyLog[3, I*E^(I*ArcSec[c*x])])/c
^3
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4186

```
Int[(csc[(e_.) + (f_.)*(x_)]*(b_.))^(n_)*((c_.) + (d_.)*(x_))^(m_), x_Symbo
l] :> -Simp[(b^2*(c + d*x)^m*Cot[e + f*x]*(b*Csc[e + f*x])^(n - 2))/(f*(n -
 1)), x] + (Dist[(b^2*d^2*m*(m - 1))/(f^2*(n - 1)*(n - 2)), Int[(c + d*x)^(
m - 2)*(b*Csc[e + f*x])^(n - 2), x], x] + Dist[(b^2*(n - 2))/(n - 1), Int[(
c + d*x)^m*(b*Csc[e + f*x])^(n - 2), x], x] - Simp[(b^2*d*m*(c + d*x)^(m -
```

```
1)*(b*Csc[e + f*x])^(n - 2))/(f^2*(n - 1)*(n - 2)), x]) /; FreeQ[{b, c, d,
e, f}, x] && GtQ[n, 1] && NeQ[n, 2] && GtQ[m, 1]
```

Rule 3770

```
Int[csc[(c_.) + (d_.)*(x_)], x_Symbol] :> -Simp[ArcTanh[Cos[c + d*x]]/d, x]
 /; FreeQ[{c, d}, x]
```

Rule 4181

```
Int[csc[(e_.) + Pi*(k_.) + (f_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.), x_Symbol
] :> Simp[(-2*(c + d*x)^m*ArcTanh[E^(I*k*Pi)*E^(I*(e + f*x))])/f, x] + (-Di
st[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 - E^(I*k*Pi)*E^(I*(e + f*x))], x],
x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 + E^(I*k*Pi)*E^(I*(e + f*x))
], x], x]) /; FreeQ[{c, d, e, f}, x] && IntegerQ[2*k] && IGtQ[m, 0]
```

Rule 2531

```
Int[Log[1 + (e_.)*((F_)^((c_.)*((a_.) + (b_.)*(x_))))^(n_.)]*((f_.) + (g_.)
*(x_))^(m_.), x_Symbol] :> -Simp[((f + g*x)^m*PolyLog[2, -(e*(F^(c*(a + b*x
)))^n)])/(b*c*n*Log[F]), x] + Dist[(g*m)/(b*c*n*Log[F]), Int[(f + g*x)^(m -
 1)*PolyLog[2, -(e*(F^(c*(a + b*x)))^n)], x], x] /; FreeQ[{F, a, b, c, e, f
, g, n}, x] && GtQ[m, 0]
```

Rule 2282

```
Int[u_, x_Symbol] :> With[{v = FunctionOfExponential[u, x]}, Dist[v/D[v, x]
, Subst[Int[FunctionOfExponentialFunction[u, x]/x, x], x, v], x]] /; Functi
onOfExponentialQ[u, x] &&  !MatchQ[u, (w_)*((a_.)*(v_)^(n_))^(m_) /; FreeQ[
{a, m, n}, x] && IntegerQ[m*n]] &&  !MatchQ[u, E^((c_.)*((a_.) + (b_.)*x))*
(F_)[v_] /; FreeQ[{a, b, c}, x] && InverseFunctionQ[F[x]]]
```

Rule 6589

```
Int[PolyLog[n_, (c_.)*((a_.) + (b_.)*(x_))^(p_.)]/((d_.) + (e_.)*(x_)), x_S
ymbol] :> Simp[PolyLog[n + 1, c*(a + b*x)^p]/(e*p), x] /; FreeQ[{a, b, c, d
, e, n, p}, x] && EqQ[b*d, a*e]
```

Rubi steps

$$\int x^2\left(a+b\sec^{-1}(cx)\right)^3\,dx=\frac{\text{Subst}\left(\int(a+bx)^3\sec^3(x)\tan(x)\,dx,x,\sec^{-1}(cx)\right)}{c^3}$$
$$=\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3-\frac{b\,\text{Subst}\left(\int(a+bx)^2\sec^3(x)\,dx,x,\sec^{-1}(cx)\right)}{c^3}$$
$$=\frac{b^2x\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3-\frac{b\,\text{Su}}{}$$
$$=\frac{b^2x\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3+\frac{ib(}{}$$
$$=\frac{b^2x\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3+\frac{ib(}{}$$
$$=\frac{b^2x\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3+\frac{ib(}{}$$
$$=\frac{b^2x\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{b\sqrt{1-\frac{1}{c^2x^2}}x^2\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{3}x^3\left(a+b\sec^{-1}(cx)\right)^3+\frac{ib(}{}$$

Mathematica [A] time = 1.32206, size = 403, normalized size = 1.71

$$\frac{-6ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+6ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+6b^3\text{PolyLog}\left(3,-i\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x^2*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (6*a*b^2*c*x - 3*a^2*b*c^2*Sqrt[1 - 1/(c^2*x^2)]*x^2 + 2*a^3*c^3*x^3 + 6*b^
3*c*x*ArcSec[c*x] - 6*a*b^2*c^2*Sqrt[1 - 1/(c^2*x^2)]*x^2*ArcSec[c*x] + 6*a
^2*b*c^3*x^3*ArcSec[c*x] - 3*b^3*c^2*Sqrt[1 - 1/(c^2*x^2)]*x^2*ArcSec[c*x]^
2 + 6*a*b^2*c^3*x^3*ArcSec[c*x]^2 + 2*b^3*c^3*x^3*ArcSec[c*x]^3 + (6*I)*b^3
*ArcSec[c*x]^2*ArcTan[E^(I*ArcSec[c*x])] - 6*b^3*ArcTanh[Sqrt[1 - 1/(c^2*x^
2)]] - 6*a*b^2*ArcSec[c*x]*Log[1 - I*E^(I*ArcSec[c*x])] + 6*a*b^2*ArcSec[c*
x]*Log[1 + I*E^(I*ArcSec[c*x])] - 3*a^2*b*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x
] - (6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, (-I)*E^(I*ArcSec[c*x])] + (6*I
)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*E^(I*ArcSec[c*x])] + 6*b^3*PolyLog[3
, (-I)*E^(I*ArcSec[c*x])] - 6*b^3*PolyLog[3, I*E^(I*ArcSec[c*x])])/(6*c^3)
```

Maple [B] time = 0.52, size = 687, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))^3,x)
```

```
[Out] 1/3*a^3*x^3+1/3*x^3*b^3*arcsec(c*x)^3-1/2/c*b^3*((c^2*x^2-1)/c^2/x^2)^(1/2)
*arcsec(c*x)^2*x^2+1/c^2*b^3*arcsec(c*x)*x+1/2/c^3*b^3*arcsec(c*x)^2*ln(1+I
*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-I/c^3*a*b^2*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2
)^(1/2)))+b^3*polylog(3,-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))/c^3-1/2/c^3*b^3*a
rcsec(c*x)^2*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I/c^3*b^3*arcsec(c*x)*po
lylog(2,I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-b^3*polylog(3,I*(1/c/x+I*(1-1/c^2/
```

```
x^2)^(1/2)))/c^3+2*I/c^3*b^3*arctan(1/c/x+I*(1-1/c^2/x^2)^(1/2))+b^2*x^3*a*
arcsec(c*x)^2-1/c*a*b^2*((c^2*x^2-1)/c^2/x^2)^(1/2)*arcsec(c*x)*x^2-I/c^3*b
^3*arcsec(c*x)*polylog(2,-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I/c^3*a*b^2*dilo
g(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+1/c^3*a*b^2*arcsec(c*x)*ln(1+I*(1/c/x+
I*(1-1/c^2/x^2)^(1/2)))-1/c^3*a*b^2*arcsec(c*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^
2)^(1/2)))+1/c^2*x*a*b^2+x^3*a^2*b*arcsec(c*x)-1/2/c*a^2*b/((c^2*x^2-1)/c^2
/x^2)^(1/2)*x^2+1/2/c^3*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)-1/2/c^4*a^2*b*(c^
2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] 1/3*b^3*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 1/4*b^3*x^3*arctan(sqrt
(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)^2 - 1/2*a*b^2*c^2*(2*(c^2*x^3 + 3*x)/
c^4 - 3*log(c*x + 1)/c^5 + 3*log(c*x - 1)/c^5)*log(c)^2 - 12*b^3*c^2*integr
ate(1/4*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^2 - 1), x)*log(c)^2
+ 12*b^3*c^2*integrate(1/4*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*
x^2)/(c^2*x^2 - 1), x)*log(c) - 24*b^3*c^2*integrate(1/4*x^4*arctan(sqrt(c*
x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^2 - 1), x)*log(c) + 12*a*b^2*c^2*integr
ate(1/4*x^4*log(c^2*x^2)/(c^2*x^2 - 1), x)*log(c) - 24*a*b^2*c^2*integrate(
1/4*x^4*log(x)/(c^2*x^2 - 1), x)*log(c) + 1/3*a^3*x^3 + 12*b^3*c^2*integrat
e(1/4*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^2
- 1), x) - 12*b^3*c^2*integrate(1/4*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))
*log(x)^2/(c^2*x^2 - 1), x) + 12*a*b^2*c^2*integrate(1/4*x^4*arctan(sqrt(c*
x + 1)*sqrt(c*x - 1))^2/(c^2*x^2 - 1), x) + 4*b^3*c^2*integrate(1/4*x^4*arc
tan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^2 - 1), x) - 3*a*b^2*c
^2*integrate(1/4*x^4*log(c^2*x^2)^2/(c^2*x^2 - 1), x) + 12*a*b^2*c^2*integr
ate(1/4*x^4*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) - 12*a*b^2*c^2*integrate(
1/4*x^4*log(x)^2/(c^2*x^2 - 1), x) + 3/2*a*b^2*(2*x/c^2 - log(c*x + 1)/c^3
+ log(c*x - 1)/c^3)*log(c)^2 + 12*b^3*integrate(1/4*x^2*arctan(sqrt(c*x + 1
)*sqrt(c*x - 1))/(c^2*x^2 - 1), x)*log(c)^2 - 12*b^3*integrate(1/4*x^2*arct
an(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^2 - 1), x)*log(c) + 24*
b^3*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^2 -
 1), x)*log(c) - 12*a*b^2*integrate(1/4*x^2*log(c^2*x^2)/(c^2*x^2 - 1), x)*
log(c) + 24*a*b^2*integrate(1/4*x^2*log(x)/(c^2*x^2 - 1), x)*log(c) + 1/4*(
4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c^2*x^2) - 1) + c^2)
 + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^
2)/c)*a^2*b - 4*b^3*integrate(1/4*sqrt(c*x + 1)*sqrt(c*x - 1)*x^2*arctan(sq
rt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^2 - 1), x) + b^3*integrate(1/4*sqrt(c*x
 + 1)*sqrt(c*x - 1)*x^2*log(c^2*x^2)^2/(c^2*x^2 - 1), x) - 12*b^3*integrate
(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^2 -
 1), x) + 12*b^3*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(
x)^2/(c^2*x^2 - 1), x) - 12*a*b^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sq
rt(c*x - 1))^2/(c^2*x^2 - 1), x) - 4*b^3*integrate(1/4*x^2*arctan(sqrt(c*x
+ 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^2 - 1), x) + 3*a*b^2*integrate(1/4*
x^2*log(c^2*x^2)^2/(c^2*x^2 - 1), x) - 12*a*b^2*integrate(1/4*x^2*log(c^2*x
^2)*log(x)/(c^2*x^2 - 1), x) + 12*a*b^2*integrate(1/4*x^2*log(x)^2/(c^2*x^2
 - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(b^3x^2\,\text{arcsec}\,(cx)^3 + 3\,ab^2x^2\,\text{arcsec}\,(cx)^2 + 3\,a^2bx^2\,\text{arcsec}\,(cx) + a^3x^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(b^3*x^2*arcsec(c*x)^3 + 3*a*b^2*x^2*arcsec(c*x)^2 + 3*a^2*b*x^2*ar
csec(c*x) + a^3*x^2, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2\,(a + b\,\text{asec}\,(cx))^3\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x))**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b\,\text{arcsec}\,(cx) + a)^3x^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3*x^2, x)
```

3.26 $\int x\left(a+b\sec^{-1}(cx)\right)^3\,dx$

Optimal. Leaf size=126

$$\frac{3ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2c^2}-\frac{3b^2\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{3bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{3ib\left(a+b\right.}{}$$

```
[Out] (((3*I)/2)*b*(a + b*ArcSec[c*x])^2)/c^2 - (3*b*Sqrt[1 - 1/(c^2*x^2)]*x*(a +
 b*ArcSec[c*x])^2)/(2*c) + (x^2*(a + b*ArcSec[c*x])^3)/2 - (3*b^2*(a + b*Ar
cSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/c^2 + (((3*I)/2)*b^3*PolyLog[2,
-E^((2*I)*ArcSec[c*x])])/c^2
```

Rubi [A] time = 0.142431, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.583, Rules used = {5222, 4409, 4184, 3719, 2190, 2279, 2391}

$$\frac{3ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2c^2}-\frac{3b^2\log\left(1+e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c^2}-\frac{3bx\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{3ib\left(a+b\right.}{}$$

Antiderivative was successfully verified.

```
[In] Int[x*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (((3*I)/2)*b*(a + b*ArcSec[c*x])^2)/c^2 - (3*b*Sqrt[1 - 1/(c^2*x^2)]*x*(a +
 b*ArcSec[c*x])^2)/(2*c) + (x^2*(a + b*ArcSec[c*x])^3)/2 - (3*b^2*(a + b*Ar
cSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/c^2 + (((3*I)/2)*b^3*PolyLog[2,
-E^((2*I)*ArcSec[c*x])])/c^2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4184

```
Int[csc[(e_.) + (f_.)*(x_)]^2*((c_.) + (d_.)*(x_))^(m_.), x_Symbol] :> -Sim
p[((c + d*x)^m*Cot[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Co
t[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\begin{aligned}
\int x\left(a+b\sec^{-1}(cx)\right)^3\,dx &= \frac{\text{Subst}\left(\int(a+bx)^3\sec^2(x)\tan(x)\,dx,x,\sec^{-1}(cx)\right)}{c^2}\\
&= \frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3-\frac{(3b)\,\text{Subst}\left(\int(a+bx)^2\sec^2(x)\,dx,x,\sec^{-1}(cx)\right)}{2c^2}\\
&= -\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3+\frac{\left(3b^2\right)\text{Subst}\left(\int(a+bx)\tan\right.}{c^2}\\
&= \frac{3ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^2}-\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3-\frac{(6ib}{}\\
&= \frac{3ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^2}-\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3-\frac{3b^2}{}\\
&= \frac{3ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^2}-\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3-\frac{3b^2}{}\\
&= \frac{3ib\left(a+b\sec^{-1}(cx)\right)^2}{2c^2}-\frac{3b\sqrt{1-\frac{1}{c^2x^2}}x\left(a+b\sec^{-1}(cx)\right)^2}{2c}+\frac{1}{2}x^2\left(a+b\sec^{-1}(cx)\right)^3-\frac{3b^2}{}
\end{aligned}$$

Mathematica [A] time = 0.459848, size = 184, normalized size = 1.46

$$\frac{3ib^3\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+a\left(acx\left(acx-3b\sqrt{1-\frac{1}{c^2x^2}}\right)-6b^2\log\left(\frac{1}{cx}\right)\right)-3b^2\sec^{-1}(cx)^2\left(-ac^2x^2+b\left(cx\sqrt{1-\frac{1}{c^2x^2}}\right.\right.}{2c^2}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (-3*b^2*(-(a*c^2*x^2) + b*(-I + c*Sqrt[1 - 1/(c^2*x^2)]*x))*ArcSec[c*x]^2 +
 b^3*c^2*x^2*ArcSec[c*x]^3 - 3*b*ArcSec[c*x]*(a*c*x*(2*b*Sqrt[1 - 1/(c^2*x^
2)] - a*c*x) + 2*b^2*Log[1 + E^((2*I)*ArcSec[c*x])]) + a*(a*c*x*(-3*b*Sqrt[
1 - 1/(c^2*x^2)] + a*c*x) - 6*b^2*Log[1/(c*x)]) + (3*I)*b^3*PolyLog[2, -E^(
(2*I)*ArcSec[c*x])])/(2*c^2)
```

Maple [A] time = 0.401, size = 285, normalized size = 2.3

$$\frac{x^2a^3}{2}+\frac{x^2b^3\,(\mathrm{arcsec}\,(cx))^3}{2}-\frac{3\,b^3\,(\mathrm{arcsec}\,(cx))^2\,x}{2\,c}\sqrt{\frac{c^2x^2-1}{c^2x^2}}+\frac{\frac{3\,i}{2}b^3\,(\mathrm{arcsec}\,(cx))^2}{c^2}-3\,\frac{b^3\mathrm{arcsec}\,(cx)}{c^2}\ln\left(1+\left(\frac{1}{cx}+i\sqrt{1\cdot}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))^3,x)
```

```
[Out] 1/2*x^2*a^3+1/2*x^2*b^3*arcsec(c*x)^3-3/2/c*b^3*arcsec(c*x)^2*((c^2*x^2-1)/
c^2/x^2)^(1/2)*x+3/2*I/c^2*b^3*arcsec(c*x)^2-3/c^2*b^3*arcsec(c*x)*ln(1+(1/
c/x+I*(1-1/c^2/x^2)^(1/2))^2)+3/2*I*b^3*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(
1/2))^2)/c^2+3/2*x^2*a*b^2*arcsec(c*x)^2-3/c*a*b^2*((c^2*x^2-1)/c^2/x^2)^(1
/2)*arcsec(c*x)*x-3/c^2*a*b^2*ln(1/c/x)+3/2*a^2*b*x^2*arcsec(c*x)-3/2/c*a^2
*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x+3/2/c^3*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/
x
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{3}{2}\,ab^2x^2\,\mathrm{arcsec}\,(cx)^2+\frac{1}{2}\,a^3x^2+\frac{3}{2}\left(x^2\,\mathrm{arcsec}\,(cx)-\frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)a^2b-3\left(\frac{x\sqrt{-\frac{1}{c^2x^2}+1}\,\mathrm{arcsec}\,(cx)}{c}-\frac{\log(x)}{c^2}\right)ab^2+\frac{1}{8}\Big(4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] 3/2*a*b^2*x^2*arcsec(c*x)^2 + 1/2*a^3*x^2 + 3/2*(x^2*arcsec(c*x) - x*sqrt(-
1/(c^2*x^2) + 1)/c)*a^2*b - 3*(x*sqrt(-1/(c^2*x^2) + 1)*arcsec(c*x)/c - log
(x)/c^2)*a*b^2 + 1/8*(4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 3*x^2*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)^2 - 8*integrate(3/8*((4*x*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - x*log(c^2*x^2)^2)*sqrt(c*x + 1)*sqrt
(c*x - 1) + 4*(2*c^2*x^3*log(c)^2 - 2*x*log(c)^2 + 2*(c^2*x^3 - x)*log(x)^2
 - ((2*c^2*log(c) + c^2)*x^3 - x*(2*log(c) + 1) + 2*(c^2*x^3 - x)*log(x))*l
og(c^2*x^2) + 4*(c^2*x^3*log(c) - x*log(c))*log(x))*arctan(sqrt(c*x + 1)*sq
rt(c*x - 1)))/(c^2*x^2 - 1), x))*b^3
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(b^3x\,\mathrm{arcsec}\,(cx)^3+3\,ab^2x\,\mathrm{arcsec}\,(cx)^2+3\,a^2bx\,\mathrm{arcsec}\,(cx)+a^3x,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(b^3*x*arcsec(c*x)^3 + 3*a*b^2*x*arcsec(c*x)^2 + 3*a^2*b*x*arcsec(c
*x) + a^3*x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\,(a+b\,\mathrm{asec}\,(cx))^3\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(x*(a + b*asec(c*x))**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)^3 x \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3*x, x)
```

3.27 $\int \left(a+b \sec^{-1}(cx)\right)^3 \, dx$

Optimal. Leaf size=158

$$-\frac{6ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{6ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{6b^3\text{PolyLog}\left(3,-ie^{i\cdots}\right.}{c}$$

```
[Out] x*(a + b*ArcSec[c*x])^3 + ((6*I)*b*(a + b*ArcSec[c*x])^2*ArcTan[E^(I*ArcSec
[c*x])])/c - ((6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, (-I)*E^(I*ArcSec[c*x
])])/c + ((6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*E^(I*ArcSec[c*x])])/c
+ (6*b^3*PolyLog[3, (-I)*E^(I*ArcSec[c*x])])/c - (6*b^3*PolyLog[3, I*E^(I*A
rcSec[c*x])])/c
```

Rubi [A] time = 0.118292, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 10, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.6, Rules used = {5216, 4409, 4181, 2531, 2282, 6589}

$$-\frac{6ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{6ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)}{c}+\frac{6b^3\text{PolyLog}\left(3,-ie^{i\cdots}\right.}{c}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3,x]
```

```
[Out] x*(a + b*ArcSec[c*x])^3 + ((6*I)*b*(a + b*ArcSec[c*x])^2*ArcTan[E^(I*ArcSec
[c*x])])/c - ((6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, (-I)*E^(I*ArcSec[c*x
])])/c + ((6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*E^(I*ArcSec[c*x])])/c
+ (6*b^3*PolyLog[3, (-I)*E^(I*ArcSec[c*x])])/c - (6*b^3*PolyLog[3, I*E^(I*A
rcSec[c*x])])/c
```

Rule 5216

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_), x_Symbol] :> Dist[1/c, Subst[I
nt[(a + b*x)^n*Sec[x]*Tan[x], x], x, ArcSec[c*x]], x] /; FreeQ[{a, b, c, n}
, x] && IGtQ[n, 0]
```

Rule 4409

```
Int[((c_.) + (d_.)*(x_))^(m_.)*Sec[(a_.) + (b_.)*(x_)]^(n_.)*Tan[(a_.) + (b
_.)*(x_)]^(p_.), x_Symbol] :> Simp[((c + d*x)^m*Sec[a + b*x]^n)/(b*n), x] -
 Dist[(d*m)/(b*n), Int[(c + d*x)^(m - 1)*Sec[a + b*x]^n, x], x] /; FreeQ[{a
, b, c, d, n}, x] && EqQ[p, 1] && GtQ[m, 0]
```

Rule 4181

```
Int[csc[(e_.) + Pi*(k_.) + (f_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.), x_Symbol
] :> Simp[(-2*(c + d*x)^m*ArcTanh[E^(I*k*Pi)*E^(I*(e + f*x))])/f, x] + (-Di
st[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 - E^(I*k*Pi)*E^(I*(e + f*x))], x],
x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Log[1 + E^(I*k*Pi)*E^(I*(e + f*x))
], x], x]) /; FreeQ[{c, d, e, f}, x] && IntegerQ[2*k] && IGtQ[m, 0]
```

Rule 2531

```
Int[Log[1 + (e_.)*((F_)^((c_.)*((a_.) + (b_.)*(x_))))^(n_.)]*((f_.) + (g_.)
*(x_))^(m_.), x_Symbol] :> -Simp[((f + g*x)^m*PolyLog[2, -(e*(F^(c*(a + b*x
)))^n)])/(b*c*n*Log[F]), x] + Dist[(g*m)/(b*c*n*Log[F]), Int[(f + g*x)^(m -
```

```
1)*PolyLog[2, -(e*(F^(c*(a + b*x)))^n)], x], x] /; FreeQ[{F, a, b, c, e, f
, g, n}, x] && GtQ[m, 0]
```

Rule 2282

```
Int[u_, x_Symbol] :> With[{v = FunctionOfExponential[u, x]}, Dist[v/D[v, x]
, Subst[Int[FunctionOfExponentialFunction[u, x]/x, x], x, v], x]] /; Functi
onOfExponentialQ[u, x] &&  !MatchQ[u, (w_)*((a_.)*(v_)^(n_))^(m_) /; FreeQ[
{a, m, n}, x] && IntegerQ[m*n]] &&  !MatchQ[u, E^((c_.)*((a_.) + (b_.)*x))*
(F_)[v_] /; FreeQ[{a, b, c}, x] && InverseFunctionQ[F[x]]]
```

Rule 6589

```
Int[PolyLog[n_, (c_.)*((a_.) + (b_.)*(x_))^(p_.)]/((d_.) + (e_.)*(x_)), x_S
ymbol] :> Simp[PolyLog[n + 1, c*(a + b*x)^p]/(e*p), x] /; FreeQ[{a, b, c, d
, e, n, p}, x] && EqQ[b*d, a*e]
```

Rubi steps

$$\begin{aligned}
\int \left(a+b\sec^{-1}(cx)\right)^3 dx &= \frac{\text{Subst}\left(\int (a+bx)^3\sec(x)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{c}\\
&= x\left(a+b\sec^{-1}(cx)\right)^3 - \frac{(3b)\,\text{Subst}\left(\int (a+bx)^2\sec(x)\,dx, x, \sec^{-1}(cx)\right)}{c}\\
&= x\left(a+b\sec^{-1}(cx)\right)^3 + \frac{6ib\left(a+b\sec^{-1}(cx)\right)^2\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} + \frac{\left(6b^2\right)\text{Subst}\left(\int (a+bx)\,\text{lo}\right.}{}\\
&= x\left(a+b\sec^{-1}(cx)\right)^3 + \frac{6ib\left(a+b\sec^{-1}(cx)\right)^2\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} - \frac{6ib^2\left(a+b\sec^{-1}(cx)\right)\text{Li}_2}{c}\\
&= x\left(a+b\sec^{-1}(cx)\right)^3 + \frac{6ib\left(a+b\sec^{-1}(cx)\right)^2\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} - \frac{6ib^2\left(a+b\sec^{-1}(cx)\right)\text{Li}_2}{c}\\
&= x\left(a+b\sec^{-1}(cx)\right)^3 + \frac{6ib\left(a+b\sec^{-1}(cx)\right)^2\tan^{-1}\left(e^{i\sec^{-1}(cx)}\right)}{c} - \frac{6ib^2\left(a+b\sec^{-1}(cx)\right)\text{Li}_2}{c}
\end{aligned}$$

Mathematica [A] time = 0.236383, size = 289, normalized size = 1.83

$$\frac{-6ib^2\text{PolyLog}\left(2,-ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+6ib^2\text{PolyLog}\left(2,ie^{i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+6b^3\text{PolyLog}\left(3,-i\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])^3,x]
```

```
[Out] (a^3*c*x + 3*a^2*b*c*x*ArcSec[c*x] + 3*a*b^2*c*x*ArcSec[c*x]^2 + b^3*c*x*Ar
cSec[c*x]^3 - 6*a*b^2*ArcSec[c*x]*Log[1 - I*E^(I*ArcSec[c*x])] - 3*b^3*ArcS
ec[c*x]^2*Log[1 - I*E^(I*ArcSec[c*x])] + 6*a*b^2*ArcSec[c*x]*Log[1 + I*E^(I
*ArcSec[c*x])] + 3*b^3*ArcSec[c*x]^2*Log[1 + I*E^(I*ArcSec[c*x])] - 3*a^2*b
*Log[c*(1 + Sqrt[1 - 1/(c^2*x^2)])*x] - (6*I)*b^2*(a + b*ArcSec[c*x])*PolyL
og[2, (-I)*E^(I*ArcSec[c*x])] + (6*I)*b^2*(a + b*ArcSec[c*x])*PolyLog[2, I*
E^(I*ArcSec[c*x])] + 6*b^3*PolyLog[3, (-I)*E^(I*ArcSec[c*x])] - 6*b^3*PolyL
og[3, I*E^(I*ArcSec[c*x])])/c
```

Maple [F] time = 0.508, size = 0, normalized size = 0.

$$\int (a + b\operatorname{arcsec}(cx))^3\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3,x)
```

```
[Out] int((a+b*arcsec(c*x))^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -3/2*a*b^2*c^2*(2*x/c^2 - log(c*x + 1)/c^3 + log(c*x - 1)/c^3)*log(c)^2 - 1
2*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^2 -
1), x)*log(c)^2 + b^3*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 3/4*b^3*x*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)^2 + 12*b^3*c^2*integrate(1/
4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^2 - 1), x)*lo
g(c) - 24*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log
(x)/(c^2*x^2 - 1), x)*log(c) + 12*a*b^2*c^2*integrate(1/4*x^2*log(c^2*x^2)/
(c^2*x^2 - 1), x)*log(c) - 24*a*b^2*c^2*integrate(1/4*x^2*log(x)/(c^2*x^2 -
 1), x)*log(c) + 12*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x
 - 1))*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) - 12*b^3*c^2*integrate(1/4*x^2
*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^2 - 1), x) + 12*a*b^2*
c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^2 - 1),
x) + 12*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c
^2*x^2)/(c^2*x^2 - 1), x) - 3*a*b^2*c^2*integrate(1/4*x^2*log(c^2*x^2)^2/(c
^2*x^2 - 1), x) + 12*a*b^2*c^2*integrate(1/4*x^2*log(c^2*x^2)*log(x)/(c^2*x
^2 - 1), x) - 12*a*b^2*c^2*integrate(1/4*x^2*log(x)^2/(c^2*x^2 - 1), x) - 3
/2*a*b^2*(log(c*x + 1)/c - log(c*x - 1)/c)*log(c)^2 + 12*b^3*integrate(1/4*
arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^2 - 1), x)*log(c)^2 - 12*b^3*int
egrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^2 - 1),
x)*log(c) + 24*b^3*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)
/(c^2*x^2 - 1), x)*log(c) - 12*a*b^2*integrate(1/4*log(c^2*x^2)/(c^2*x^2 -
1), x)*log(c) + 24*a*b^2*integrate(1/4*log(x)/(c^2*x^2 - 1), x)*log(c) + a^
3*x - 12*b^3*integrate(1/4*sqrt(c*x + 1)*sqrt(c*x - 1)*arctan(sqrt(c*x + 1)
*sqrt(c*x - 1))^2/(c^2*x^2 - 1), x) + 3*b^3*integrate(1/4*sqrt(c*x + 1)*sqr
t(c*x - 1)*log(c^2*x^2)^2/(c^2*x^2 - 1), x) - 12*b^3*integrate(1/4*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) + 12*b^3*
integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^2 - 1), x
) - 12*a*b^2*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^2 -
 1), x) - 12*b^3*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*
x^2)/(c^2*x^2 - 1), x) + 3*a*b^2*integrate(1/4*log(c^2*x^2)^2/(c^2*x^2 - 1)
, x) - 12*a*b^2*integrate(1/4*log(c^2*x^2)*log(x)/(c^2*x^2 - 1), x) + 12*a*
b^2*integrate(1/4*log(x)^2/(c^2*x^2 - 1), x) + 3/2*(2*c*x*arcsec(c*x) - log
(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*a^2*b/c
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(b^3 \operatorname{arcsec}(cx)^3 + 3\,ab^2 \operatorname{arcsec}(cx)^2 + 3\,a^2b \operatorname{arcsec}(cx) + a^3, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + 3*a^2*b*arcsec(c*x) +
a^3, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\operatorname{asec}(cx))^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3,x)
```

```
[Out] Integral((a + b*asec(c*x))**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b\,\mathrm{arcsec}(cx) + a)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3, x)
```

3.28 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x}\,dx$

Optimal. Leaf size=128

$$-\frac{3}{2}b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3}{2}ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)^2-\frac{3}{4}ib^3\text{PolyLog}\left(4,-e\right.$$

```
[Out] ((I/4)*(a + b*ArcSec[c*x])^4)/b - (a + b*ArcSec[c*x])^3*Log[1 + E^((2*I)*Ar
cSec[c*x])] + ((3*I)/2)*b*(a + b*ArcSec[c*x])^2*PolyLog[2, -E^((2*I)*ArcSec
[c*x])] - (3*b^2*(a + b*ArcSec[c*x])*PolyLog[3, -E^((2*I)*ArcSec[c*x])])/2
- ((3*I)/4)*b^3*PolyLog[4, -E^((2*I)*ArcSec[c*x])]
```

Rubi [A] time = 0.140944, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5222, 3719, 2190, 2531, 6609, 2282, 6589}

$$-\frac{3}{2}b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3}{2}ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)^2-\frac{3}{4}ib^3\text{PolyLog}\left(4,-e\right.$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3/x,x]
```


```
[Out] ((I/4)*(a + b*ArcSec[c*x])^4)/b - (a + b*ArcSec[c*x])^3*Log[1 + E^((2*I)*Ar
cSec[c*x])] + ((3*I)/2)*b*(a + b*ArcSec[c*x])^2*PolyLog[2, -E^((2*I)*ArcSec
[c*x])] - (3*b^2*(a + b*ArcSec[c*x])*PolyLog[3, -E^((2*I)*ArcSec[c*x])])/2
- ((3*I)/4)*b^3*PolyLog[4, -E^((2*I)*ArcSec[c*x])]
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2531

```
Int[Log[1 + (e_.)*((F_)^((c_.)*((a_.) + (b_.)*(x_))))^(n_.)]*((f_.) + (g_.)
*(x_))^(m_.), x_Symbol] :> -Simp[((f + g*x)^m*PolyLog[2, -(e*(F^(c*(a + b*x
)))^n)])/(b*c*n*Log[F]), x] + Dist[(g*m)/(b*c*n*Log[F]), Int[(f + g*x)^(m -
```

```
 1)*PolyLog[2, -(e*(F^(c*(a + b*x)))^n)], x], x] /; FreeQ[{F, a, b, c, e, f
, g, n}, x] && GtQ[m, 0]
```

Rule 6609

```
Int[((e_.) + (f_.)*(x_))^(m_.)*PolyLog[n_, (d_.)*((F_)^((c_.)*((a_.) + (b_.
)*(x_))))^(p_.)], x_Symbol] :> Simp[((e + f*x)^m*PolyLog[n + 1, d*(F^(c*(a
+ b*x)))^p])/(b*c*p*Log[F]), x] - Dist[(f*m)/(b*c*p*Log[F]), Int[(e + f*x)^
(m - 1)*PolyLog[n + 1, d*(F^(c*(a + b*x)))^p], x], x] /; FreeQ[{F, a, b, c,
 d, e, f, n, p}, x] && GtQ[m, 0]
```

Rule 2282

```
Int[u_, x_Symbol] :> With[{v = FunctionOfExponential[u, x]}, Dist[v/D[v, x]
, Subst[Int[FunctionOfExponentialFunction[u, x]/x, x], x, v], x]] /; Functi
onOfExponentialQ[u, x] &&  !MatchQ[u, (w_)*((a_.)*(v_)^(n_))^(m_) /; FreeQ[
{a, m, n}, x] && IntegerQ[m*n]] &&  !MatchQ[u, E^((c_.)*((a_.) + (b_.)*x))*
(F_)[v_] /; FreeQ[{a, b, c}, x] && InverseFunctionQ[F[x]]]
```

Rule 6589

```
Int[PolyLog[n_, (c_.)*((a_.) + (b_.)*(x_))^(p_.)]/((d_.) + (e_.)*(x_)), x_S
ymbol] :> Simp[PolyLog[n + 1, c*(a + b*x)^p]/(e*p), x] /; FreeQ[{a, b, c, d
, e, n, p}, x] && EqQ[b*d, a*e]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x}\,dx = \text{Subst}\left(\int (a+bx)^3\tan(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - 2i\,\text{Subst}\left(\int \frac{e^{2ix}(a+bx)^3}{1+e^{2ix}}\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - \left(a+b\sec^{-1}(cx)\right)^3\log\left(1+e^{2i\sec^{-1}(cx)}\right) + (3b)\,\text{Subst}\left(\int (a+bx)^2\log\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - \left(a+b\sec^{-1}(cx)\right)^3\log\left(1+e^{2i\sec^{-1}(cx)}\right) + \frac{3}{2}ib\left(a+b\sec^{-1}(cx)\right)^2\text{Li}_2\left(\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - \left(a+b\sec^{-1}(cx)\right)^3\log\left(1+e^{2i\sec^{-1}(cx)}\right) + \frac{3}{2}ib\left(a+b\sec^{-1}(cx)\right)^2\text{Li}_2\left(\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - \left(a+b\sec^{-1}(cx)\right)^3\log\left(1+e^{2i\sec^{-1}(cx)}\right) + \frac{3}{2}ib\left(a+b\sec^{-1}(cx)\right)^2\text{Li}_2\left(\right.$$
$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^4}{4b} - \left(a+b\sec^{-1}(cx)\right)^3\log\left(1+e^{2i\sec^{-1}(cx)}\right) + \frac{3}{2}ib\left(a+b\sec^{-1}(cx)\right)^2\text{Li}_2\left(\right.$$

Mathematica [A] time = 0.17005, size = 204, normalized size = 1.59

$$\frac{1}{4}\left(-6b^2\text{PolyLog}\left(3,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right) + 6ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)\left(a+b\sec^{-1}(cx)\right)^2 - 3ib^3\text{PolyLog}\left(\right.\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])^3/x,x]
```

```
[Out] ((6*I)*a^2*b*ArcSec[c*x]^2 + (4*I)*a*b^2*ArcSec[c*x]^3 + I*b^3*ArcSec[c*x]^
4 - 12*a^2*b*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 12*a*b^2*ArcSec[c
```

```
*x]^2*Log[1 + E^((2*I)*ArcSec[c*x])] - 4*b^3*ArcSec[c*x]^3*Log[1 + E^((2*I)
*ArcSec[c*x])] + 4*a^3*Log[c*x] + (6*I)*b*(a + b*ArcSec[c*x])^2*PolyLog[2,
-E^((2*I)*ArcSec[c*x])] - 6*b^2*(a + b*ArcSec[c*x])*PolyLog[3, -E^((2*I)*Ar
cSec[c*x])] - (3*I)*b^3*PolyLog[4, -E^((2*I)*ArcSec[c*x])])/4
```

Maple [B] time = 0.431, size = 390, normalized size = 3.1

$$a^3\ln(cx)+\frac{i}{4}b^3(\operatorname{arcsec}(cx))^4-b^3(\operatorname{arcsec}(cx))^3\ln\left(1+\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)^2\right)+\frac{3i}{2}b^3(\operatorname{arcsec}(cx))^2\operatorname{polylog}\left(2,-\left(\frac{1}{cx}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3/x,x)
```

```
[Out] a^3*ln(c*x)+1/4*I*b^3*arcsec(c*x)^4-b^3*arcsec(c*x)^3*ln(1+(1/c/x+I*(1-1/c^
2/x^2)^(1/2))^2)+3/2*I*b^3*arcsec(c*x)^2*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^
(1/2))^2)-3/2*b^3*arcsec(c*x)*polylog(3,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)-3
/4*I*b^3*polylog(4,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+I*a*b^2*arcsec(c*x)^3-
3*a*b^2*arcsec(c*x)^2*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+3*I*a*b^2*arcse
c(c*x)*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)-3/2*a*b^2*polylog(3,-(1/
c/x+I*(1-1/c^2/x^2)^(1/2))^2)+3/2*I*a^2*b*arcsec(c*x)^2-3*a^2*b*arcsec(c*x)
*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+3/2*I*a^2*b*polylog(2,-(1/c/x+I*(1-1
/c^2/x^2)^(1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x,x, algorithm="maxima")
```

```
[Out] -3/2*a*b^2*c^2*(log(c*x + 1)/c^2 + log(c*x - 1)/c^2)*log(c)^2 - 12*b^3*c^2*
integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^3 - x), x)*log
(c)^2 + 12*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*lo
g(c^2*x^2)/(c^2*x^3 - x), x)*log(c) - 24*b^3*c^2*integrate(1/4*x^2*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^3 - x), x)*log(c) + 12*a*b^2*c^2*
integrate(1/4*x^2*log(c^2*x^2)/(c^2*x^3 - x), x)*log(c) - 24*a*b^2*c^2*inte
grate(1/4*x^2*log(x)/(c^2*x^3 - x), x)*log(c) + b^3*arctan(sqrt(c*x + 1)*sq
rt(c*x - 1))^3*log(x) - 3/4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2
*x^2)^2*log(x) + 24*b^3*c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x
 - 1))*log(c^2*x^2)*log(x)/(c^2*x^3 - x), x) - 12*b^3*c^2*integrate(1/4*x^2
*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^3 - x), x) + 12*a*b^2*
c^2*integrate(1/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^3 - x),
x) - 3*a*b^2*c^2*integrate(1/4*x^2*log(c^2*x^2)^2/(c^2*x^3 - x), x) + 12*a*
b^2*c^2*integrate(1/4*x^2*log(c^2*x^2)*log(x)/(c^2*x^3 - x), x) - 12*a*b^2*
c^2*integrate(1/4*x^2*log(x)^2/(c^2*x^3 - x), x) + 12*a^2*b*c^2*integrate(1
/4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^3 - x), x) + 3/2*a*b^2*(l
og(c*x + 1) + log(c*x - 1) - 2*log(x))*log(c)^2 + 12*b^3*integrate(1/4*arct
an(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^3 - x), x)*log(c)^2 - 12*b^3*integra
te(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^3 - x), x)*l
og(c) + 24*b^3*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^
2*x^3 - x), x)*log(c) - 12*a*b^2*integrate(1/4*log(c^2*x^2)/(c^2*x^3 - x),
x)*log(c) + 24*a*b^2*integrate(1/4*log(x)/(c^2*x^3 - x), x)*log(c) - 12*b^3
```

```
*integrate(1/4*sqrt(c*x + 1)*sqrt(c*x - 1)*arctan(sqrt(c*x + 1)*sqrt(c*x -
1))^2*log(x)/(c^2*x^3 - x), x) + 3*b^3*integrate(1/4*sqrt(c*x + 1)*sqrt(c*x
 - 1)*log(c^2*x^2)^2*log(x)/(c^2*x^3 - x), x) - 24*b^3*integrate(1/4*arctan
(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^3 - x), x) + 12*b^
3*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^3 - x),
 x) - 12*a*b^2*integrate(1/4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^3
 - x), x) + 3*a*b^2*integrate(1/4*log(c^2*x^2)^2/(c^2*x^3 - x), x) - 12*a*b
^2*integrate(1/4*log(c^2*x^2)*log(x)/(c^2*x^3 - x), x) + 12*a*b^2*integrate
(1/4*log(x)^2/(c^2*x^3 - x), x) - 12*a^2*b*integrate(1/4*arctan(sqrt(c*x +
1)*sqrt(c*x - 1))/(c^2*x^3 - x), x) + a^3*log(x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^3\operatorname{arcsec}(cx)^3 + 3\,ab^2\operatorname{arcsec}(cx)^2 + 3\,a^2b\operatorname{arcsec}(cx) + a^3}{x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x,x, algorithm="fricas")
```

```
[Out] integral((b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + 3*a^2*b*arcsec(c*x) +
 a^3)/x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\operatorname{asec}(cx))^3}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3/x,x)
```

```
[Out] Integral((a + b*asec(c*x))**3/x, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx) + a)^3}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3/x, x)
```

3.29 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^2}\,dx$

Optimal. Leaf size=80

$$\frac{6b^2\left(a+b\sec^{-1}(cx)\right)}{x}+3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2-\frac{\left(a+b\sec^{-1}(cx)\right)^3}{x}-6b^3c\sqrt{1-\frac{1}{c^2x^2}}$$

```
[Out] -6*b^3*c*Sqrt[1 - 1/(c^2*x^2)] + (6*b^2*(a + b*ArcSec[c*x]))/x + 3*b*c*Sqrt
[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2 - (a + b*ArcSec[c*x])^3/x
```

Rubi [A] time = 0.0831653, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214, Rules used = {5222, 3296, 2637}

$$\frac{6b^2\left(a+b\sec^{-1}(cx)\right)}{x}+3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2-\frac{\left(a+b\sec^{-1}(cx)\right)^3}{x}-6b^3c\sqrt{1-\frac{1}{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3/x^2,x]
```

```
[Out] -6*b^3*c*Sqrt[1 - 1/(c^2*x^2)] + (6*b^2*(a + b*ArcSec[c*x]))/x + 3*b*c*Sqrt
[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2 - (a + b*ArcSec[c*x])^3/x
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3296

```
Int[((c_.) + (d_.)*(x_))^(m_.)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> -Simp[
((c + d*x)^m*Cos[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Cos[
e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 2637

```
Int[sin[Pi/2 + (c_.) + (d_.)*(x_)], x_Symbol] :> Simp[Sin[c + d*x]/d, x] /;
 FreeQ[{c, d}, x]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^2}\,dx = c\,\text{Subst}\left(\int (a+bx)^3\sin(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= -\frac{\left(a+b\sec^{-1}(cx)\right)^3}{x} + (3bc)\,\text{Subst}\left(\int (a+bx)^2\cos(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= 3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2 - \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x} - \left(6b^2c\right)\text{Subst}\left(\int (a+bx)\sin(x)\,d\right.$$
$$= \frac{6b^2\left(a+b\sec^{-1}(cx)\right)}{x} + 3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2 - \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x} - \left(6b^3c\right)\text{Su}$$
$$= -6b^3c\sqrt{1-\frac{1}{c^2x^2}} + \frac{6b^2\left(a+b\sec^{-1}(cx)\right)}{x} + 3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2 - \frac{\left(a+b\sec^{-\right.}}{x}$$

Mathematica [A] time = 0.161152, size = 141, normalized size = 1.76

$$\frac{3b\sec^{-1}(cx)\left(-a^2+2abcx\sqrt{1-\frac{1}{c^2x^2}}+2b^2\right)+3a^2bcx\sqrt{1-\frac{1}{c^2x^2}}-a^3+3b^2\sec^{-1}(cx)^2\left(bcx\sqrt{1-\frac{1}{c^2x^2}}-a\right)+6ab^2-6b^3}{x}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^3/x^2,x]
```

```
[Out] (-a^3 + 6*a*b^2 + 3*a^2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x - 6*b^3*c*Sqrt[1 - 1/(c
^2*x^2)]*x + 3*b*(-a^2 + 2*b^2 + 2*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x)*ArcSec[c*
x] + 3*b^2*(-a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x)*ArcSec[c*x]^2 - b^3*ArcSec[c*
x]^3)/x
```

Maple [B] time = 0.319, size = 198, normalized size = 2.5

$$c\left(-\frac{a^3}{cx}+b^3\left(-\frac{(\text{arcsec}\,(cx))^3}{cx}+3\,(\text{arcsec}\,(cx))^2\sqrt{\frac{c^2x^2-1}{c^2x^2}}-6\sqrt{\frac{c^2x^2-1}{c^2x^2}}+6\,\frac{\text{arcsec}\,(cx)}{cx}\right)+3\,ab^2\left(-\frac{(\text{arcsec}\,(cx))^2}{cx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3/x^2,x)
```

```
[Out] c*(-a^3/c/x+b^3*(-1/c/x*arcsec(c*x)^3+3*arcsec(c*x)^2*((c^2*x^2-1)/c^2/x^2)
^(1/2)-6*((c^2*x^2-1)/c^2/x^2)^(1/2)+6/c/x*arcsec(c*x))+3*a*b^2*(-1/c/x*arc
sec(c*x)^2+2/c/x+2*arcsec(c*x)*((c^2*x^2-1)/c^2/x^2)^(1/2))+3*a^2*b*(-1/c/x
*arcsec(c*x)+1/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^2/x^2*(c^2*x^2-1)))
```

Maxima [A] time = 1.04359, size = 197, normalized size = 2.46

$$-\frac{b^3\,\text{arcsec}\,(cx)^3}{x}+3\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\text{arcsec}\,(cx)}{x}\right)a^2b+6\left(c\sqrt{-\frac{1}{c^2x^2}+1}\,\text{arcsec}\,(cx)+\frac{1}{x}\right)ab^2+3\left(c\sqrt{-\frac{1}{c^2x^2}+1}\,\text{arc}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^2,x, algorithm="maxima")
```

```
[Out] -b^3*arcsec(c*x)^3/x + 3*(c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*a^2*b +
 6*(c*sqrt(-1/(c^2*x^2) + 1)*arcsec(c*x) + 1/x)*a*b^2 + 3*(c*sqrt(-1/(c^2*x
^2) + 1)*arcsec(c*x)^2 - 2*c*sqrt(-1/(c^2*x^2) + 1) + 2*arcsec(c*x)/x)*b^3
- 3*a*b^2*arcsec(c*x)^2/x - a^3/x
```

Fricas [A] time = 2.22056, size = 238, normalized size = 2.98

$$-\frac{b^3 \operatorname{arcsec}(cx)^3 + 3\,ab^2 \operatorname{arcsec}(cx)^2 + a^3 - 6\,ab^2 + 3\left(a^2b - 2\,b^3\right)\operatorname{arcsec}(cx) - 3\left(b^3 \operatorname{arcsec}(cx)^2 + 2\,ab^2 \operatorname{arcsec}(cx) + a\right.}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^2,x, algorithm="fricas")
```

```
[Out] -(b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + a^3 - 6*a*b^2 + 3*(a^2*b - 2*
b^3)*arcsec(c*x) - 3*(b^3*arcsec(c*x)^2 + 2*a*b^2*arcsec(c*x) + a^2*b - 2*b
^3)*sqrt(c^2*x^2 - 1))/x
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b \operatorname{asec}(cx))^3}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3/x**2,x)
```

```
[Out] Integral((a + b*asec(c*x))**3/x**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)^3}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3/x^2, x)
```

3.30 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^3}\,dx$

Optimal. Leaf size=137

$$-\frac{3}{4}b^2\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{4x}+\frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^3-\frac{1}{4}c^2\left(a+b\sec\right.$$

```
[Out] (-3*b^3*c*Sqrt[1 - 1/(c^2*x^2)])/(8*x) + (3*b^3*c^2*ArcSec[c*x])/8 - (3*b^2
*(c^2 - x^(-2))*(a + b*ArcSec[c*x]))/4 + (3*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a +
b*ArcSec[c*x])^2)/(4*x) - (c^2*(a + b*ArcSec[c*x])^3)/4 + ((c^2 - x^(-2))*(
a + b*ArcSec[c*x])^3)/2
```

Rubi [A] time = 0.10455, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4404, 3311, 32, 2635, 8}

$$-\frac{3}{4}b^2\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{4x}+\frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^3-\frac{1}{4}c^2\left(a+b\sec\right.$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3/x^3,x]
```

```
[Out] (-3*b^3*c*Sqrt[1 - 1/(c^2*x^2)])/(8*x) + (3*b^3*c^2*ArcSec[c*x])/8 - (3*b^2
*(c^2 - x^(-2))*(a + b*ArcSec[c*x]))/4 + (3*b*c*Sqrt[1 - 1/(c^2*x^2)]*(a +
b*ArcSec[c*x])^2)/(4*x) - (c^2*(a + b*ArcSec[c*x])^3)/4 + ((c^2 - x^(-2))*(
a + b*ArcSec[c*x])^3)/2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4404

```
Int[Cos[(a_.) + (b_.)*(x_)]*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b_.)*(x
_)]^(n_.), x_Symbol] :> Simp[((c + d*x)^m*Sin[a + b*x]^(n + 1))/(b*(n + 1))
, x] - Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Sin[a + b*x]^(n + 1),
x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3311

```
Int[((c_.) + (d_.)*(x_))^(m_)*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbo
l] :> Simp[(d*m*(c + d*x)^(m - 1)*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist
[(b^2*(n - 1))/n, Int[(c + d*x)^m*(b*Sin[e + f*x])^(n - 2), x], x] - Dist[(
d^2*m*(m - 1))/(f^2*n^2), Int[(c + d*x)^(m - 2)*(b*Sin[e + f*x])^n, x], x]
- Simp[(b*(c + d*x)^m*Cos[e + f*x]*(b*Sin[e + f*x])^(n - 1))/(f*n), x]) /;
FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1] && GtQ[m, 1]
```

Rule 32

```
Int[((a_.) + (b_.)*(x_))^(m_), x_Symbol] :> Simp[(a + b*x)^(m + 1)/(b*(m +
1)), x] /; FreeQ[{a, b, m}, x] && NeQ[m, -1]
```

Rule 2635

```
Int[((b_.)*sin[(c_.) + (d_.)*(x_)])^(n_), x_Symbol] :> -Simp[(b*Cos[c + d*x
]*(b*Sin[c + d*x])^(n - 1))/(d*n), x] + Dist[(b^2*(n - 1))/n, Int[(b*Sin[c
+ d*x])^(n - 2), x], x] /; FreeQ[{b, c, d}, x] && GtQ[n, 1] && IntegerQ[2*n
]
```

Rule 8

```
Int[a_, x_Symbol] :> Simp[a*x, x] /; FreeQ[a, x]
```

Rubi steps

$$\begin{aligned}\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^3}\,dx &= c^2\,\text{Subst}\left(\int (a+bx)^3\cos(x)\sin(x)\,dx, x, \sec^{-1}(cx)\right)\\ &= \frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)^3-\frac{1}{2}\left(3bc^2\right)\text{Subst}\left(\int (a+bx)^2\sin^2(x)\,dx, x, \sec^{-1}(cx)\right)\\ &= -\frac{3}{4}b^2\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{4x}+\frac{1}{2}\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}\right.\\ &= -\frac{3b^3c\sqrt{1-\frac{1}{c^2x^2}}}{8x}-\frac{3}{4}b^2\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{4x}-\frac{1}{4}c^2\left(a\right.\\ &= -\frac{3b^3c\sqrt{1-\frac{1}{c^2x^2}}}{8x}+\frac{3}{8}b^3c^2\sec^{-1}(cx)-\frac{3}{4}b^2\left(c^2-\frac{1}{x^2}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\,\text{se}\right.}{4x}\end{aligned}$$

Mathematica [A] time = 0.202228, size = 185, normalized size = 1.35

$$\frac{3bc^2x^2\left(b^2-2a^2\right)\sin^{-1}\left(\frac{1}{cx}\right)+6b\sec^{-1}(cx)\left(-2a^2+2abcx\sqrt{1-\frac{1}{c^2x^2}}+b^2\right)+6a^2bcx\sqrt{1-\frac{1}{c^2x^2}}-4a^3+6b^2\sec^{-1}(cx)^2\left(a\left(c\right.\right.}{8x^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^3/x^3,x]
```

```
[Out] (-4*a^3 + 6*a*b^2 + 6*a^2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x - 3*b^3*c*Sqrt[1 - 1/
(c^2*x^2)]*x + 6*b*(-2*a^2 + b^2 + 2*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x)*ArcSec[
c*x] + 6*b^2*(b*c*Sqrt[1 - 1/(c^2*x^2)]*x + a*(-2 + c^2*x^2))*ArcSec[c*x]^2
 + 2*b^3*(-2 + c^2*x^2)*ArcSec[c*x]^3 + 3*b*(-2*a^2 + b^2)*c^2*x^2*ArcSin[1
/(c*x)])/(8*x^2)
```

Maple [B] time = 0.323, size = 324, normalized size = 2.4

$$-\frac{a^3}{2x^2}-\frac{b^3\left(\operatorname{arcsec}(cx)\right)^3}{2x^2}+\frac{c^2b^3\left(\operatorname{arcsec}(cx)\right)^3}{4}+\frac{3cb^3\left(\operatorname{arcsec}(cx)\right)^2}{4x}\sqrt{\frac{c^2x^2-1}{c^2x^2}}+\frac{3b^3\operatorname{arcsec}(cx)}{4x^2}-\frac{3cb^3}{8x}\sqrt{\frac{c^2x^2-1}{c^2x^2}}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3/x^3,x)
```

```
[Out] -1/2*a^3/x^2-1/2*b^3/x^2*arcsec(c*x)^3+1/4*c^2*b^3*arcsec(c*x)^3+3/4*c*b^3*
arcsec(c*x)^2/x*((c^2*x^2-1)/c^2/x^2)^(1/2)+3/4*b^3/x^2*arcsec(c*x)-3/8*c*b
^3*((c^2*x^2-1)/c^2/x^2)^(1/2)/x-3/8*b^3*c^2*arcsec(c*x)-3/2*a*b^2/x^2*arcs
ec(c*x)^2+3/4*c^2*a*b^2*arcsec(c*x)^2+3/2*c*a*b^2*arcsec(c*x)/x*((c^2*x^2-1
)/c^2/x^2)^(1/2)-3/4*c^2*a*b^2+3/4*a*b^2/x^2-3/2*a^2*b/x^2*arcsec(c*x)-3/4*
c*a^2*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*arctan(1/(c^2*x^2-1
)^(1/2))+3/4*c*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x-3/4/c*a^2*b/((c^2*x^2-1)
/c^2/x^2)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^3,x, algorithm="maxima")
```

```
[Out] -3/4*a^2*b*((c^4*x*sqrt(-1/(c^2*x^2) + 1)/(c^2*x^2*(1/(c^2*x^2) - 1) - 1) -
 c^3*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)))/c + 2*arcsec(c*x)/x^2) - 1/2*a^3/x
^2 - 1/8*(4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 3*b^3*arctan(sqrt(c
*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)^2 + 12*(a*b^2*c^2*(log(c*x + 1) + log(c
*x - 1) - 2*log(x))*log(c)^2 + 16*b^3*c^2*integrate(1/8*x^2*arctan(sqrt(c*x
 + 1)*sqrt(c*x - 1))/(c^2*x^5 - x^3), x)*log(c)^2 - 16*b^3*c^2*integrate(1/
8*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^5 - x^3), x)*
log(c) + 32*b^3*c^2*integrate(1/8*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*l
og(x)/(c^2*x^5 - x^3), x)*log(c) - 16*a*b^2*c^2*integrate(1/8*x^2*log(c^2*x
^2)/(c^2*x^5 - x^3), x)*log(c) + 32*a*b^2*c^2*integrate(1/8*x^2*log(x)/(c^2
*x^5 - x^3), x)*log(c) - 16*b^3*c^2*integrate(1/8*x^2*arctan(sqrt(c*x + 1)*
sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^5 - x^3), x) + 16*b^3*c^2*integra
te(1/8*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^5 - x^3), x)
 - 16*a*b^2*c^2*integrate(1/8*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^
2*x^5 - x^3), x) + 8*b^3*c^2*integrate(1/8*x^2*arctan(sqrt(c*x + 1)*sqrt(c*
x - 1))*log(c^2*x^2)/(c^2*x^5 - x^3), x) + 4*a*b^2*c^2*integrate(1/8*x^2*lo
g(c^2*x^2)^2/(c^2*x^5 - x^3), x) - 16*a*b^2*c^2*integrate(1/8*x^2*log(c^2*x
^2)*log(x)/(c^2*x^5 - x^3), x) + 16*a*b^2*c^2*integrate(1/8*x^2*log(x)^2/(c
^2*x^5 - x^3), x) - (c^2*log(c*x + 1) + c^2*log(c*x - 1) - 2*c^2*log(x) + 1
/x^2)*a*b^2*log(c)^2 - 16*b^3*integrate(1/8*arctan(sqrt(c*x + 1)*sqrt(c*x -
 1))/(c^2*x^5 - x^3), x)*log(c)^2 + 16*b^3*integrate(1/8*arctan(sqrt(c*x +
1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^5 - x^3), x)*log(c) - 32*b^3*integrat
e(1/8*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^5 - x^3), x)*log(c)
 + 16*a*b^2*integrate(1/8*log(c^2*x^2)/(c^2*x^5 - x^3), x)*log(c) - 32*a*b^
2*integrate(1/8*log(x)/(c^2*x^5 - x^3), x)*log(c) - 8*b^3*integrate(1/8*sqr
t(c*x + 1)*sqrt(c*x - 1)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^5 - x
^3), x) + 2*b^3*integrate(1/8*sqrt(c*x + 1)*sqrt(c*x - 1)*log(c^2*x^2)^2/(c
^2*x^5 - x^3), x) + 16*b^3*integrate(1/8*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)
)*log(c^2*x^2)*log(x)/(c^2*x^5 - x^3), x) - 16*b^3*integrate(1/8*arctan(sqr
t(c*x + 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^5 - x^3), x) + 16*a*b^2*integrate
(1/8*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^5 - x^3), x) - 8*b^3*inte
grate(1/8*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^5 - x^3),
 x) - 4*a*b^2*integrate(1/8*log(c^2*x^2)^2/(c^2*x^5 - x^3), x) + 16*a*b^2*i
ntegrate(1/8*log(c^2*x^2)*log(x)/(c^2*x^5 - x^3), x) - 16*a*b^2*integrate(1
/8*log(x)^2/(c^2*x^5 - x^3), x))*x^2)/x^2
```

Fricas [A] time = 2.21898, size = 342, normalized size = 2.5

$$\frac{2\left(b^3c^2x^2-2\,b^3\right)\operatorname{arcsec}(cx)^3-4\,a^3+6\,ab^2+6\left(ab^2c^2x^2-2\,ab^2\right)\operatorname{arcsec}(cx)^2+3\left(\left(2\,a^2b-b^3\right)c^2x^2-4\,a^2b+2\,b^3\right)\operatorname{arcse}}{8\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^3,x, algorithm="fricas")
```

```
[Out] 1/8*(2*(b^3*c^2*x^2 - 2*b^3)*arcsec(c*x)^3 - 4*a^3 + 6*a*b^2 + 6*(a*b^2*c^2
*x^2 - 2*a*b^2)*arcsec(c*x)^2 + 3*((2*a^2*b - b^3)*c^2*x^2 - 4*a^2*b + 2*b^
3)*arcsec(c*x) + 3*(2*b^3*arcsec(c*x)^2 + 4*a*b^2*arcsec(c*x) + 2*a^2*b - b
^3)*sqrt(c^2*x^2 - 1))/x^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\operatorname{asec}(cx))^3}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3/x**3,x)
```

```
[Out] Integral((a + b*asec(c*x))**3/x**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)^3}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3/x^3, x)
```

3.31 $\int \frac{(a+b\sec^{-1}(cx))^3}{x^4}\,dx$

Optimal. Leaf size=170

$$\frac{4b^2c^2(a+b\sec^{-1}(cx))}{3x}+\frac{2b^2(a+b\sec^{-1}(cx))}{9x^3}+\frac{2}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}}\,(a+b\sec^{-1}(cx))^2+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\,(a+b\sec^{-1}(cx))^2}{3x^2}$$

```
[Out] (-14*b^3*c^3*Sqrt[1 - 1/(c^2*x^2)])/9 + (2*b^3*c^3*(1 - 1/(c^2*x^2))^(3/2))
/27 + (2*b^2*(a + b*ArcSec[c*x]))/(9*x^3) + (4*b^2*c^2*(a + b*ArcSec[c*x]))
/(3*x) + (2*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2)/3 + (b*c*Sqr
t[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2)/(3*x^2) - (a + b*ArcSec[c*x])^3/(
3*x^3)
```

Rubi [A] time = 0.146838, antiderivative size = 170, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4405, 3311, 3296, 2637, 2633}

$$\frac{4b^2c^2(a+b\sec^{-1}(cx))}{3x}+\frac{2b^2(a+b\sec^{-1}(cx))}{9x^3}+\frac{2}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}}\,(a+b\sec^{-1}(cx))^2+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}\,(a+b\sec^{-1}(cx))^2}{3x^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3/x^4,x]
```


```
[Out] (-14*b^3*c^3*Sqrt[1 - 1/(c^2*x^2)])/9 + (2*b^3*c^3*(1 - 1/(c^2*x^2))^(3/2))
/27 + (2*b^2*(a + b*ArcSec[c*x]))/(9*x^3) + (4*b^2*c^2*(a + b*ArcSec[c*x]))
/(3*x) + (2*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2)/3 + (b*c*Sqr
t[1 - 1/(c^2*x^2)]*(a + b*ArcSec[c*x])^2)/(3*x^2) - (a + b*ArcSec[c*x])^3/(
3*x^3)
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4405

```
Int[Cos[(a_.) + (b_.)*(x_)]^(n_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)], x_Symbol] :> -Simp[((c + d*x)^m*Cos[a + b*x]^(n + 1))/(b*(n + 1)
), x] + Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Cos[a + b*x]^(n + 1),
 x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3311

```
Int[((c_.) + (d_.)*(x_))^(m_)*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbo
l] :> Simp[(d*m*(c + d*x)^(m - 1)*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist
[(b^2*(n - 1))/n, Int[(c + d*x)^m*(b*Sin[e + f*x])^(n - 2), x], x] - Dist[(
d^2*m*(m - 1))/(f^2*n^2), Int[(c + d*x)^(m - 2)*(b*Sin[e + f*x])^n, x], x]
- Simp[(b*(c + d*x)^m*Cos[e + f*x]*(b*Sin[e + f*x])^(n - 1))/(f*n), x]) /;
FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1] && GtQ[m, 1]
```

Rule 3296

```
Int[((c_.) + (d_.)*(x_))^(m_.)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> -Simp[
((c + d*x)^m*Cos[e + f*x])/f, x] + Dist[(d*m)/f, Int[(c + d*x)^(m - 1)*Cos[
e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && GtQ[m, 0]
```

Rule 2637

```
Int[sin[Pi/2 + (c_.) + (d_.)*(x_)], x_Symbol] :> Simp[Sin[c + d*x]/d, x] /;
 FreeQ[{c, d}, x]
```

Rule 2633

```
Int[sin[(c_.) + (d_.)*(x_)]^(n_), x_Symbol] :> -Dist[d^(-1), Subst[Int[Expa
nd[(1 - x^2)^((n - 1)/2), x], x], x, Cos[c + d*x]], x] /; FreeQ[{c, d}, x]
&& IGtQ[(n - 1)/2, 0]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^4}\,dx = c^3\,\text{Subst}\left(\int (a+bx)^3\cos^2(x)\sin(x)\,dx, x, \sec^{-1}(cx)\right)$$

$$= -\frac{\left(a+b\sec^{-1}(cx)\right)^3}{3x^3} + \left(bc^3\right)\text{Subst}\left(\int (a+bx)^2\cos^3(x)\,dx, x, \sec^{-1}(cx)\right)$$

$$= \frac{2b^2\left(a+b\sec^{-1}(cx)\right)}{9x^3} + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{3x^2} - \frac{\left(a+b\sec^{-1}(cx)\right)^3}{3x^3} + \frac{1}{3}\left(2bc^3\right)\text{Subst}$$

$$= \frac{2b^2\left(a+b\sec^{-1}(cx)\right)}{9x^3} + \frac{2}{3}bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2 + \frac{bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{3x^2} -$$

$$= -\frac{2}{9}b^3c^3\sqrt{1-\frac{1}{c^2x^2}} + \frac{2}{27}b^3c^3\left(1-\frac{1}{c^2x^2}\right)^{3/2} + \frac{2b^2\left(a+b\sec^{-1}(cx)\right)}{9x^3} + \frac{4b^2c^2\left(a+b\sec^{-1}(cx)\right)}{3x} -$$

$$= -\frac{14}{9}b^3c^3\sqrt{1-\frac{1}{c^2x^2}} + \frac{2}{27}b^3c^3\left(1-\frac{1}{c^2x^2}\right)^{3/2} + \frac{2b^2\left(a+b\sec^{-1}(cx)\right)}{9x^3} + \frac{4b^2c^2\left(a+b\sec^{-1}(cx)\right)}{3x}$$

Mathematica [A] time = 0.280422, size = 204, normalized size = 1.2

$$\frac{3b\sec^{-1}(cx)\left(-9a^2+6abcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2x^2+1\right)+2b^2\left(6c^2x^2+1\right)\right)+9a^2bcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2x^2+1\right)-9a^3+6ab^2\left(6c^2x^2\right.}{27x^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^3/x^4,x]
```

```
[Out] (-9*a^3 + 9*a^2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 2*c^2*x^2) + 6*a*b^2*(1 +
6*c^2*x^2) - 2*b^3*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 20*c^2*x^2) + 3*b*(-9*a^2
 + 6*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 2*c^2*x^2) + 2*b^2*(1 + 6*c^2*x^2))
*ArcSec[c*x] + 9*b^2*(-3*a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1 + 2*c^2*x^2))*A
rcSec[c*x]^2 - 9*b^3*ArcSec[c*x]^3)/(27*x^3)
```

Maple [B] time = 0.319, size = 299, normalized size = 1.8

$$c^3\left(-\frac{a^3}{3c^3x^3}+b^3\left(-\frac{(\operatorname{arcsec}(cx))^3}{3c^3x^3}+\frac{(\operatorname{arcsec}(cx))^2\left(2c^2x^2+1\right)}{3c^2x^2}\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{4}{3}\sqrt{\frac{c^2x^2-1}{c^2x^2}}+\frac{4\operatorname{arcsec}(cx)}{3cx}+\frac{2\operatorname{arcsec}(cx)}{9c^3x^3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3/x^4,x)
```

```
[Out] c^3*(-1/3*a^3/c^3/x^3+b^3*(-1/3/c^3/x^3*arcsec(c*x)^3+1/3*arcsec(c*x)^2*(2*
c^2*x^2+1)/c^2/x^2*((c^2*x^2-1)/c^2/x^2)^(1/2)-4/3*((c^2*x^2-1)/c^2/x^2)^(1
/2)+4/3/c/x*arcsec(c*x)+2/9/c^3/x^3*arcsec(c*x)-2/27*(2*c^2*x^2+1)/c^2/x^2*
((c^2*x^2-1)/c^2/x^2)^(1/2))+3*a*b^2*(-1/3/c^3/x^3*arcsec(c*x)^2+2/9*arcsec
(c*x)*(2*c^2*x^2+1)/c^2/x^2*((c^2*x^2-1)/c^2/x^2)^(1/2)+2/27/c^3/x^3+4/9/c/
x)+3*a^2*b*(-1/3/c^3/x^3*arcsec(c*x)+1/9*(c^2*x^2-1)*(2*c^2*x^2+1)/((c^2*x^
2-1)/c^2/x^2)^(1/2)/c^4/x^4))
```

Maxima [B] time = 3.22333, size = 787, normalized size = 4.63

$$-\frac{1}{216}\left(\frac{72\left(c^4\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-3\,c^4\sqrt{-\frac{1}{c^2x^2}+1}\right)\operatorname{arcsec}(cx)^2}{c}+\frac{72\,c^4\left(\frac{c^2\arcsin\left(\frac{1}{\sqrt{c^2}|x|}\right)+\frac{2\sqrt{c^2x^2-1}c}{x}-\frac{\sqrt{c^2x^2-1}}{x^2}}{c}-\frac{c^2\arcsin\left(\frac{1}{\sqrt{c^2}|x|}\right)-\frac{2\sqrt{c^2}}{}}{c}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^4,x, algorithm="maxima")
```

```
[Out] -1/216*(72*(c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))*ar
csec(c*x)^2/c + (72*c^4*((c^2*arcsin(1/(sqrt(c^2)*abs(x))) + 2*sqrt(c^2*x^2
 - 1)*c/x - sqrt(c^2*x^2 - 1)/x^2)/c - (c^2*arcsin(1/(sqrt(c^2)*abs(x))) -
2*sqrt(c^2*x^2 - 1)*c/x - sqrt(c^2*x^2 - 1)/x^2)/c - 4*arctan(sqrt(c*x + 1)
*sqrt(c*x - 1))/x) + c^2*((9*c^4*arcsin(1/(sqrt(c^2)*abs(x))) + 16*sqrt(c^2
*x^2 - 1)*c^3/x - 9*sqrt(c^2*x^2 - 1)*c^2/x^2 + 8*sqrt(c^2*x^2 - 1)*c/x^3 -
 6*sqrt(c^2*x^2 - 1)/x^4)/c - (9*c^4*arcsin(1/(sqrt(c^2)*abs(x))) - 16*sqrt
(c^2*x^2 - 1)*c^3/x - 9*sqrt(c^2*x^2 - 1)*c^2/x^2 - 8*sqrt(c^2*x^2 - 1)*c/x
^3 - 6*sqrt(c^2*x^2 - 1)/x^4)/c - 48*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/x^
3))/c^2)*b^3 - 1/3*a^2*b*((c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^
2*x^2) + 1))/c + 3*arcsec(c*x)/x^3) - 1/3*b^3*arcsec(c*x)^3/x^3 - a*b^2*arc
sec(c*x)^2/x^3 - 1/3*a^3/x^3 + 2/9*((6*c^3*x^2 + c)*sqrt(c*x + 1)*sqrt(c*x
- 1) + 3*(2*c^5*x^4 - c^3*x^2 - c)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)))*a*b
^2/(sqrt(c*x + 1)*sqrt(c*x - 1)*c*x^3)
```

Fricas [A] time = 2.24396, size = 401, normalized size = 2.36

$$\frac{36\,ab^2c^2x^2-9\,b^3\operatorname{arcsec}(cx)^3-27\,ab^2\operatorname{arcsec}(cx)^2-9\,a^3+6\,ab^2+3\left(12\,b^3c^2x^2-9\,a^2b+2\,b^3\right)\operatorname{arcsec}(cx)+\left(2\left(9\,a^2\right.\right.}{27\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^4,x, algorithm="fricas")
```

```
[Out] 1/27*(36*a*b^2*c^2*x^2 - 9*b^3*arcsec(c*x)^3 - 27*a*b^2*arcsec(c*x)^2 - 9*a
^3 + 6*a*b^2 + 3*(12*b^3*c^2*x^2 - 9*a^2*b + 2*b^3)*arcsec(c*x) + (2*(9*a^2
*b - 20*b^3)*c^2*x^2 + 9*a^2*b - 2*b^3 + 9*(2*b^3*c^2*x^2 + b^3)*arcsec(c*x
)^2 + 18*(2*a*b^2*c^2*x^2 + a*b^2)*arcsec(c*x))*sqrt(c^2*x^2 - 1))/x^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\,\mathrm{asec}\,(cx))^3}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3/x**4,x)
```

```
[Out] Integral((a + b*asec(c*x))**3/x**4, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx) + a)^3}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^4,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3/x^4, x)
```

3.32 $\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^5}\,dx$

Optimal. Leaf size=208

$$\frac{9b^2c^2\left(a+b\sec^{-1}(cx)\right)}{32x^2}+\frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4}+\frac{9bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{32x}+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{16x^3}$$

```
[Out] (-3*b^3*c*Sqrt[1 - 1/(c^2*x^2)])/(128*x^3) - (45*b^3*c^3*Sqrt[1 - 1/(c^2*x^
2)])/(256*x) - (45*b^3*c^4*ArcSec[c*x])/256 + (3*b^2*(a + b*ArcSec[c*x]))/(
32*x^4) + (9*b^2*c^2*(a + b*ArcSec[c*x]))/(32*x^2) + (3*b*c*Sqrt[1 - 1/(c^2
*x^2)]*(a + b*ArcSec[c*x])^2)/(16*x^3) + (9*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a
+ b*ArcSec[c*x])^2)/(32*x) + (3*c^4*(a + b*ArcSec[c*x])^3)/32 - (a + b*ArcS
ec[c*x])^3/(4*x^4)
```

Rubi [A] time = 0.173491, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4405, 3311, 32, 2635, 8}

$$\frac{9b^2c^2\left(a+b\sec^{-1}(cx)\right)}{32x^2}+\frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4}+\frac{9bc^3\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{32x}+\frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{16x^3}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])^3/x^5,x]
```


```
[Out] (-3*b^3*c*Sqrt[1 - 1/(c^2*x^2)])/(128*x^3) - (45*b^3*c^3*Sqrt[1 - 1/(c^2*x^
2)])/(256*x) - (45*b^3*c^4*ArcSec[c*x])/256 + (3*b^2*(a + b*ArcSec[c*x]))/(
32*x^4) + (9*b^2*c^2*(a + b*ArcSec[c*x]))/(32*x^2) + (3*b*c*Sqrt[1 - 1/(c^2
*x^2)]*(a + b*ArcSec[c*x])^2)/(16*x^3) + (9*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*(a
+ b*ArcSec[c*x])^2)/(32*x) + (3*c^4*(a + b*ArcSec[c*x])^3)/32 - (a + b*ArcS
ec[c*x])^3/(4*x^4)
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4405

```
Int[Cos[(a_.) + (b_.)*(x_)]^(n_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)], x_Symbol] :> -Simp[((c + d*x)^m*Cos[a + b*x]^(n + 1))/(b*(n + 1)
), x] + Dist[(d*m)/(b*(n + 1)), Int[(c + d*x)^(m - 1)*Cos[a + b*x]^(n + 1),
 x], x] /; FreeQ[{a, b, c, d, n}, x] && IGtQ[m, 0] && NeQ[n, -1]
```

Rule 3311

```
Int[((c_.) + (d_.)*(x_))^(m_)*((b_.)*sin[(e_.) + (f_.)*(x_)])^(n_), x_Symbo
l] :> Simp[(d*m*(c + d*x)^(m - 1)*(b*Sin[e + f*x])^n)/(f^2*n^2), x] + (Dist
[(b^2*(n - 1))/n, Int[(c + d*x)^m*(b*Sin[e + f*x])^(n - 2), x], x] - Dist[(
d^2*m*(m - 1))/(f^2*n^2), Int[(c + d*x)^(m - 2)*(b*Sin[e + f*x])^n, x], x]
- Simp[(b*(c + d*x)^m*Cos[e + f*x]*(b*Sin[e + f*x])^(n - 1))/(f*n), x]) /;
FreeQ[{b, c, d, e, f}, x] && GtQ[n, 1] && GtQ[m, 1]
```

Rule 32

```
Int[((a_.) + (b_.)*(x_))^(m_), x_Symbol] :> Simp[(a + b*x)^(m + 1)/(b*(m +
1)), x] /; FreeQ[{a, b, m}, x] && NeQ[m, -1]
```

Rule 2635

```
Int[((b_.)*sin[(c_.) + (d_.)*(x_)])^(n_), x_Symbol] :> -Simp[(b*Cos[c + d*x
]*(b*Sin[c + d*x])^(n - 1))/(d*n), x] + Dist[(b^2*(n - 1))/n, Int[(b*Sin[c
+ d*x])^(n - 2), x], x] /; FreeQ[{b, c, d}, x] && GtQ[n, 1] && IntegerQ[2*n
]
```

Rule 8

```
Int[a_, x_Symbol] :> Simp[a*x, x] /; FreeQ[a, x]
```

Rubi steps

$$\int \frac{\left(a+b\sec^{-1}(cx)\right)^3}{x^5}\,dx = c^4\,\text{Subst}\left(\int (a+bx)^3\cos^3(x)\sin(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= -\frac{\left(a+b\sec^{-1}(cx)\right)^3}{4x^4} + \frac{1}{4}\left(3bc^4\right)\text{Subst}\left(\int (a+bx)^2\cos^4(x)\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4} + \frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-1}(cx)\right)^2}{16x^3} - \frac{\left(a+b\sec^{-1}(cx)\right)^3}{4x^4} + \frac{1}{16}\left(9bc^4\right)\text{Sul}$$
$$= -\frac{3b^3c\sqrt{1-\frac{1}{c^2x^2}}}{128x^3} + \frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4} + \frac{9b^2c^2\left(a+b\sec^{-1}(cx)\right)}{32x^2} + \frac{3bc\sqrt{1-\frac{1}{c^2x^2}}\left(a+b\sec^{-}\right.}{16x^3}$$
$$= -\frac{3b^3c\sqrt{1-\frac{1}{c^2x^2}}}{128x^3} - \frac{45b^3c^3\sqrt{1-\frac{1}{c^2x^2}}}{256x} + \frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4} + \frac{9b^2c^2\left(a+b\sec^{-1}(cx)\right)}{32x^2} + \frac{3bc\sqrt{}}{}$$
$$= -\frac{3b^3c\sqrt{1-\frac{1}{c^2x^2}}}{128x^3} - \frac{45b^3c^3\sqrt{1-\frac{1}{c^2x^2}}}{256x} - \frac{45}{256}b^3c^4\sec^{-1}(cx) + \frac{3b^2\left(a+b\sec^{-1}(cx)\right)}{32x^4} + \frac{9b^2c^2\left(a+\right.}{3}$$

Mathematica [A] time = 0.335836, size = 283, normalized size = 1.36

$$9bc^4x^4\left(5b^2-8a^2\right)\sin^{-1}\left(\frac{1}{cx}\right) + 24b\sec^{-1}(cx)\left(-8a^2+2abcx\sqrt{1-\frac{1}{c^2x^2}}\left(3c^2x^2+2\right)+b^2\left(3c^2x^2+1\right)\right) + 72a^2bc^3x^3\sqrt{1-\frac{1}{c^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])^3/x^5,x]
```

```
[Out] (-64*a^3 + 24*a*b^2 + 48*a^2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x - 6*b^3*c*Sqrt[1 -
 1/(c^2*x^2)]*x + 72*a*b^2*c^2*x^2 + 72*a^2*b*c^3*Sqrt[1 - 1/(c^2*x^2)]*x^3
 - 45*b^3*c^3*Sqrt[1 - 1/(c^2*x^2)]*x^3 + 24*b*(-8*a^2 + b^2*(1 + 3*c^2*x^2
) + 2*a*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(2 + 3*c^2*x^2))*ArcSec[c*x] + 24*b^2*(
b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(2 + 3*c^2*x^2) + a*(-8 + 3*c^4*x^4))*ArcSec[c*
x]^2 + 8*b^3*(-8 + 3*c^4*x^4)*ArcSec[c*x]^3 + 9*b*(-8*a^2 + 5*b^2)*c^4*x^4*
ArcSin[1/(c*x)])/(256*x^4)
```

Maple [B] time = 0.342, size = 472, normalized size = 2.3

$$-\frac{a^3}{4x^4} - \frac{b^3\left(\text{arcsec}(cx)\right)^3}{4x^4} + \frac{3c^4b^3\left(\text{arcsec}(cx)\right)^3}{32} + \frac{9c^3b^3\left(\text{arcsec}(cx)\right)^2}{32x}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{3cb^3\left(\text{arcsec}(cx)\right)^2}{16x^3}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + 3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))^3/x^5,x)
```

```
[Out] -1/4*a^3/x^4-1/4*b^3/x^4*arcsec(c*x)^3+3/32*c^4*b^3*arcsec(c*x)^3+9/32*c^3*
b^3*arcsec(c*x)^2/x*((c^2*x^2-1)/c^2/x^2)^(1/2)+3/16*c*b^3*arcsec(c*x)^2/x^
3*((c^2*x^2-1)/c^2/x^2)^(1/2)+3/32*b^3/x^4*arcsec(c*x)-45/256*c^3*b^3*((c^2
*x^2-1)/c^2/x^2)^(1/2)/x-3/128*c*b^3/x^3*((c^2*x^2-1)/c^2/x^2)^(1/2)-45/256
*b^3*c^4*arcsec(c*x)+9/32*c^2*b^3/x^2*arcsec(c*x)-3/4*a*b^2/x^4*arcsec(c*x)
^2+9/32*c^4*a*b^2*arcsec(c*x)^2+9/16*c^3*a*b^2*arcsec(c*x)/x*((c^2*x^2-1)/c
^2/x^2)^(1/2)+3/8*c*a*b^2*arcsec(c*x)/x^3*((c^2*x^2-1)/c^2/x^2)^(1/2)+3/32*
a*b^2/x^4+9/32*c^2*a*b^2/x^2-3/4*a^2*b/x^4*arcsec(c*x)-9/32*c^3*a^2*b*(c^2*
x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*arctan(1/(c^2*x^2-1)^(1/2))+9/32
*c^3*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x-3/32*c*a^2*b/((c^2*x^2-1)/c^2/x^2)
^(1/2)/x^3-3/16/c*a^2*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^5,x, algorithm="maxima")
```

```
[Out] 3/32*a^2*b*((3*c^5*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)) + (3*c^8*x^3*(-1/(c^2
*x^2) + 1)^(3/2) + 5*c^6*x*sqrt(-1/(c^2*x^2) + 1))/(c^4*x^4*(1/(c^2*x^2) -
1)^2 - 2*c^2*x^2*(1/(c^2*x^2) - 1) + 1))/c - 8*arcsec(c*x)/x^4) - 1/4*a^3/x
^4 - 1/16*(4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 3*b^3*arctan(sqrt(
c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)^2 + 12*(2*(c^2*log(c*x + 1) + c^2*log(
c*x - 1) - 2*c^2*log(x) + 1/x^2)*a*b^2*c^2*log(c)^2 + 64*b^3*c^2*integrate(
1/16*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^7 - x^5), x)*log(c)^2 -
 64*b^3*c^2*integrate(1/16*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*
x^2)/(c^2*x^7 - x^5), x)*log(c) + 128*b^3*c^2*integrate(1/16*x^2*arctan(sqr
t(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^7 - x^5), x)*log(c) - 64*a*b^2*c^2*
integrate(1/16*x^2*log(c^2*x^2)/(c^2*x^7 - x^5), x)*log(c) + 128*a*b^2*c^2*
integrate(1/16*x^2*log(x)/(c^2*x^7 - x^5), x)*log(c) - 64*b^3*c^2*integrate
(1/16*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)*log(x)/(c^2*x^7
- x^5), x) + 64*b^3*c^2*integrate(1/16*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x -
1))*log(x)^2/(c^2*x^7 - x^5), x) - 64*a*b^2*c^2*integrate(1/16*x^2*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^7 - x^5), x) + 16*b^3*c^2*integrate(1/
16*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^7 - x^5), x)
 + 16*a*b^2*c^2*integrate(1/16*x^2*log(c^2*x^2)^2/(c^2*x^7 - x^5), x) - 64*
a*b^2*c^2*integrate(1/16*x^2*log(c^2*x^2)*log(x)/(c^2*x^7 - x^5), x) + 64*a
*b^2*c^2*integrate(1/16*x^2*log(x)^2/(c^2*x^7 - x^5), x) - (2*c^4*log(c*x +
 1) + 2*c^4*log(c*x - 1) - 4*c^4*log(x) + (2*c^2*x^2 + 1)/x^4)*a*b^2*log(c)
^2 - 64*b^3*integrate(1/16*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(c^2*x^7 - x
^5), x)*log(c)^2 + 64*b^3*integrate(1/16*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)
)*log(c^2*x^2)/(c^2*x^7 - x^5), x)*log(c) - 128*b^3*integrate(1/16*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))*log(x)/(c^2*x^7 - x^5), x)*log(c) + 64*a*b^2*in
tegrate(1/16*log(c^2*x^2)/(c^2*x^7 - x^5), x)*log(c) - 128*a*b^2*integrate(
1/16*log(x)/(c^2*x^7 - x^5), x)*log(c) - 16*b^3*integrate(1/16*sqrt(c*x + 1
)*sqrt(c*x - 1)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^7 - x^5), x) +
 4*b^3*integrate(1/16*sqrt(c*x + 1)*sqrt(c*x - 1)*log(c^2*x^2)^2/(c^2*x^7 -
 x^5), x) + 64*b^3*integrate(1/16*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c
^2*x^2)*log(x)/(c^2*x^7 - x^5), x) - 64*b^3*integrate(1/16*arctan(sqrt(c*x
+ 1)*sqrt(c*x - 1))*log(x)^2/(c^2*x^7 - x^5), x) + 64*a*b^2*integrate(1/16*
arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2/(c^2*x^7 - x^5), x) - 16*b^3*integrat
```

```
e(1/16*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(c^2*x^2)/(c^2*x^7 - x^5), x)
 - 16*a*b^2*integrate(1/16*log(c^2*x^2)^2/(c^2*x^7 - x^5), x) + 64*a*b^2*in
tegrate(1/16*log(c^2*x^2)*log(x)/(c^2*x^7 - x^5), x) - 64*a*b^2*integrate(1
/16*log(x)^2/(c^2*x^7 - x^5), x))*x^4)/x^4
```

Fricas [A] time = 2.34434, size = 512, normalized size = 2.46

$$72\,ab^2c^2x^2 + 8\left(3\,b^3c^4x^4 - 8\,b^3\right)\operatorname{arcsec}\left(cx\right)^3 - 64\,a^3 + 24\,ab^2 + 24\left(3\,ab^2c^4x^4 - 8\,ab^2\right)\operatorname{arcsec}\left(cx\right)^2 + 3\left(3\left(8\,a^2b - 5\,b^3\right)c^4\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^5,x, algorithm="fricas")
```

```
[Out] 1/256*(72*a*b^2*c^2*x^2 + 8*(3*b^3*c^4*x^4 - 8*b^3)*arcsec(c*x)^3 - 64*a^3
+ 24*a*b^2 + 24*(3*a*b^2*c^4*x^4 - 8*a*b^2)*arcsec(c*x)^2 + 3*(3*(8*a^2*b -
 5*b^3)*c^4*x^4 + 24*b^3*c^2*x^2 - 64*a^2*b + 8*b^3)*arcsec(c*x) + 3*(3*(8*
a^2*b - 5*b^3)*c^2*x^2 + 16*a^2*b - 2*b^3 + 8*(3*b^3*c^2*x^2 + 2*b^3)*arcse
c(c*x)^2 + 16*(3*a*b^2*c^2*x^2 + 2*a*b^2)*arcsec(c*x))*sqrt(c^2*x^2 - 1))/x
^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(a + b\operatorname{asec}\left(cx\right)\right)^3}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))**3/x**5,x)
```

```
[Out] Integral((a + b*asec(c*x))**3/x**5, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(b\operatorname{arcsec}\left(cx\right) + a\right)^3}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))^3/x^5,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3/x^5, x)
```

3.33 $\int \frac{x}{a+b\sec^{-1}(cx)}\,dx$

Optimal. Leaf size=14

$$\text{Unintegrable}\left(\frac{x}{a+b\sec^{-1}(cx)},x\right)$$

```
[Out] Unintegrable[x/(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0144259, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[x/(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][x/(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int \frac{x}{a+b\sec^{-1}(cx)}\,dx=\int \frac{x}{a+b\sec^{-1}(cx)}\,dx$$

Mathematica [A] time = 2.55557, size = 0, normalized size = 0.

$$\int \frac{x}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[x/(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[x/(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 0.973, size = 0, normalized size = 0.

$$\int \frac{x}{a+b\,\mathrm{arcsec}\,(cx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x/(a+b*arcsec(c*x)),x)
```

```
[Out] int(x/(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{b \operatorname{arcsec}(cx) + a} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(x/(b*arcsec(c*x) + a), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x}{b \operatorname{arcsec}(cx) + a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(x/(b*arcsec(c*x) + a), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{a + b \operatorname{asec}(cx)} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*asec(c*x)),x)
```

```
[Out] Integral(x/(a + b*asec(c*x)), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{b \operatorname{arcsec}(cx) + a} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(x/(b*arcsec(c*x) + a), x)
```

3.34 $\int \frac{1}{a+b\sec^{-1}(cx)}\,dx$

Optimal. Leaf size=12

$$\text{Unintegrable}\left(\frac{1}{a+b\sec^{-1}(cx)},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])^(-1), x]
```

Rubi [A] time = 0.0057647, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])^(-1),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])^(-1), x]
```

Rubi steps

$$\int \frac{1}{a+b\sec^{-1}(cx)}\,dx=\int \frac{1}{a+b\sec^{-1}(cx)}\,dx$$

Mathematica [A] time = 2.18719, size = 0, normalized size = 0.

$$\int \frac{1}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])^(-1),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])^(-1), x]
```

Maple [A] time = 0.447, size = 0, normalized size = 0.

$$\int (a+b\operatorname{arcsec}(cx))^{-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(a+b*arcsec(c*x)),x)
```

```
[Out] int(1/(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{b\,\text{arcsec}\,(cx) + a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(b*arcsec(c*x) + a), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b\,\text{arcsec}\,(cx) + a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(b*arcsec(c*x) + a), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{a + b\,\text{asec}\,(cx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*asec(c*x)),x)
```

```
[Out] Integral(1/(a + b*asec(c*x)), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{b\,\text{arcsec}\,(cx) + a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(1/(b*arcsec(c*x) + a), x)
```

3.35 $\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)}\,dx$

Optimal. Leaf size=16

$$\text{Unintegrable}\left(\frac{1}{x\left(a+b\sec^{-1}(cx)\right)},x\right)$$

```
[Out] Unintegrable[1/(x*(a + b*ArcSec[c*x])), x]
```

Rubi [A] time = 0.0252971, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[1/(x*(a + b*ArcSec[c*x])),x]
```

```
[Out] Defer[Int][1/(x*(a + b*ArcSec[c*x])), x]
```

Rubi steps

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)}\,dx=\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)}\,dx$$

Mathematica [A] time = 0.269491, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[1/(x*(a + b*ArcSec[c*x])),x]
```

```
[Out] Integrate[1/(x*(a + b*ArcSec[c*x])), x]
```

Maple [A] time = 0.74, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x/(a+b*arcsec(c*x)),x)
```

```
[Out] int(1/x/(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\operatorname{arcsec}(cx) + a)x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{bx\operatorname{arcsec}(cx) + ax}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(b*x*arcsec(c*x) + a*x), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x(a + b\operatorname{asec}(cx))}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*asec(c*x)),x)
```

```
[Out] Integral(1/(x*(a + b*asec(c*x))), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\operatorname{arcsec}(cx) + a)x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x), x)
```

3.36 $\int \frac{1}{x^2\left(a+b\sec^{-1}(cx)\right)}\,dx$

Optimal. Leaf size=46

$$\frac{c\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b}-\frac{c\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b}$$

```
[Out] -((c*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/b) + (c*Cos[a/b]*SinIntegral[
a/b + ArcSec[c*x]])/b
```

Rubi [A] time = 0.105162, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.286, Rules used = {5222, 3303, 3299, 3302}

$$\frac{c\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b}-\frac{c\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^2*(a + b*ArcSec[c*x])),x]
```

```
[Out] -((c*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/b) + (c*Cos[a/b]*SinIntegral[
a/b + ArcSec[c*x]])/b
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^2\left(a+b\sec^{-1}(cx)\right)}\,dx = c\,\text{Subst}\left(\int \frac{\sin(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)$$
$$= \left(c\cos\left(\frac{a}{b}\right)\right)\text{Subst}\left(\int \frac{\sin\left(\frac{a}{b}+x\right)}{a+bx}\,dx, x, \sec^{-1}(cx)\right) - \left(c\sin\left(\frac{a}{b}\right)\right)\text{Subst}\left(\int \frac{\cos\left(\frac{a}{b}+x\right)}{a+bx}\,dx, \right.$$
$$= -\frac{c\text{Ci}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\sin\left(\frac{a}{b}\right)}{b} + \frac{c\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b}$$

Mathematica [A] time = 0.0741781, size = 43, normalized size = 0.93

$$\frac{c\left(\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right) - \sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right)}{b}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^2*(a + b*ArcSec[c*x])),x]
```

```
[Out] (c*(-(CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b]) + Cos[a/b]*SinIntegral[a/b +
 ArcSec[c*x]]))/b
```

Maple [A] time = 0.247, size = 47, normalized size = 1.

$$c\left(\frac{1}{b}\text{Si}\left(\frac{a}{b}+\text{arcsec}\,(cx)\right)\cos\left(\frac{a}{b}\right) - \frac{1}{b}\text{Ci}\left(\frac{a}{b}+\text{arcsec}\,(cx)\right)\sin\left(\frac{a}{b}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^2/(a+b*arcsec(c*x)),x)
```

```
[Out] c*(Si(a/b+arcsec(c*x))*cos(a/b)/b-Ci(a/b+arcsec(c*x))*sin(a/b)/b)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\text{arcsec}\,(cx)+a)x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{bx^2\,\text{arcsec}\,(cx)+ax^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(b*x^2*arcsec(c*x) + a*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2 (a + b \operatorname{asec}(cx))} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**2/(a+b*asec(c*x)),x)
```

```
[Out] Integral(1/(x**2*(a + b*asec(c*x))), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b \operatorname{arcsec}(cx) + a)x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^2), x)
```

3.37 $\int \frac{1}{x^3\left(a+b\sec^{-1}(cx)\right)}\,dx$

Optimal. Leaf size=63

$$\frac{c^2\cos\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{2b}-\frac{c^2\sin\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{2b}$$

```
[Out] -(c^2*CosIntegral[(2*a)/b + 2*ArcSec[c*x]]*Sin[(2*a)/b])/(2*b) + (c^2*Cos[(
2*a)/b]*SinIntegral[(2*a)/b + 2*ArcSec[c*x]])/(2*b)
```

Rubi [A] time = 0.135768, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4406, 12, 3303, 3299, 3302}

$$\frac{c^2\cos\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{2b}-\frac{c^2\sin\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{2b}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^3*(a + b*ArcSec[c*x])),x]
```

```
[Out] -(c^2*CosIntegral[(2*a)/b + 2*ArcSec[c*x]]*Sin[(2*a)/b])/(2*b) + (c^2*Cos[(
2*a)/b]*SinIntegral[(2*a)/b + 2*ArcSec[c*x]])/(2*b)
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\begin{aligned}\int \frac{1}{x^3\left(a+b\sec^{-1}(cx)\right)}\,dx &= c^2\,\mathrm{Subst}\left(\int \frac{\cos(x)\sin(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)\\ &= c^2\,\mathrm{Subst}\left(\int \frac{\sin(2x)}{2(a+bx)}\,dx, x, \sec^{-1}(cx)\right)\\ &= \frac{1}{2}c^2\,\mathrm{Subst}\left(\int \frac{\sin(2x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)\\ &= \frac{1}{2}\left(c^2\cos\left(\frac{2a}{b}\right)\right)\mathrm{Subst}\left(\int \frac{\sin\left(\frac{2a}{b}+2x\right)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)-\frac{1}{2}\left(c^2\sin\left(\frac{2a}{b}\right)\right)\mathrm{Subst}\left(\int \frac{c}{-}\right.\\ &= -\frac{c^2\mathrm{Ci}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)\sin\left(\frac{2a}{b}\right)}{2b}+\frac{c^2\cos\left(\frac{2a}{b}\right)\mathrm{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{2b}\end{aligned}$$

Mathematica [A] time = 0.0716536, size = 56, normalized size = 0.89

$$\frac{c^2\left(\cos\left(\frac{2a}{b}\right)\mathrm{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)-\sin\left(\frac{2a}{b}\right)\mathrm{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)\right)}{2b}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^3*(a + b*ArcSec[c*x])),x]
```

```
[Out] (c^2*(-(CosIntegral[(2*a)/b + 2*ArcSec[c*x]]*Sin[(2*a)/b]) + Cos[(2*a)/b]*S
inIntegral[(2*a)/b + 2*ArcSec[c*x]]))/(2*b)
```

Maple [A] time = 0.24, size = 58, normalized size = 0.9

$$c^2\left(\frac{1}{2b}\mathrm{Si}\left(2\frac{a}{b}+2\,\mathrm{arcsec}\,(cx)\right)\cos\left(2\frac{a}{b}\right)-\frac{1}{2b}\mathrm{Ci}\left(2\frac{a}{b}+2\,\mathrm{arcsec}\,(cx)\right)\sin\left(2\frac{a}{b}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^3/(a+b*arcsec(c*x)),x)
```

```
[Out] c^2*(1/2*Si(2*a/b+2*arcsec(c*x))*cos(2*a/b)/b-1/2*Ci(2*a/b+2*arcsec(c*x))*s
in(2*a/b)/b)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\mathrm{arcsec}\,(cx)+a)x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{bx^3 \operatorname{arcsec}(cx) + ax^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(b*x^3*arcsec(c*x) + a*x^3), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3 (a + b \operatorname{asec}(cx))}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**3/(a+b*asec(c*x)),x)
```

```
[Out] Integral(1/(x**3*(a + b*asec(c*x))), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b \operatorname{arcsec}(cx) + a)x^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^3), x)
```

3.38 $\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)}\,dx$

Optimal. Leaf size=117

$$-\frac{c^3\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b}-\frac{c^3\sin\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{4b}+\frac{c^3\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b}$$

```
[Out] -(c^3*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(4*b) - (c^3*CosIntegral[(3*
a)/b + 3*ArcSec[c*x]]*Sin[(3*a)/b])/(4*b) + (c^3*Cos[a/b]*SinIntegral[a/b +
 ArcSec[c*x]])/(4*b) + (c^3*Cos[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x
]])/(4*b)
```

Rubi [A] time = 0.224696, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.357, Rules used = {5222, 4406, 3303, 3299, 3302}

$$-\frac{c^3\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b}-\frac{c^3\sin\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{4b}+\frac{c^3\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^4*(a + b*ArcSec[c*x])),x]
```

```
[Out] -(c^3*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(4*b) - (c^3*CosIntegral[(3*
a)/b + 3*ArcSec[c*x]]*Sin[(3*a)/b])/(4*b) + (c^3*Cos[a/b]*SinIntegral[a/b +
 ArcSec[c*x]])/(4*b) + (c^3*Cos[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x
]])/(4*b)
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)}\,dx = c^3\,\mathrm{Subst}\left(\int \frac{\cos^2(x)\sin(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)$$
$$= c^3\,\mathrm{Subst}\left(\int \left(\frac{\sin(x)}{4(a+bx)} + \frac{\sin(3x)}{4(a+bx)}\right)dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{1}{4}c^3\,\mathrm{Subst}\left(\int \frac{\sin(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right) + \frac{1}{4}c^3\,\mathrm{Subst}\left(\int \frac{\sin(3x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)$$
$$= \frac{1}{4}\left(c^3\cos\left(\frac{a}{b}\right)\right)\mathrm{Subst}\left(\int \frac{\sin\left(\frac{a}{b}+x\right)}{a+bx}\,dx, x, \sec^{-1}(cx)\right) + \frac{1}{4}\left(c^3\cos\left(\frac{3a}{b}\right)\right)\mathrm{Subst}\left(\int \frac{\sin\left(\frac{3a}{b}\right.}{a+}\right.$$
$$= -\frac{c^3\mathrm{Ci}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\sin\left(\frac{a}{b}\right)}{4b} - \frac{c^3\mathrm{Ci}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)\sin\left(\frac{3a}{b}\right)}{4b} + \frac{c^3\cos\left(\frac{a}{b}\right)\mathrm{Si}\left(\frac{a}{b}+\sec^{-1}\right.}{4b}$$

Mathematica [A] time = 0.165108, size = 91, normalized size = 0.78

$$\frac{c^3\left(\sin\left(\frac{a}{b}\right)\left(-\mathrm{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right) - \sin\left(\frac{3a}{b}\right)\mathrm{CosIntegral}\left(3\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right) + \cos\left(\frac{a}{b}\right)\mathrm{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right) + \mathrm{c}\right.}{4b}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^4*(a + b*ArcSec[c*x])),x]
```

```
[Out] (c^3*(-(CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b]) - CosIntegral[3*(a/b + Arc
Sec[c*x])]*Sin[(3*a)/b] + Cos[a/b]*SinIntegral[a/b + ArcSec[c*x]] + Cos[(3*
a)/b]*SinIntegral[3*(a/b + ArcSec[c*x])]))/(4*b)
```

Maple [A] time = 0.246, size = 102, normalized size = 0.9

$$c^3\left(\frac{1}{4b}\mathrm{Si}\left(3\frac{a}{b}+3\,\mathrm{arcsec}\,(cx)\right)\cos\left(3\frac{a}{b}\right) - \frac{1}{4b}\mathrm{Ci}\left(3\frac{a}{b}+3\,\mathrm{arcsec}\,(cx)\right)\sin\left(3\frac{a}{b}\right) + \frac{1}{4b}\mathrm{Si}\left(\frac{a}{b}+\mathrm{arcsec}\,(cx)\right)\cos\left(\frac{a}{b}\right) - \frac{1}{4b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^4/(a+b*arcsec(c*x)),x)
```

```
[Out] c^3*(1/4*Si(3*a/b+3*arcsec(c*x))*cos(3*a/b)/b-1/4*Ci(3*a/b+3*arcsec(c*x))*s
in(3*a/b)/b+1/4*Si(a/b+arcsec(c*x))*cos(a/b)/b-1/4*Ci(a/b+arcsec(c*x))*sin(
a/b)/b)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\mathrm{arcsec}\,(cx)+a)x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^4), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{bx^4 \operatorname{arcsec}(cx) + ax^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(b*x^4*arcsec(c*x) + a*x^4), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^4 (a + b \operatorname{asec}(cx))}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**4/(a+b*asec(c*x)),x)
```

```
[Out] Integral(1/(x**4*(a + b*asec(c*x))), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b \operatorname{arcsec}(cx) + a)x^4}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)*x^4), x)
```

3.39 $\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=14

$$\text{Unintegrable}\left(\frac{x}{\left(a+b\sec^{-1}(cx)\right)^2},x\right)$$

```
[Out] Unintegrable[x/(a + b*ArcSec[c*x])^2, x]
```

Rubi [A] time = 0.0145601, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[x/(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Defer[Int][x/(a + b*ArcSec[c*x])^2, x]
```

Rubi steps

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx=\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Mathematica [A] time = 9.87738, size = 0, normalized size = 0.

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[x/(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Integrate[x/(a + b*ArcSec[c*x])^2, x]
```

Maple [A] time = 1.09, size = 0, normalized size = 0.

$$\int \frac{x}{\left(a+b\,\mathrm{arcsec}\,(cx)\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x/(a+b*arcsec(c*x))^2,x)
```

```
[Out] int(x/(a+b*arcsec(c*x))^2,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$-\frac{4\left(bx^2\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)+ax^2\right)\sqrt{cx+1}\sqrt{cx-1}+4\left(4\,b^3\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)^2+b^3\log\left(c^2x^2\right)^2+4\,b^3\,\mathrm{l}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*(b*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a*x^2)*sqrt(c*x + 1)*sqrt(
c*x - 1) - (4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^
2 + 4*b^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(
sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^
2*x^2))*integrate(-4*(3*a*c^2*x^3 - 2*a*x + (3*b*c^2*x^3 - 2*b*x)*arctan(sq
rt(c*x + 1)*sqrt(c*x - 1)))*sqrt(c*x + 1)*sqrt(c*x - 1)/(4*b^3*log(c)^2 + 4
*a^2*b - 4*(b^3*c^2*log(c)^2 + a^2*b*c^2)*x^2 - 4*(b^3*c^2*x^2 - b^3)*arcta
n(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - (b^3*c^2*x^2 - b^3)*log(c^2*x^2)^2 - 4*(
b^3*c^2*x^2 - b^3)*log(x)^2 - 8*(a*b^2*c^2*x^2 - a*b^2)*arctan(sqrt(c*x + 1
)*sqrt(c*x - 1)) + 4*(b^3*c^2*x^2*log(c) - b^3*log(c) + (b^3*c^2*x^2 - b^3)
*log(x))*log(c^2*x^2) - 8*(b^3*c^2*x^2*log(c) - b^3*log(c))*log(x)), x))/(4
*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^2 + 4*b^3*log
(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)
*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{x}{b^2\,\mathrm{arcsec}\,(cx)^2+2\,ab\,\mathrm{arcsec}\,(cx)+a^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(x/(b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{x}{(a+b\,\mathrm{asec}\,(cx))^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(x/(a + b*asec(c*x))**2, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{x}{(b\,\mathrm{arcsec}\,(cx)+a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate(x/(b*arcsec(c*x) + a)^2, x)
```

3.40 $\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^2} \, dx$

Optimal. Leaf size=12

$$\text{Unintegrable}\left(\frac{1}{\left(a+b\sec^{-1}(cx)\right)^2},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])^(-2), x]
```

Rubi [A] time = 0.0056968, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^2} \, dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])^(-2),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])^(-2), x]
```

Rubi steps

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^2} \, dx=\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^2} \, dx$$

Mathematica [A] time = 21.5741, size = 0, normalized size = 0.

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^2} \, dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])^(-2),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])^(-2), x]
```

Maple [A] time = 0.461, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))^{-2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(a+b*arcsec(c*x))^2,x)
```

```
[Out] int(1/(a+b*arcsec(c*x))^2,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$-\frac{4\left(bx\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)+ax\right)\sqrt{cx+1}\sqrt{cx-1}+4\left(4\,b^3\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)^2+b^3\log\left(c^2x^2\right)^2+4\,b^3\log\left(c\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*(b*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a*x)*sqrt(c*x + 1)*sqrt(c*x
- 1) - (4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^2 +
4*b^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt
(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^
2))*integrate(-4*(2*a*c^2*x^2 + (2*b*c^2*x^2 - b)*arctan(sqrt(c*x + 1)*sqrt
(c*x - 1)) - a)*sqrt(c*x + 1)*sqrt(c*x - 1)/(4*b^3*log(c)^2 + 4*a^2*b - 4*(
b^3*c^2*log(c)^2 + a^2*b*c^2)*x^2 - 4*(b^3*c^2*x^2 - b^3)*arctan(sqrt(c*x +
 1)*sqrt(c*x - 1))^2 - (b^3*c^2*x^2 - b^3)*log(c^2*x^2)^2 - 4*(b^3*c^2*x^2
- b^3)*log(x)^2 - 8*(a*b^2*c^2*x^2 - a*b^2)*arctan(sqrt(c*x + 1)*sqrt(c*x -
 1)) + 4*(b^3*c^2*x^2*log(c) - b^3*log(c) + (b^3*c^2*x^2 - b^3)*log(x))*log
(c^2*x^2) - 8*(b^3*c^2*x^2*log(c) - b^3*log(c))*log(x)), x))/(4*b^3*arctan(
sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^2 + 4*b^3*log(c)^2 + 8*b^
3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)*sqrt(c*x -
1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^2\,\text{arcsec}\,(cx)^2+2\,ab\,\text{arcsec}\,(cx)+a^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(1/(b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{(a+b\,\text{asec}\,(cx))^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral((a + b*asec(c*x))**(-2), x)
```

<u>**Giac**</u> **[A]** time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\mathrm{arcsec}\,(cx) + a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^(-2), x)
```

3.41 $\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=16

$$\text{Unintegrable}\left(\frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2},x\right)$$

```
[Out] Unintegrable[1/(x*(a + b*ArcSec[c*x])^2), x]
```

Rubi [A] time = 0.0242067, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[1/(x*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] Defer[Int][1/(x*(a + b*ArcSec[c*x])^2), x]
```

Rubi steps

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2}\,dx=\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Mathematica [A] time = 3.24919, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[1/(x*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] Integrate[1/(x*(a + b*ArcSec[c*x])^2), x]
```

Maple [A] time = 0.75, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\,\mathrm{arcsec}\,(cx)\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x/(a+b*arcsec(c*x))^2,x)
```

```
[Out] int(1/x/(a+b*arcsec(c*x))^2,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$-\frac{4\sqrt{cx+1}\sqrt{cx-1}\left(b\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)+a\right)+4\left(4\,b^3\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)^2+b^3\log\left(c^2x^2\right)^2+4\,b^3\log\left(c\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*sqrt(c*x + 1)*sqrt(c*x - 1)*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)
 - (4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^2 + 4*b^
3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x
 + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))*
integrate(-4*(b*c^2*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a*c^2*x)*sqrt(c
*x + 1)*sqrt(c*x - 1)/(4*b^3*log(c)^2 + 4*a^2*b - 4*(b^3*c^2*log(c)^2 + a^2
*b*c^2)*x^2 - 4*(b^3*c^2*x^2 - b^3)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 -
 (b^3*c^2*x^2 - b^3)*log(c^2*x^2)^2 - 4*(b^3*c^2*x^2 - b^3)*log(x)^2 - 8*(a
*b^2*c^2*x^2 - a*b^2)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*(b^3*c^2*x^2*
log(c) - b^3*log(c) + (b^3*c^2*x^2 - b^3)*log(x))*log(c^2*x^2) - 8*(b^3*c^2
*x^2*log(c) - b^3*log(c))*log(x)), x))/(4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x
 - 1))^2 + b^3*log(c^2*x^2)^2 + 4*b^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^
3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3
*log(c) + b^3*log(x))*log(c^2*x^2))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^2x\,\text{arcsec}\left(cx\right)^2+2\,abx\,\text{arcsec}\left(cx\right)+a^2x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(1/(b^2*x*arcsec(c*x)^2 + 2*a*b*x*arcsec(c*x) + a^2*x), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{x\left(a+b\,\text{asec}\left(cx\right)\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(1/(x*(a + b*asec(c*x))**2), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(b\,\mathrm{arcsec}\,(cx)+a\right)^2 x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^2*x), x)
```

3.42 $\int \frac{1}{x^2\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=75

$$\frac{c\cos\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2}+\frac{c\sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2}-\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{b\left(a+b\sec^{-1}(cx)\right)}$$

```
[Out] -((c*Sqrt[1 - 1/(c^2*x^2)])/(b*(a + b*ArcSec[c*x]))) + (c*Cos[a/b]*CosInteg
ral[a/b + ArcSec[c*x]])/b^2 + (c*Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]])/b
^2
```

Rubi [A] time = 0.128973, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.357, Rules used = {5222, 3297, 3303, 3299, 3302}

$$\frac{c\cos\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2}+\frac{c\sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2}-\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{b\left(a+b\sec^{-1}(cx)\right)}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^2*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] -((c*Sqrt[1 - 1/(c^2*x^2)])/(b*(a + b*ArcSec[c*x]))) + (c*Cos[a/b]*CosInteg
ral[a/b + ArcSec[c*x]])/b^2 + (c*Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]])/b
^2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^2 \left(a+b \sec^{-1}(cx)\right)^2}\,dx = c\,\text{Subst}\left(\int \frac{\sin(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$
$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{b\left(a+b\sec^{-1}(cx)\right)} + \frac{c\,\text{Subst}\left(\int \frac{\cos(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{b}$$
$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{b\left(a+b\sec^{-1}(cx)\right)} + \frac{\left(c\cos\left(\frac{a}{b}\right)\right)\text{Subst}\left(\int \frac{\cos\left(\frac{a}{b}+x\right)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{b} + \frac{\left(c\sin\left(\frac{a}{b}\right)\right)\text{Subst}\ldots}{\ldots}$$
$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{b\left(a+b\sec^{-1}(cx)\right)} + \frac{c\cos\left(\frac{a}{b}\right)\text{Ci}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2} + \frac{c\sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{b^2}$$

Mathematica [A] time = 0.256383, size = 69, normalized size = 0.92

$$\frac{c\left(-\frac{b\sqrt{1-\frac{1}{c^2x^2}}}{a+b\sec^{-1}(cx)} + \cos\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right) + \sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right)}{b^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^2*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] (c*(-((b*Sqrt[1 - 1/(c^2*x^2)])/(a + b*ArcSec[c*x])) + Cos[a/b]*CosIntegral
[a/b + ArcSec[c*x]] + Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]]))/b^2
```

Maple [A] time = 0.241, size = 78, normalized size = 1.

$$c\left(-\frac{1}{(a+b\,\text{arcsec}\,(cx))\,b}\sqrt{\frac{c^2x^2-1}{c^2x^2}} + \frac{1}{b^2}\left(\text{Si}\left(\frac{a}{b}+\text{arcsec}\,(cx)\right)\sin\left(\frac{a}{b}\right) + \text{Ci}\left(\frac{a}{b}+\text{arcsec}\,(cx)\right)\cos\left(\frac{a}{b}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^2/(a+b*arcsec(c*x))^2,x)
```

```
[Out] c*(-((c^2*x^2-1)/c^2/x^2)^(1/2)/(a+b*arcsec(c*x))/b+(Si(a/b+arcsec(c*x))*si
n(a/b)+Ci(a/b+arcsec(c*x))*cos(a/b))/b^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{4\sqrt{cx+1}\sqrt{cx-1}\left(b\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)+a\right) - 4\left(4b^3x\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)^2 + b^3x\log\left(c^2x^2\right)^2 + 8b^3x\log\ldots\right.}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*sqrt(c*x + 1)*sqrt(c*x - 1)*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)
 - (4*b^3*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*x*log(c^2*x^2)^2 +
8*b^3*x*log(c)*log(x) + 4*b^3*x*log(x)^2 + 8*a*b^2*x*arctan(sqrt(c*x + 1)*s
qrt(c*x - 1)) + 4*(b^3*log(c)^2 + a^2*b)*x - 4*(b^3*x*log(c) + b^3*x*log(x)
)*log(c^2*x^2))*integrate(4*sqrt(c*x + 1)*sqrt(c*x - 1)*(b*arctan(sqrt(c*x
+ 1)*sqrt(c*x - 1)) + a)/(4*(b^3*c^2*log(c)^2 + a^2*b*c^2)*x^4 - 4*(b^3*log
(c)^2 + a^2*b)*x^2 + 4*(b^3*c^2*x^4 - b^3*x^2)*arctan(sqrt(c*x + 1)*sqrt(c*
x - 1))^2 + (b^3*c^2*x^4 - b^3*x^2)*log(c^2*x^2)^2 + 4*(b^3*c^2*x^4 - b^3*x
^2)*log(x)^2 + 8*(a*b^2*c^2*x^4 - a*b^2*x^2)*arctan(sqrt(c*x + 1)*sqrt(c*x
- 1)) - 4*(b^3*c^2*x^4*log(c) - b^3*x^2*log(c) + (b^3*c^2*x^4 - b^3*x^2)*lo
g(x))*log(c^2*x^2) + 8*(b^3*c^2*x^4*log(c) - b^3*x^2*log(c))*log(x)), x))/(
4*b^3*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*x*log(c^2*x^2)^2 + 8*b^
3*x*log(c)*log(x) + 4*b^3*x*log(x)^2 + 8*a*b^2*x*arctan(sqrt(c*x + 1)*sqrt(
c*x - 1)) + 4*(b^3*log(c)^2 + a^2*b)*x - 4*(b^3*x*log(c) + b^3*x*log(x))*lo
g(c^2*x^2))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^2x^2\,\text{arcsec}\,(cx)^2 + 2\,abx^2\,\text{arcsec}\,(cx) + a^2x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(1/(b^2*x^2*arcsec(c*x)^2 + 2*a*b*x^2*arcsec(c*x) + a^2*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2\,(a + b\,\text{asec}\,(cx))^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**2/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(1/(x**2*(a + b*asec(c*x))**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\text{arcsec}\,(cx) + a)^2x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^2*x^2), x)
```

3.43 $\int \frac{1}{x^3\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=84

$$\frac{c^2\cos\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^2}+\frac{c^2\sin\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^2}-\frac{c^2\sin\left(2\sec^{-1}(cx)\right)}{2b\left(a+b\sec^{-1}(cx)\right)}$$

```
[Out] (c^2*Cos[(2*a)/b]*CosIntegral[(2*a)/b + 2*ArcSec[c*x]])/b^2 - (c^2*Sin[2*Ar
cSec[c*x]])/(2*b*(a + b*ArcSec[c*x])) + (c^2*Sin[(2*a)/b]*SinIntegral[(2*a)
/b + 2*ArcSec[c*x]])/b^2
```

Rubi [A] time = 0.149351, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5222, 4406, 12, 3297, 3303, 3299, 3302}

$$\frac{c^2\cos\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^2}+\frac{c^2\sin\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^2}-\frac{c^2\sin\left(2\sec^{-1}(cx)\right)}{2b\left(a+b\sec^{-1}(cx)\right)}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^3*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] (c^2*Cos[(2*a)/b]*CosIntegral[(2*a)/b + 2*ArcSec[c*x]])/b^2 - (c^2*Sin[2*Ar
cSec[c*x]])/(2*b*(a + b*ArcSec[c*x])) + (c^2*Sin[(2*a)/b]*SinIntegral[(2*a)
/b + 2*ArcSec[c*x]])/b^2
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^3\left(a+b\sec^{-1}(cx)\right)^2}\,dx = c^2\,\text{Subst}\left(\int \frac{\cos(x)\sin(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$

$$= c^2\,\text{Subst}\left(\int \frac{\sin(2x)}{2(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$

$$= \frac{1}{2}c^2\,\text{Subst}\left(\int \frac{\sin(2x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$

$$= -\frac{c^2\sin\left(2\sec^{-1}(cx)\right)}{2b\left(a+b\sec^{-1}(cx)\right)} + \frac{c^2\,\text{Subst}\left(\int \frac{\cos(2x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{b}$$

$$= -\frac{c^2\sin\left(2\sec^{-1}(cx)\right)}{2b\left(a+b\sec^{-1}(cx)\right)} + \frac{\left(c^2\cos\left(\frac{2a}{b}\right)\right)\text{Subst}\left(\int \frac{\cos\left(\frac{2a}{b}+2x\right)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{b} + \frac{\left(c^2\sin\left(\frac{2a}{b}\right.\right.}{}$$

$$= \frac{c^2\cos\left(\frac{2a}{b}\right)\text{Ci}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^2} - \frac{c^2\sin\left(2\sec^{-1}(cx)\right)}{2b\left(a+b\sec^{-1}(cx)\right)} + \frac{c^2\sin\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(c\right.}{b^2}$$

Mathematica [A] time = 0.350875, size = 80, normalized size = 0.95

$$\frac{c\left(-\frac{b\sqrt{1-\frac{1}{c^2x^2}}}{ax+bx\sec^{-1}(cx)} + c\cos\left(\frac{2a}{b}\right)\text{CosIntegral}\left(2\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right) + c\sin\left(\frac{2a}{b}\right)\text{Si}\left(2\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right)\right)}{b^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^3*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] (c*(-((b*Sqrt[1 - 1/(c^2*x^2)])/(a*x + b*x*ArcSec[c*x])) + c*Cos[(2*a)/b]*C
osIntegral[2*(a/b + ArcSec[c*x])] + c*Sin[(2*a)/b]*SinIntegral[2*(a/b + Arc
Sec[c*x])]))/b^2
```

Maple [A] time = 0.243, size = 77, normalized size = 0.9

$$c^2\left(-\frac{\sin(2\,\text{arcsec}\,(cx))}{(2\,a+2\,b\text{arcsec}\,(cx))\,b} + \frac{1}{b^2}\left(\text{Si}\left(2\,\frac{a}{b}+2\,\text{arcsec}\,(cx)\right)\sin\left(2\,\frac{a}{b}\right) + \text{Ci}\left(2\,\frac{a}{b}+2\,\text{arcsec}\,(cx)\right)\cos\left(2\,\frac{a}{b}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^3/(a+b*arcsec(c*x))^2,x)
```

```
[Out] c^2*(-1/2*sin(2*arcsec(c*x))/(a+b*arcsec(c*x))/b+(Si(2*a/b+2*arcsec(c*x))*s
in(2*a/b)+Ci(2*a/b+2*arcsec(c*x))*cos(2*a/b))/b^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*sqrt(c*x + 1)*sqrt(c*x - 1)*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)
 + (4*b^3*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*x^2*log(c^2*x^2)^
2 + 8*b^3*x^2*log(c)*log(x) + 4*b^3*x^2*log(x)^2 + 8*a*b^2*x^2*arctan(sqrt(
c*x + 1)*sqrt(c*x - 1)) + 4*(b^3*log(c)^2 + a^2*b)*x^2 - 4*(b^3*x^2*log(c)
+ b^3*x^2*log(x))*log(c^2*x^2))*integrate(4*(a*c^2*x^2 + (b*c^2*x^2 - 2*b)*
arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 2*a)*sqrt(c*x + 1)*sqrt(c*x - 1)/(4*(
b^3*c^2*log(c)^2 + a^2*b*c^2)*x^5 - 4*(b^3*log(c)^2 + a^2*b)*x^3 + 4*(b^3*c
^2*x^5 - b^3*x^3)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + (b^3*c^2*x^5 - b^
3*x^3)*log(c^2*x^2)^2 + 4*(b^3*c^2*x^5 - b^3*x^3)*log(x)^2 + 8*(a*b^2*c^2*x
^5 - a*b^2*x^3)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 4*(b^3*c^2*x^5*log(c)
 - b^3*x^3*log(c) + (b^3*c^2*x^5 - b^3*x^3)*log(x))*log(c^2*x^2) + 8*(b^3*c
^2*x^5*log(c) - b^3*x^3*log(c))*log(x)), x))/(4*b^3*x^2*arctan(sqrt(c*x + 1
)*sqrt(c*x - 1))^2 + b^3*x^2*log(c^2*x^2)^2 + 8*b^3*x^2*log(c)*log(x) + 4*b
^3*x^2*log(x)^2 + 8*a*b^2*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*(b^3*
log(c)^2 + a^2*b)*x^2 - 4*(b^3*x^2*log(c) + b^3*x^2*log(x))*log(c^2*x^2))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^2x^3\,\text{arcsec}\,(cx)^2 + 2\,abx^3\,\text{arcsec}\,(cx) + a^2x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(1/(b^2*x^3*arcsec(c*x)^2 + 2*a*b*x^3*arcsec(c*x) + a^2*x^3), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3\,(a + b\,\text{asec}\,(cx))^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**3/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(1/(x**3*(a + b*asec(c*x))**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(b \operatorname{arcsec}\left(cx\right) + a\right)^2 x^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^2*x^3), x)
```

3.44 $\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=178

$$\frac{c^3\cos\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b^2}+\frac{3c^3\cos\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{4b^2}+\frac{c^3\sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b^2}+$$

```
[Out] -(c^3*Sqrt[1 - 1/(c^2*x^2)])/(4*b*(a + b*ArcSec[c*x])) + (c^3*Cos[a/b]*CosI
ntegral[a/b + ArcSec[c*x]])/(4*b^2) + (3*c^3*Cos[(3*a)/b]*CosIntegral[(3*a)
/b + 3*ArcSec[c*x]])/(4*b^2) - (c^3*Sin[3*ArcSec[c*x]])/(4*b*(a + b*ArcSec[
c*x])) + (c^3*Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]])/(4*b^2) + (3*c^3*Sin
[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x]])/(4*b^2)
```

Rubi [A] time = 0.266526, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4406, 3297, 3303, 3299, 3302}

$$\frac{c^3\cos\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b^2}+\frac{3c^3\cos\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{4b^2}+\frac{c^3\sin\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b^2}+$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^4*(a + b*ArcSec[c*x])^2),x]
```


```
[Out] -(c^3*Sqrt[1 - 1/(c^2*x^2)])/(4*b*(a + b*ArcSec[c*x])) + (c^3*Cos[a/b]*CosI
ntegral[a/b + ArcSec[c*x]])/(4*b^2) + (3*c^3*Cos[(3*a)/b]*CosIntegral[(3*a)
/b + 3*ArcSec[c*x]])/(4*b^2) - (c^3*Sin[3*ArcSec[c*x]])/(4*b*(a + b*ArcSec[
c*x])) + (c^3*Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]])/(4*b^2) + (3*c^3*Sin
[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x]])/(4*b^2)
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)^2}\,dx = c^3\,\text{Subst}\left(\int \frac{\cos^2(x)\sin(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$

$$= c^3\,\text{Subst}\left(\int \left(\frac{\sin(x)}{4(a+bx)^2}+\frac{\sin(3x)}{4(a+bx)^2}\right)dx, x, \sec^{-1}(cx)\right)$$

$$= \frac{1}{4}c^3\,\text{Subst}\left(\int \frac{\sin(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)+\frac{1}{4}c^3\,\text{Subst}\left(\int \frac{\sin(3x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{4b\left(a+b\sec^{-1}(cx)\right)}-\frac{c^3\sin\left(3\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)}+\frac{c^3\,\text{Subst}\left(\int \frac{\cos(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{4b}+\frac{(3\cdots}{\cdots}$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{4b\left(a+b\sec^{-1}(cx)\right)}-\frac{c^3\sin\left(3\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)}+\frac{\left(c^3\cos\left(\frac{a}{b}\right)\right)\text{Subst}\left(\int \frac{\cos\left(\frac{a}{b}+x\right)}{a+bx}\,dx, x, \sec\cdots\right.}{4b}$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{4b\left(a+b\sec^{-1}(cx)\right)}+\frac{c^3\cos\left(\frac{a}{b}\right)\text{Ci}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{4b^2}+\frac{3c^3\cos\left(\frac{3a}{b}\right)\text{Ci}\left(\frac{3a}{b}+3\sec^{-1}(c\cdots\right.}{4b^2}$$

Mathematica [A] time = 0.445924, size = 223, normalized size = 1.25

$$\frac{c^3x^2\cos\left(\frac{a}{b}\right)\left(a+b\sec^{-1}(cx)\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)+3c^3x^2\cos\left(\frac{3a}{b}\right)\left(a+b\sec^{-1}(cx)\right)\text{CosIntegral}\left(3\left(\frac{a}{b}+\text{se}\cdots\right.\right.}{\cdots}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^4*(a + b*ArcSec[c*x])^2),x]
```

```
[Out] (-4*b*c*Sqrt[1 - 1/(c^2*x^2)] + c^3*x^2*(a + b*ArcSec[c*x])*Cos[a/b]*CosInt
egral[a/b + ArcSec[c*x]] + 3*c^3*x^2*(a + b*ArcSec[c*x])*Cos[(3*a)/b]*CosIn
tegral[3*(a/b + ArcSec[c*x])] + a*c^3*x^2*Sin[a/b]*SinIntegral[a/b + ArcSec
[c*x]] + b*c^3*x^2*ArcSec[c*x]*Sin[a/b]*SinIntegral[a/b + ArcSec[c*x]] + 3*
a*c^3*x^2*Sin[(3*a)/b]*SinIntegral[3*(a/b + ArcSec[c*x])] + 3*b*c^3*x^2*Arc
Sec[c*x]*Sin[(3*a)/b]*SinIntegral[3*(a/b + ArcSec[c*x])])/(4*b^2*x^2*(a + b
*ArcSec[c*x]))
```

Maple [A] time = 0.247, size = 153, normalized size = 0.9

$$c^3\left(-\frac{\sin(3\,\mathrm{arcsec}(cx))}{(4a+4b\,\mathrm{arcsec}(cx))\,b}+\frac{3}{4b^2}\left(\mathrm{Si}\left(3\frac{a}{b}+3\,\mathrm{arcsec}(cx)\right)\sin\left(3\frac{a}{b}\right)+\mathrm{Ci}\left(3\frac{a}{b}+3\,\mathrm{arcsec}(cx)\right)\cos\left(3\frac{a}{b}\right)\right)-\frac{}{(4a+4b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^4/(a+b*arcsec(c*x))^2,x)
```

```
[Out] c^3*(-1/4*sin(3*arcsec(c*x))/(a+b*arcsec(c*x))/b+3/4*(Si(3*a/b+3*arcsec(c*x
))*sin(3*a/b)+Ci(3*a/b+3*arcsec(c*x))*cos(3*a/b))/b^2-1/4*((c^2*x^2-1)/c^2/
x^2)^(1/2)/(a+b*arcsec(c*x))/b+1/4*(Si(a/b+arcsec(c*x))*sin(a/b)+Ci(a/b+arc
sec(c*x))*cos(a/b))/b^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*sqrt(c*x + 1)*sqrt(c*x - 1)*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)
 + (4*b^3*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*x^3*log(c^2*x^2)^
2 + 8*b^3*x^3*log(c)*log(x) + 4*b^3*x^3*log(x)^2 + 8*a*b^2*x^3*arctan(sqrt(
c*x + 1)*sqrt(c*x - 1)) + 4*(b^3*log(c)^2 + a^2*b)*x^3 - 4*(b^3*x^3*log(c)
+ b^3*x^3*log(x))*log(c^2*x^2))*integrate(4*(2*a*c^2*x^2 + (2*b*c^2*x^2 - 3
*b)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 3*a)*sqrt(c*x + 1)*sqrt(c*x - 1)/
(4*(b^3*c^2*log(c)^2 + a^2*b*c^2)*x^6 - 4*(b^3*log(c)^2 + a^2*b)*x^4 + 4*(b
^3*c^2*x^6 - b^3*x^4)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + (b^3*c^2*x^6
- b^3*x^4)*log(c^2*x^2)^2 + 4*(b^3*c^2*x^6 - b^3*x^4)*log(x)^2 + 8*(a*b^2*c
^2*x^6 - a*b^2*x^4)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 4*(b^3*c^2*x^6*lo
g(c) - b^3*x^4*log(c) + (b^3*c^2*x^6 - b^3*x^4)*log(x))*log(c^2*x^2) + 8*(b
^3*c^2*x^6*log(c) - b^3*x^4*log(c))*log(x)), x))/(4*b^3*x^3*arctan(sqrt(c*x
 + 1)*sqrt(c*x - 1))^2 + b^3*x^3*log(c^2*x^2)^2 + 8*b^3*x^3*log(c)*log(x) +
 4*b^3*x^3*log(x)^2 + 8*a*b^2*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*(
b^3*log(c)^2 + a^2*b)*x^3 - 4*(b^3*x^3*log(c) + b^3*x^3*log(x))*log(c^2*x^2
))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{b^2x^4\,\mathrm{arcsec}(cx)^2+2\,abx^4\,\mathrm{arcsec}(cx)+a^2x^4},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral(1/(b^2*x^4*arcsec(c*x)^2 + 2*a*b*x^4*arcsec(c*x) + a^2*x^4), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^4 (a + b \operatorname{asec}(cx))^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**4/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral(1/(x**4*(a + b*asec(c*x))**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b \operatorname{arcsec}(cx) + a)^2 x^4} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^2*x^4), x)
```

3.45 $\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$

Optimal. Leaf size=14

$$\text{Unintegrable}\left(\frac{x}{\left(a+b\sec^{-1}(cx)\right)^3},x\right)$$

```
[Out] Unintegrable[x/(a + b*ArcSec[c*x])^3, x]
```

Rubi [A] time = 0.014366, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[x/(a + b*ArcSec[c*x])^3,x]
```

```
[Out] Defer[Int][x/(a + b*ArcSec[c*x])^3, x]
```

Rubi steps

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx=\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Mathematica [A] time = 3.35315, size = 0, normalized size = 0.

$$\int \frac{x}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[x/(a + b*ArcSec[c*x])^3,x]
```

```
[Out] Integrate[x/(a + b*ArcSec[c*x])^3, x]
```

Maple [A] time = 1.274, size = 0, normalized size = 0.

$$\int \frac{x}{\left(a+b\,\mathrm{arcsec}\,(cx)\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x/(a+b*arcsec(c*x))^3,x)
```

```
[Out] int(x/(a+b*arcsec(c*x))^3,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(24*(a*b^2*c^2*log(c)^2 + a^3*c^2)*x^4 + 8*(3*b^3*c^2*x^4 - 2*b^3*x^2)*arc
tan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 16*(a*b^2*log(c)^2 + a^3)*x^2 + 24*(3*
a*b^2*c^2*x^4 - 2*a*b^2*x^2)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + 2*(3*a
*b^2*c^2*x^4 - 2*a*b^2*x^2)*log(c^2*x^2)^2 + 8*(3*a*b^2*c^2*x^4 - 2*a*b^2*x
^2)*log(x)^2 + 2*(4*b^3*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - b^3*x^2
*log(c^2*x^2)^2 - 8*b^3*x^2*log(c)*log(x) - 4*b^3*x^2*log(x)^2 + 8*a*b^2*x^
2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 4*(b^3*log(c)^2 - a^2*b)*x^2 + 4*(b
^3*x^2*log(c) + b^3*x^2*log(x))*log(c^2*x^2))*sqrt(c*x + 1)*sqrt(c*x - 1) +
 2*(12*(b^3*c^2*log(c)^2 + 3*a^2*b*c^2)*x^4 - 8*(b^3*log(c)^2 + 3*a^2*b)*x^
2 + (3*b^3*c^2*x^4 - 2*b^3*x^2)*log(c^2*x^2)^2 + 4*(3*b^3*c^2*x^4 - 2*b^3*x
^2)*log(x)^2 - 4*(3*b^3*c^2*x^4*log(c) - 2*b^3*x^2*log(c) + (3*b^3*c^2*x^4
- 2*b^3*x^2)*log(x))*log(c^2*x^2) + 8*(3*b^3*c^2*x^4*log(c) - 2*b^3*x^2*log
(c))*log(x))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - (16*b^6*arctan(sqrt(c*x
+ 1)*sqrt(c*x - 1))^4 + b^6*log(c^2*x^2)^4 + 16*b^6*log(c)^4 + 64*b^6*log(c
)*log(x)^3 + 16*b^6*log(x)^4 + 64*a*b^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))
^3 + 32*a^2*b^4*log(c)^2 + 16*a^4*b^2 - 8*(b^6*log(c) + b^6*log(x))*log(c^2
*x^2)^3 + 8*(b^6*log(c^2*x^2)^2 + 4*b^6*log(c)^2 + 8*b^6*log(c)*log(x) + 4*
b^6*log(x)^2 + 12*a^2*b^4 - 4*(b^6*log(c) + b^6*log(x))*log(c^2*x^2))*arcta
n(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + 8*(3*b^6*log(c)^2 + 6*b^6*log(c)*log(x)
+ 3*b^6*log(x)^2 + a^2*b^4)*log(c^2*x^2)^2 + 32*(3*b^6*log(c)^2 + a^2*b^4)*
log(x)^2 + 16*(a*b^5*log(c^2*x^2)^2 + 4*a*b^5*log(c)^2 + 8*a*b^5*log(c)*log
(x) + 4*a*b^5*log(x)^2 + 4*a^3*b^3 - 4*(a*b^5*log(c) + a*b^5*log(x))*log(c^
2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(b^6*log(c)^3 + 3*b^6*log(
c)*log(x)^2 + b^6*log(x)^3 + a^2*b^4*log(c) + (3*b^6*log(c)^2 + a^2*b^4)*lo
g(x))*log(c^2*x^2) + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*log(x))*integrate(8
*(3*a*c^2*x^3 - a*x + (3*b*c^2*x^3 - b*x)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1
)))/(4*b^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^4*log(c^2*x^2)^2 + 4*b
^4*log(c)^2 + 8*b^4*log(c)*log(x) + 4*b^4*log(x)^2 + 8*a*b^3*arctan(sqrt(c*
x + 1)*sqrt(c*x - 1)) + 4*a^2*b^2 - 4*(b^4*log(c) + b^4*log(x))*log(c^2*x^2
)), x) - 8*(3*a*b^2*c^2*x^4*log(c) - 2*a*b^2*x^2*log(c) + (3*a*b^2*c^2*x^4
- 2*a*b^2*x^2)*log(x))*log(c^2*x^2) + 16*(3*a*b^2*c^2*x^4*log(c) - 2*a*b^2*
x^2*log(c))*log(x))/(16*b^6*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*log
(c^2*x^2)^4 + 16*b^6*log(c)^4 + 64*b^6*log(c)*log(x)^3 + 16*b^6*log(x)^4 +
64*a*b^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 32*a^2*b^4*log(c)^2 + 16*a
^4*b^2 - 8*(b^6*log(c) + b^6*log(x))*log(c^2*x^2)^3 + 8*(b^6*log(c^2*x^2)^2
 + 4*b^6*log(c)^2 + 8*b^6*log(c)*log(x) + 4*b^6*log(x)^2 + 12*a^2*b^4 - 4*(
b^6*log(c) + b^6*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^
2 + 8*(3*b^6*log(c)^2 + 6*b^6*log(c)*log(x) + 3*b^6*log(x)^2 + a^2*b^4)*log
(c^2*x^2)^2 + 32*(3*b^6*log(c)^2 + a^2*b^4)*log(x)^2 + 16*(a*b^5*log(c^2*x^
2)^2 + 4*a*b^5*log(c)^2 + 8*a*b^5*log(c)*log(x) + 4*a*b^5*log(x)^2 + 4*a^3*
b^3 - 4*(a*b^5*log(c) + a*b^5*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sq
rt(c*x - 1)) - 32*(b^6*log(c)^3 + 3*b^6*log(c)*log(x)^2 + b^6*log(x)^3 + a^
2*b^4*log(c) + (3*b^6*log(c)^2 + a^2*b^4)*log(x))*log(c^2*x^2) + 64*(b^6*lo
g(c)^3 + a^2*b^4*log(c))*log(x))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x}{b^3\,\text{arcsec}\,(cx)^3+3\,ab^2\,\text{arcsec}\,(cx)^2+3\,a^2b\,\text{arcsec}\,(cx)+a^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(x/(b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + 3*a^2*b*arcsec(c*x)
 + a^3), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(a + b \operatorname{asec}(cx))^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(x/(a + b*asec(c*x))**3, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(b \operatorname{arcsec}(cx) + a)^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate(x/(b*arcsec(c*x) + a)^3, x)
```

3.46 $\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$

Optimal. Leaf size=12

$$\text{Unintegrable}\left(\frac{1}{\left(a+b\sec^{-1}(cx)\right)^3},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])^(-3), x]
```

Rubi [A] time = 0.0061648, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])^(-3),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])^(-3), x]
```

Rubi steps

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx=\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Mathematica [A] time = 11.2625, size = 0, normalized size = 0.

$$\int \frac{1}{\left(a+b\sec^{-1}(cx)\right)^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])^(-3),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])^(-3), x]
```

Maple [A] time = 0.545, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))^{-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(a+b*arcsec(c*x))^3,x)
```

```
[Out] int(1/(a+b*arcsec(c*x))^3,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(16*(a*b^2*c^2*log(c)^2 + a^3*c^2)*x^3 + 8*(2*b^3*c^2*x^3 - b^3*x)*arctan(
sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 24*(2*a*b^2*c^2*x^3 - a*b^2*x)*arctan(sqrt
(c*x + 1)*sqrt(c*x - 1))^2 + 2*(2*a*b^2*c^2*x^3 - a*b^2*x)*log(c^2*x^2)^2 +
 8*(2*a*b^2*c^2*x^3 - a*b^2*x)*log(x)^2 + 2*(4*b^3*x*arctan(sqrt(c*x + 1)*s
qrt(c*x - 1))^2 - b^3*x*log(c^2*x^2)^2 - 8*b^3*x*log(c)*log(x) - 4*b^3*x*lo
g(x)^2 + 8*a*b^2*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 4*(b^3*log(c)^2 -
a^2*b)*x + 4*(b^3*x*log(c) + b^3*x*log(x))*log(c^2*x^2))*sqrt(c*x + 1)*sqrt
(c*x - 1) - 8*(a*b^2*log(c)^2 + a^3)*x + 2*(8*(b^3*c^2*log(c)^2 + 3*a^2*b*c
^2)*x^3 + (2*b^3*c^2*x^3 - b^3*x)*log(c^2*x^2)^2 + 4*(2*b^3*c^2*x^3 - b^3*x
)*log(x)^2 - 4*(b^3*log(c)^2 + 3*a^2*b)*x - 4*(2*b^3*c^2*x^3*log(c) - b^3*x
*log(c) + (2*b^3*c^2*x^3 - b^3*x)*log(x))*log(c^2*x^2) + 8*(2*b^3*c^2*x^3*l
og(c) - b^3*x*log(c))*log(x))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - (16*b^6
*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*log(c^2*x^2)^4 + 16*b^6*log(c)
^4 + 64*b^6*log(c)*log(x)^3 + 16*b^6*log(x)^4 + 64*a*b^5*arctan(sqrt(c*x +
1)*sqrt(c*x - 1))^3 + 32*a^2*b^4*log(c)^2 + 16*a^4*b^2 - 8*(b^6*log(c) + b^
6*log(x))*log(c^2*x^2)^3 + 8*(b^6*log(c^2*x^2)^2 + 4*b^6*log(c)^2 + 8*b^6*l
og(c)*log(x) + 4*b^6*log(x)^2 + 12*a^2*b^4 - 4*(b^6*log(c) + b^6*log(x))*lo
g(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + 8*(3*b^6*log(c)^2 + 6*b
^6*log(c)*log(x) + 3*b^6*log(x)^2 + a^2*b^4)*log(c^2*x^2)^2 + 32*(3*b^6*log
(c)^2 + a^2*b^4)*log(x)^2 + 16*(a*b^5*log(c^2*x^2)^2 + 4*a*b^5*log(c)^2 + 8
*a*b^5*log(c)*log(x) + 4*a*b^5*log(x)^2 + 4*a^3*b^3 - 4*(a*b^5*log(c) + a*b
^5*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(b^6*log(
c)^3 + 3*b^6*log(c)*log(x)^2 + b^6*log(x)^3 + a^2*b^4*log(c) + (3*b^6*log(c
)^2 + a^2*b^4)*log(x))*log(c^2*x^2) + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*lo
g(x))*integrate(2*(6*a*c^2*x^2 + (6*b*c^2*x^2 - b)*arctan(sqrt(c*x + 1)*sqr
t(c*x - 1)) - a)/(4*b^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^4*log(c^2
*x^2)^2 + 4*b^4*log(c)^2 + 8*b^4*log(c)*log(x) + 4*b^4*log(x)^2 + 8*a*b^3*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b^2 - 4*(b^4*log(c) + b^4*log(x)
)*log(c^2*x^2)), x) - 8*(2*a*b^2*c^2*x^3*log(c) - a*b^2*x*log(c) + (2*a*b^2
*c^2*x^3 - a*b^2*x)*log(x))*log(c^2*x^2) + 16*(2*a*b^2*c^2*x^3*log(c) - a*b
^2*x*log(c))*log(x))/(16*b^6*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*lo
g(c^2*x^2)^4 + 16*b^6*log(c)^4 + 64*b^6*log(c)*log(x)^3 + 16*b^6*log(x)^4 +
 64*a*b^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 32*a^2*b^4*log(c)^2 + 16*
a^4*b^2 - 8*(b^6*log(c) + b^6*log(x))*log(c^2*x^2)^3 + 8*(b^6*log(c^2*x^2)^
2 + 4*b^6*log(c)^2 + 8*b^6*log(c)*log(x) + 4*b^6*log(x)^2 + 12*a^2*b^4 - 4*
(b^6*log(c) + b^6*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))
^2 + 8*(3*b^6*log(c)^2 + 6*b^6*log(c)*log(x) + 3*b^6*log(x)^2 + a^2*b^4)*lo
g(c^2*x^2)^2 + 32*(3*b^6*log(c)^2 + a^2*b^4)*log(x)^2 + 16*(a*b^5*log(c^2*x
^2)^2 + 4*a*b^5*log(c)^2 + 8*a*b^5*log(c)*log(x) + 4*a*b^5*log(x)^2 + 4*a^3
*b^3 - 4*(a*b^5*log(c) + a*b^5*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*s
qrt(c*x - 1)) - 32*(b^6*log(c)^3 + 3*b^6*log(c)*log(x)^2 + b^6*log(x)^3 + a
^2*b^4*log(c) + (3*b^6*log(c)^2 + a^2*b^4)*log(x))*log(c^2*x^2) + 64*(b^6*l
og(c)^3 + a^2*b^4*log(c))*log(x))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^3\,\text{arcsec}\,(cx)^3+3\,ab^2\,\text{arcsec}\,(cx)^2+3\,a^2b\,\text{arcsec}\,(cx)+a^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(1/(b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + 3*a^2*b*arcsec(c*x)
 + a^3), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+b\,\text{asec}\,(cx))^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral((a + b*asec(c*x))**(-3), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\text{arcsec}\,(cx)+a)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^(-3), x)
```

3.47 $\int \frac{1}{x\left(a+b \sec^{-1}(cx)\right)^3} \, dx$

Optimal. Leaf size=16

$$\text{Unintegrable}\left(\frac{1}{x\left(a+b\sec^{-1}(cx)\right)^3},x\right)$$

```
[Out] Unintegrable[1/(x*(a + b*ArcSec[c*x])^3), x]
```

Rubi [A] time = 0.0249043, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^3} \, dx$$

Verification is Not applicable to the result.

```
[In] Int[1/(x*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] Defer[Int][1/(x*(a + b*ArcSec[c*x])^3), x]
```

Rubi steps

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^3} \, dx=\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^3} \, dx$$

Mathematica [A] time = 1.6879, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\sec^{-1}(cx)\right)^3} \, dx$$

Verification is Not applicable to the result.

```
[In] Integrate[1/(x*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] Integrate[1/(x*(a + b*ArcSec[c*x])^3), x]
```

Maple [A] time = 0.799, size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x/(a+b*arcsec(c*x))^3,x)
```

```
[Out] int(1/x/(a+b*arcsec(c*x))^3,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(8*b^3*c^2*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 24*a*b^2*c^2*x^2*ar
ctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + 2*a*b^2*c^2*x^2*log(c^2*x^2)^2 + 16*a
*b^2*c^2*x^2*log(c)*log(x) + 8*a*b^2*c^2*x^2*log(x)^2 + 8*(a*b^2*c^2*log(c)
^2 + a^3*c^2)*x^2 + 2*(4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - b^3*lo
g(c^2*x^2)^2 - 4*b^3*log(c)^2 - 8*b^3*log(c)*log(x) - 4*b^3*log(x)^2 + 8*a*
b^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b + 4*(b^3*log(c) + b^3*log
(x))*log(c^2*x^2))*sqrt(c*x + 1)*sqrt(c*x - 1) + 2*(b^3*c^2*x^2*log(c^2*x^2
)^2 + 8*b^3*c^2*x^2*log(c)*log(x) + 4*b^3*c^2*x^2*log(x)^2 + 4*(b^3*c^2*log
(c)^2 + 3*a^2*b*c^2)*x^2 - 4*(b^3*c^2*x^2*log(c) + b^3*c^2*x^2*log(x))*log(
c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - (16*b^6*arctan(sqrt(c*x + 1
)*sqrt(c*x - 1))^4 + b^6*log(c^2*x^2)^4 + 16*b^6*log(c)^4 + 64*b^6*log(c)*l
og(x)^3 + 16*b^6*log(x)^4 + 64*a*b^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3
+ 32*a^2*b^4*log(c)^2 + 16*a^4*b^2 - 8*(b^6*log(c) + b^6*log(x))*log(c^2*x^
2)^3 + 8*(b^6*log(c^2*x^2)^2 + 4*b^6*log(c)^2 + 8*b^6*log(c)*log(x) + 4*b^6
*log(x)^2 + 12*a^2*b^4 - 4*(b^6*log(c) + b^6*log(x))*log(c^2*x^2))*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))^2 + 8*(3*b^6*log(c)^2 + 6*b^6*log(c)*log(x) + 3
*b^6*log(x)^2 + a^2*b^4)*log(c^2*x^2)^2 + 32*(3*b^6*log(c)^2 + a^2*b^4)*log
(x)^2 + 16*(a*b^5*log(c^2*x^2)^2 + 4*a*b^5*log(c)^2 + 8*a*b^5*log(c)*log(x)
 + 4*a*b^5*log(x)^2 + 4*a^3*b^3 - 4*(a*b^5*log(c) + a*b^5*log(x))*log(c^2*x
^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(b^6*log(c)^3 + 3*b^6*log(c)*
log(x)^2 + b^6*log(x)^3 + a^2*b^4*log(c) + (3*b^6*log(c)^2 + a^2*b^4)*log(x
))*log(c^2*x^2) + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*log(x))*integrate(4*(b
*c^2*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a*c^2*x)/(4*b^4*arctan(sqrt(c*
x + 1)*sqrt(c*x - 1))^2 + b^4*log(c^2*x^2)^2 + 4*b^4*log(c)^2 + 8*b^4*log(c
)*log(x) + 4*b^4*log(x)^2 + 8*a*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4
*a^2*b^2 - 4*(b^4*log(c) + b^4*log(x))*log(c^2*x^2)), x) - 8*(a*b^2*c^2*x^2
*log(c) + a*b^2*c^2*x^2*log(x))*log(c^2*x^2))/(16*b^6*arctan(sqrt(c*x + 1)*
sqrt(c*x - 1))^4 + b^6*log(c^2*x^2)^4 + 16*b^6*log(c)^4 + 64*b^6*log(c)*log
(x)^3 + 16*b^6*log(x)^4 + 64*a*b^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 +
32*a^2*b^4*log(c)^2 + 16*a^4*b^2 - 8*(b^6*log(c) + b^6*log(x))*log(c^2*x^2)
^3 + 8*(b^6*log(c^2*x^2)^2 + 4*b^6*log(c)^2 + 8*b^6*log(c)*log(x) + 4*b^6*l
og(x)^2 + 12*a^2*b^4 - 4*(b^6*log(c) + b^6*log(x))*log(c^2*x^2))*arctan(sqr
t(c*x + 1)*sqrt(c*x - 1))^2 + 8*(3*b^6*log(c)^2 + 6*b^6*log(c)*log(x) + 3*b
^6*log(x)^2 + a^2*b^4)*log(c^2*x^2)^2 + 32*(3*b^6*log(c)^2 + a^2*b^4)*log(x
)^2 + 16*(a*b^5*log(c^2*x^2)^2 + 4*a*b^5*log(c)^2 + 8*a*b^5*log(c)*log(x) +
 4*a*b^5*log(x)^2 + 4*a^3*b^3 - 4*(a*b^5*log(c) + a*b^5*log(x))*log(c^2*x^2
))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(b^6*log(c)^3 + 3*b^6*log(c)*lo
g(x)^2 + b^6*log(x)^3 + a^2*b^4*log(c) + (3*b^6*log(c)^2 + a^2*b^4)*log(x))
*log(c^2*x^2) + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*log(x))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^3 x \operatorname{arcsec}(cx)^3 + 3\,ab^2 x \operatorname{arcsec}(cx)^2 + 3\,a^2 bx \operatorname{arcsec}(cx) + a^3 x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(1/(b^3*x*arcsec(c*x)^3 + 3*a*b^2*x*arcsec(c*x)^2 + 3*a^2*b*x*arcse
c(c*x) + a^3*x), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+b\operatorname{asec}\left(cx\right)\right)^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(1/(x*(a + b*asec(c*x))**3), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(b\operatorname{arcsec}\left(cx\right)+a\right)^{3}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^3*x), x)
```

3.48 $\int \frac{1}{x^2\left(a+b \sec^{-1}(cx)\right)^3} \, dx$

Optimal. Leaf size=103

$$\frac{c \sin\left(\frac{a}{b}\right) \text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{2b^3}-\frac{c \cos\left(\frac{a}{b}\right) \text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{2b^3}-\frac{1}{2b^2 x \left(a+b \sec^{-1}(cx)\right)}-\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b \sec^{-1}(cx)\right)^2}$$

```
[Out] -(c*Sqrt[1 - 1/(c^2*x^2)])/(2*b*(a + b*ArcSec[c*x])^2) - 1/(2*b^2*x*(a + b*
ArcSec[c*x])) + (c*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(2*b^3) - (c*Co
s[a/b]*SinIntegral[a/b + ArcSec[c*x]])/(2*b^3)
```

Rubi [A] time = 0.147265, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.357, Rules used = {5222, 3297, 3303, 3299, 3302}

$$\frac{c \sin\left(\frac{a}{b}\right) \text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{2b^3}-\frac{c \cos\left(\frac{a}{b}\right) \text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{2b^3}-\frac{1}{2b^2 x \left(a+b \sec^{-1}(cx)\right)}-\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b \sec^{-1}(cx)\right)^2}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^2*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] -(c*Sqrt[1 - 1/(c^2*x^2)])/(2*b*(a + b*ArcSec[c*x])^2) - 1/(2*b^2*x*(a + b*
ArcSec[c*x])) + (c*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(2*b^3) - (c*Co
s[a/b]*SinIntegral[a/b + ArcSec[c*x]])/(2*b^3)
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^2\left(a+b\sec^{-1}(cx)\right)^3}\,dx = c\,\text{Subst}\left(\int \frac{\sin(x)}{(a+bx)^3}\,dx, x, \sec^{-1}(cx)\right)$$

$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b\sec^{-1}(cx)\right)^2} + \frac{c\,\text{Subst}\left(\int \frac{\cos(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)}{2b}$$

$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{1}{2b^2x\left(a+b\sec^{-1}(cx)\right)} - \frac{c\,\text{Subst}\left(\int \frac{\sin(x)}{a+bx}\,dx, x, \sec^{-1}(cx)\right)}{2b^2}$$

$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{1}{2b^2x\left(a+b\sec^{-1}(cx)\right)} - \frac{\left(c\cos\left(\frac{a}{b}\right)\right)\text{Subst}\left(\int \frac{\sin\left(\frac{a}{b}+x\right)}{a+bx}\,dx, x, \text{sec}^{-}\right.}{2b^2}$$

$$= -\frac{c\sqrt{1-\frac{1}{c^2x^2}}}{2b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{1}{2b^2x\left(a+b\sec^{-1}(cx)\right)} + \frac{c\text{Ci}\left(\frac{a}{b}+\sec^{-1}(cx)\right)\sin\left(\frac{a}{b}\right)}{2b^3} - \frac{c\cos\left(\frac{a}{b}\right)\text{S}}{}$$

Mathematica [A] time = 0.371504, size = 88, normalized size = 0.85

$$-\frac{\frac{b\left(a+bcx\sqrt{1-\frac{1}{c^2x^2}}+b\sec^{-1}(cx)\right)}{x\left(a+b\sec^{-1}(cx)\right)^2} - c\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right) + c\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{2b^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^2*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] -((b*(a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x + b*ArcSec[c*x]))/(x*(a + b*ArcSec[c*
x])^2) - c*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b] + c*Cos[a/b]*SinIntegral
[a/b + ArcSec[c*x]])/(2*b^3)
```

Maple [A] time = 0.27, size = 154, normalized size = 1.5

$$c\left(-\frac{1}{2\left(a+b\,\text{arcsec}\,(cx)\right)^2 b}\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{1}{2\,cx\,(a+b\,\text{arcsec}\,(cx))\,b^3}\left(\text{Si}\left(\frac{a}{b}+\text{arcsec}\,(cx)\right)\cos\left(\frac{a}{b}\right)\text{arcsec}\,(cx)\,cxb - \text{Ci}\left(\frac{a}{b}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^2/(a+b*arcsec(c*x))^3,x)
```

```
[Out] c*(-1/2*((c^2*x^2-1)/c^2/x^2)^(1/2)/(a+b*arcsec(c*x))^2/b-1/2*(Si(a/b+arcse
c(c*x))*cos(a/b)*arcsec(c*x)*c*x*b-Ci(a/b+arcsec(c*x))*sin(a/b)*arcsec(c*x)
*c*x*b+Si(a/b+arcsec(c*x))*cos(a/b)*c*x*a-Ci(a/b+arcsec(c*x))*sin(a/b)*c*x*
a+b)/c/x/(a+b*arcsec(c*x))/b^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(8*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 24*a*b^2*arctan(sqrt(c*x +
1)*sqrt(c*x - 1))^2 + 2*a*b^2*log(c^2*x^2)^2 + 8*a*b^2*log(c)^2 + 16*a*b^2*
log(c)*log(x) + 8*a*b^2*log(x)^2 + 8*a^3 + 2*(4*b^3*arctan(sqrt(c*x + 1)*sq
rt(c*x - 1))^2 - b^3*log(c^2*x^2)^2 - 4*b^3*log(c)^2 - 8*b^3*log(c)*log(x)
- 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b +
4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))*sqrt(c*x + 1)*sqrt(c*x - 1) + 2*(
b^3*log(c^2*x^2)^2 + 4*b^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2
+ 12*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)
*sqrt(c*x - 1)) + (16*b^6*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*x*l
og(c^2*x^2)^4 + 64*b^6*x*log(c)*log(x)^3 + 16*b^6*x*log(x)^4 + 64*a*b^5*x*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 - 8*(b^6*x*log(c) + b^6*x*log(x))*log(
c^2*x^2)^3 + 32*(3*b^6*log(c)^2 + a^2*b^4)*x*log(x)^2 + 8*(b^6*x*log(c^2*x^
2)^2 + 8*b^6*x*log(c)*log(x) + 4*b^6*x*log(x)^2 + 4*(b^6*log(c)^2 + 3*a^2*b
^4)*x - 4*(b^6*x*log(c) + b^6*x*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*
sqrt(c*x - 1))^2 + 8*(6*b^6*x*log(c)*log(x) + 3*b^6*x*log(x)^2 + (3*b^6*log
(c)^2 + a^2*b^4)*x)*log(c^2*x^2)^2 + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*x*l
og(x) + 16*(b^6*log(c)^4 + 2*a^2*b^4*log(c)^2 + a^4*b^2)*x + 16*(a*b^5*x*lo
g(c^2*x^2)^2 + 8*a*b^5*x*log(c)*log(x) + 4*a*b^5*x*log(x)^2 + 4*(a*b^5*log(
c)^2 + a^3*b^3)*x - 4*(a*b^5*x*log(c) + a*b^5*x*log(x))*log(c^2*x^2))*arcta
n(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(3*b^6*x*log(c)*log(x)^2 + b^6*x*log(x)
^3 + (3*b^6*log(c)^2 + a^2*b^4)*x*log(x) + (b^6*log(c)^3 + a^2*b^4*log(c))*
x)*log(c^2*x^2))*integrate(2*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)/(4
*b^4*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^4*x^2*log(c^2*x^2)^2 + 8
*b^4*x^2*log(c)*log(x) + 4*b^4*x^2*log(x)^2 + 8*a*b^3*x^2*arctan(sqrt(c*x +
 1)*sqrt(c*x - 1)) + 4*(b^4*log(c)^2 + a^2*b^2)*x^2 - 4*(b^4*x^2*log(c) + b
^4*x^2*log(x))*log(c^2*x^2)), x) - 8*(a*b^2*log(c) + a*b^2*log(x))*log(c^2*
x^2))/(16*b^6*x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*x*log(c^2*x^2)^
4 + 64*b^6*x*log(c)*log(x)^3 + 16*b^6*x*log(x)^4 + 64*a*b^5*x*arctan(sqrt(c
*x + 1)*sqrt(c*x - 1))^3 - 8*(b^6*x*log(c) + b^6*x*log(x))*log(c^2*x^2)^3 +
 32*(3*b^6*log(c)^2 + a^2*b^4)*x*log(x)^2 + 8*(b^6*x*log(c^2*x^2)^2 + 8*b^6
*x*log(c)*log(x) + 4*b^6*x*log(x)^2 + 4*(b^6*log(c)^2 + 3*a^2*b^4)*x - 4*(b
^6*x*log(c) + b^6*x*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1
))^2 + 8*(6*b^6*x*log(c)*log(x) + 3*b^6*x*log(x)^2 + (3*b^6*log(c)^2 + a^2*
b^4)*x)*log(c^2*x^2)^2 + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*x*log(x) + 16*(
b^6*log(c)^4 + 2*a^2*b^4*log(c)^2 + a^4*b^2)*x + 16*(a*b^5*x*log(c^2*x^2)^2
 + 8*a*b^5*x*log(c)*log(x) + 4*a*b^5*x*log(x)^2 + 4*(a*b^5*log(c)^2 + a^3*b
^3)*x - 4*(a*b^5*x*log(c) + a*b^5*x*log(x))*log(c^2*x^2))*arctan(sqrt(c*x +
 1)*sqrt(c*x - 1)) - 32*(3*b^6*x*log(c)*log(x)^2 + b^6*x*log(x)^3 + (3*b^6*
log(c)^2 + a^2*b^4)*x*log(x) + (b^6*log(c)^3 + a^2*b^4*log(c))*x)*log(c^2*x
^2))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^3x^2\operatorname{arcsec}(cx)^3 + 3\,ab^2x^2\operatorname{arcsec}(cx)^2 + 3\,a^2bx^2\operatorname{arcsec}(cx) + a^3x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(1/(b^3*x^2*arcsec(c*x)^3 + 3*a*b^2*x^2*arcsec(c*x)^2 + 3*a^2*b*x^2
*arcsec(c*x) + a^3*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2 \left(a + b\,\mathrm{asec}\,(cx)\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**2/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(1/(x**2*(a + b*asec(c*x))**3), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(b\,\mathrm{arcsec}\,(cx) + a\right)^3 x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^2/(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^3*x^2), x)
```

3.49 $\int \frac{1}{x^3\left(a+b\sec^{-1}(cx)\right)^3}\,dx$

Optimal. Leaf size=112

$$\frac{c^2\sin\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^3}-\frac{c^2\cos\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^3}-\frac{c^2\cos\left(2\sec^{-1}(cx)\right)}{2b^2\left(a+b\sec^{-1}(cx)\right)}-\frac{c^2\sin\left(2\sec\right.}{4b\left(a+b\sec\right.}$$

```
[Out] -(c^2*Cos[2*ArcSec[c*x]])/(2*b^2*(a + b*ArcSec[c*x])) + (c^2*CosIntegral[(2
*a)/b + 2*ArcSec[c*x]]*Sin[(2*a)/b])/b^3 - (c^2*Sin[2*ArcSec[c*x]])/(4*b*(a
 + b*ArcSec[c*x])^2) - (c^2*Cos[(2*a)/b]*SinIntegral[(2*a)/b + 2*ArcSec[c*x
]])/b^3
```

Rubi [A] time = 0.179502, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5222, 4406, 12, 3297, 3303, 3299, 3302}

$$\frac{c^2\sin\left(\frac{2a}{b}\right)\text{CosIntegral}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^3}-\frac{c^2\cos\left(\frac{2a}{b}\right)\text{Si}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)}{b^3}-\frac{c^2\cos\left(2\sec^{-1}(cx)\right)}{2b^2\left(a+b\sec^{-1}(cx)\right)}-\frac{c^2\sin\left(2\sec\right.}{4b\left(a+b\sec\right.}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^3*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] -(c^2*Cos[2*ArcSec[c*x]])/(2*b^2*(a + b*ArcSec[c*x])) + (c^2*CosIntegral[(2
*a)/b + 2*ArcSec[c*x]]*Sin[(2*a)/b])/b^3 - (c^2*Sin[2*ArcSec[c*x]])/(4*b*(a
 + b*ArcSec[c*x])^2) - (c^2*Cos[(2*a)/b]*SinIntegral[(2*a)/b + 2*ArcSec[c*x
]])/b^3
```

Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\begin{aligned}
\int \frac{1}{x^3 \left(a+b \sec^{-1}(cx)\right)^3} \, dx &= c^2 \operatorname{Subst}\left(\int \frac{\cos(x)\sin(x)}{(a+bx)^3} \, dx, x, \sec^{-1}(cx)\right) \\
&= c^2 \operatorname{Subst}\left(\int \frac{\sin(2x)}{2(a+bx)^3} \, dx, x, \sec^{-1}(cx)\right) \\
&= \frac{1}{2} c^2 \operatorname{Subst}\left(\int \frac{\sin(2x)}{(a+bx)^3} \, dx, x, \sec^{-1}(cx)\right) \\
&= -\frac{c^2 \sin\left(2\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)^2} + \frac{c^2 \operatorname{Subst}\left(\int \frac{\cos(2x)}{(a+bx)^2} \, dx, x, \sec^{-1}(cx)\right)}{2b} \\
&= -\frac{c^2 \cos\left(2\sec^{-1}(cx)\right)}{2b^2\left(a+b\sec^{-1}(cx)\right)} - \frac{c^2 \sin\left(2\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{c^2 \operatorname{Subst}\left(\int \frac{\sin(2x)}{a+bx} \, dx, x, \sec^{-1}(cx)\right)}{b^2} \\
&= -\frac{c^2 \cos\left(2\sec^{-1}(cx)\right)}{2b^2\left(a+b\sec^{-1}(cx)\right)} - \frac{c^2 \sin\left(2\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{\left(c^2\cos\left(\frac{2a}{b}\right)\right)\operatorname{Subst}\left(\int \frac{\sin\left(\frac{2a}{b}+2x\right)}{a+bx} \, dx, x, \mathrm{se}\right.}{b^2} \\
&= -\frac{c^2 \cos\left(2\sec^{-1}(cx)\right)}{2b^2\left(a+b\sec^{-1}(cx)\right)} + \frac{c^2 \operatorname{Ci}\left(\frac{2a}{b}+2\sec^{-1}(cx)\right)\sin\left(\frac{2a}{b}\right)}{b^3} - \frac{c^2 \sin\left(2\sec^{-1}(cx)\right)}{4b\left(a+b\sec^{-1}(cx)\right)^2} - \frac{c^2 \cos}{}
\end{aligned}$$

Mathematica [A] time = 0.400985, size = 114, normalized size = 1.02

$$\frac{-\frac{b^2 c\sqrt{1-\frac{1}{c^2x^2}}}{x\left(a+b\sec^{-1}(cx)\right)^2} + 2c^2\left(\sin\left(\frac{2a}{b}\right)\operatorname{CosIntegral}\left(2\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right) - \cos\left(\frac{2a}{b}\right)\operatorname{Si}\left(2\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right)\right) + \frac{b\left(c^2x^2-2\right)}{x^2\left(a+b\sec^{-1}(cx)\right)}}{2b^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^3*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] (-((b^2*c*Sqrt[1 - 1/(c^2*x^2)])/(x*(a + b*ArcSec[c*x])^2)) + (b*(-2 + c^2*
x^2))/(x^2*(a + b*ArcSec[c*x])) + 2*c^2*(CosIntegral[2*(a/b + ArcSec[c*x])]
*Sin[(2*a)/b] - Cos[(2*a)/b]*SinIntegral[2*(a/b + ArcSec[c*x])]))/(2*b^3)
```

Maple [A] time = 0.248, size = 157, normalized size = 1.4

$$c^2\left(-\frac{\sin(2\operatorname{arcsec}(cx))}{4\,(a+b\operatorname{arcsec}(cx))^2\,b}-\frac{1}{(2\,a+2\,b\operatorname{arcsec}(cx))\,b^3}\left(2\operatorname{Si}\left(2\,\frac{a}{b}+2\operatorname{arcsec}(cx)\right)\cos\left(2\,\frac{a}{b}\right)\operatorname{arcsec}(cx)\,b-2\operatorname{Ci}\left(2\,\frac{a}{b}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^3/(a+b*arcsec(c*x))^3,x)
```

```
[Out] c^2*(-1/4*sin(2*arcsec(c*x))/(a+b*arcsec(c*x))^2/b-1/2*(2*Si(2*a/b+2*arcsec
(c*x))*cos(2*a/b)*arcsec(c*x)*b-2*Ci(2*a/b+2*arcsec(c*x))*sin(2*a/b)*arcsec
(c*x)*b+2*Si(2*a/b+2*arcsec(c*x))*cos(2*a/b)*a-2*Ci(2*a/b+2*arcsec(c*x))*si
n(2*a/b)*a+cos(2*arcsec(c*x))*b)/(a+b*arcsec(c*x))/b^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(16*a*b^2*log(c)^2 - 8*(b^3*c^2*x^2 - 2*b^3)*arctan(sqrt(c*x + 1)*sqrt(c*x
 - 1))^3 + 16*a^3 - 8*(a*b^2*c^2*log(c)^2 + a^3*c^2)*x^2 - 24*(a*b^2*c^2*x^
2 - 2*a*b^2)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - 2*(a*b^2*c^2*x^2 - 2*a
*b^2)*log(c^2*x^2)^2 - 8*(a*b^2*c^2*x^2 - 2*a*b^2)*log(x)^2 + 2*(4*b^3*arct
an(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - b^3*log(c^2*x^2)^2 - 4*b^3*log(c)^2 - 8
*b^3*log(c)*log(x) - 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)*sqrt(c*x
 - 1)) + 4*a^2*b + 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))*sqrt(c*x + 1)*
sqrt(c*x - 1) + 2*(8*b^3*log(c)^2 + 24*a^2*b - 4*(b^3*c^2*log(c)^2 + 3*a^2*
b*c^2)*x^2 - (b^3*c^2*x^2 - 2*b^3)*log(c^2*x^2)^2 - 4*(b^3*c^2*x^2 - 2*b^3)
*log(x)^2 + 4*(b^3*c^2*x^2*log(c) - 2*b^3*log(c) + (b^3*c^2*x^2 - 2*b^3)*lo
g(x))*log(c^2*x^2) - 8*(b^3*c^2*x^2*log(c) - 2*b^3*log(c))*log(x))*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1)) + (16*b^6*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1
))^4 + b^6*x^2*log(c^2*x^2)^4 + 64*b^6*x^2*log(c)*log(x)^3 + 16*b^6*x^2*log
(x)^4 + 64*a*b^5*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 32*(3*b^6*log(
c)^2 + a^2*b^4)*x^2*log(x)^2 - 8*(b^6*x^2*log(c) + b^6*x^2*log(x))*log(c^2*
x^2)^3 + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*x^2*log(x) + 16*(b^6*log(c)^4 +
 2*a^2*b^4*log(c)^2 + a^4*b^2)*x^2 + 8*(b^6*x^2*log(c^2*x^2)^2 + 8*b^6*x^2*
log(c)*log(x) + 4*b^6*x^2*log(x)^2 + 4*(b^6*log(c)^2 + 3*a^2*b^4)*x^2 - 4*(
b^6*x^2*log(c) + b^6*x^2*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*
x - 1))^2 + 8*(6*b^6*x^2*log(c)*log(x) + 3*b^6*x^2*log(x)^2 + (3*b^6*log(c)
^2 + a^2*b^4)*x^2)*log(c^2*x^2)^2 + 16*(a*b^5*x^2*log(c^2*x^2)^2 + 8*a*b^5*
x^2*log(c)*log(x) + 4*a*b^5*x^2*log(x)^2 + 4*(a*b^5*log(c)^2 + a^3*b^3)*x^2
 - 4*(a*b^5*x^2*log(c) + a*b^5*x^2*log(x))*log(c^2*x^2))*arctan(sqrt(c*x +
1)*sqrt(c*x - 1)) - 32*(3*b^6*x^2*log(c)*log(x)^2 + b^6*x^2*log(x)^3 + (3*b
^6*log(c)^2 + a^2*b^4)*x^2*log(x) + (b^6*log(c)^3 + a^2*b^4*log(c))*x^2)*lo
g(c^2*x^2))*integrate(8*(b*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a)/(4*b^4*
x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^4*x^3*log(c^2*x^2)^2 + 8*b^4*
x^3*log(c)*log(x) + 4*b^4*x^3*log(x)^2 + 8*a*b^3*x^3*arctan(sqrt(c*x + 1)*s
qrt(c*x - 1)) + 4*(b^4*log(c)^2 + a^2*b^2)*x^3 - 4*(b^4*x^3*log(c) + b^4*x^
3*log(x))*log(c^2*x^2)), x) + 8*(a*b^2*c^2*x^2*log(c) - 2*a*b^2*log(c) + (a
*b^2*c^2*x^2 - 2*a*b^2)*log(x))*log(c^2*x^2) - 16*(a*b^2*c^2*x^2*log(c) - 2
*a*b^2*log(c))*log(x))/(16*b^6*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 +
b^6*x^2*log(c^2*x^2)^4 + 64*b^6*x^2*log(c)*log(x)^3 + 16*b^6*x^2*log(x)^4 +
```

```
64*a*b^5*x^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 32*(3*b^6*log(c)^2 +
a^2*b^4)*x^2*log(x)^2 - 8*(b^6*x^2*log(c) + b^6*x^2*log(x))*log(c^2*x^2)^3
+ 64*(b^6*log(c)^3 + a^2*b^4*log(c))*x^2*log(x) + 16*(b^6*log(c)^4 + 2*a^2*
b^4*log(c)^2 + a^4*b^2)*x^2 + 8*(b^6*x^2*log(c^2*x^2)^2 + 8*b^6*x^2*log(c)*
log(x) + 4*b^6*x^2*log(x)^2 + 4*(b^6*log(c)^2 + 3*a^2*b^4)*x^2 - 4*(b^6*x^2
*log(c) + b^6*x^2*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))
^2 + 8*(6*b^6*x^2*log(c)*log(x) + 3*b^6*x^2*log(x)^2 + (3*b^6*log(c)^2 + a^
2*b^4)*x^2)*log(c^2*x^2)^2 + 16*(a*b^5*x^2*log(c^2*x^2)^2 + 8*a*b^5*x^2*log
(c)*log(x) + 4*a*b^5*x^2*log(x)^2 + 4*(a*b^5*log(c)^2 + a^3*b^3)*x^2 - 4*(a
*b^5*x^2*log(c) + a*b^5*x^2*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt
(c*x - 1)) - 32*(3*b^6*x^2*log(c)*log(x)^2 + b^6*x^2*log(x)^3 + (3*b^6*log(
c)^2 + a^2*b^4)*x^2*log(x) + (b^6*log(c)^3 + a^2*b^4*log(c))*x^2)*log(c^2*x
^2))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^3x^3\,\text{arcsec}\,(cx)^3 + 3\,ab^2x^3\,\text{arcsec}\,(cx)^2 + 3\,a^2bx^3\,\text{arcsec}\,(cx) + a^3x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(1/(b^3*x^3*arcsec(c*x)^3 + 3*a*b^2*x^3*arcsec(c*x)^2 + 3*a^2*b*x^3
*arcsec(c*x) + a^3*x^3), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3\,(a + b\,\text{asec}\,(cx))^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**3/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(1/(x**3*(a + b*asec(c*x))**3), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(b\,\text{arcsec}\,(cx) + a)^3 x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^3/(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate(1/((b*arcsec(c*x) + a)^3*x^3), x)
```

3.50 $\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)^3}\,dx$

Optimal. Leaf size=228

$$\frac{c^3\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{8b^3}+\frac{9c^3\sin\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{8b^3}-\frac{c^3\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{8b^3}$$

```
[Out] -(c^3*Sqrt[1 - 1/(c^2*x^2)])/(8*b*(a + b*ArcSec[c*x])^2) - c^2/(8*b^2*x*(a
+ b*ArcSec[c*x])) - (3*c^3*Cos[3*ArcSec[c*x]])/(8*b^2*(a + b*ArcSec[c*x]))
+ (c^3*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(8*b^3) + (9*c^3*CosIntegra
l[(3*a)/b + 3*ArcSec[c*x]]*Sin[(3*a)/b])/(8*b^3) - (c^3*Sin[3*ArcSec[c*x]])
/(8*b*(a + b*ArcSec[c*x])^2) - (c^3*Cos[a/b]*SinIntegral[a/b + ArcSec[c*x]]
)/(8*b^3) - (9*c^3*Cos[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x]])/(8*b^
3)
```

Rubi [A] time = 0.312718, antiderivative size = 228, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 6, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5222, 4406, 3297, 3303, 3299, 3302}

$$\frac{c^3\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{8b^3}+\frac{9c^3\sin\left(\frac{3a}{b}\right)\text{CosIntegral}\left(\frac{3a}{b}+3\sec^{-1}(cx)\right)}{8b^3}-\frac{c^3\cos\left(\frac{a}{b}\right)\text{Si}\left(\frac{a}{b}+\sec^{-1}(cx)\right)}{8b^3}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x^4*(a + b*ArcSec[c*x])^3),x]
```


```
[Out] -(c^3*Sqrt[1 - 1/(c^2*x^2)])/(8*b*(a + b*ArcSec[c*x])^2) - c^2/(8*b^2*x*(a
+ b*ArcSec[c*x])) - (3*c^3*Cos[3*ArcSec[c*x]])/(8*b^2*(a + b*ArcSec[c*x]))
+ (c^3*CosIntegral[a/b + ArcSec[c*x]]*Sin[a/b])/(8*b^3) + (9*c^3*CosIntegra
l[(3*a)/b + 3*ArcSec[c*x]]*Sin[(3*a)/b])/(8*b^3) - (c^3*Sin[3*ArcSec[c*x]])
/(8*b*(a + b*ArcSec[c*x])^2) - (c^3*Cos[a/b]*SinIntegral[a/b + ArcSec[c*x]]
)/(8*b^3) - (9*c^3*Cos[(3*a)/b]*SinIntegral[(3*a)/b + 3*ArcSec[c*x]])/(8*b^
3)
```


Rule 5222

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_)*(x_)^(m_.), x_Symbol] :> Dist[1
/c^(m + 1), Subst[Int[(a + b*x)^n*Sec[x]^(m + 1)*Tan[x], x], x, ArcSec[c*x]
], x] /; FreeQ[{a, b, c}, x] && IntegerQ[n] && IntegerQ[m] && (GtQ[n, 0] ||
 LtQ[m, -1])
```

Rule 4406

```
Int[Cos[(a_.) + (b_.)*(x_)]^(p_.)*((c_.) + (d_.)*(x_))^(m_.)*Sin[(a_.) + (b
_.)*(x_)]^(n_.), x_Symbol] :> Int[ExpandTrigReduce[(c + d*x)^m, Sin[a + b*x
]^n*Cos[a + b*x]^p, x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && IG
tQ[p, 0]
```

Rule 3297

```
Int[((c_.) + (d_.)*(x_))^(m_)*sin[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[((
c + d*x)^(m + 1)*Sin[e + f*x])/(d*(m + 1)), x] - Dist[f/(d*(m + 1)), Int[(c
 + d*x)^(m + 1)*Cos[e + f*x], x], x] /; FreeQ[{c, d, e, f}, x] && LtQ[m, -1
```

```
]
```

Rule 3303

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Dist[Cos[(d*
e - c*f)/d], Int[Sin[(c*f)/d + f*x]/(c + d*x), x], x] + Dist[Sin[(d*e - c*f
)/d], Int[Cos[(c*f)/d + f*x]/(c + d*x), x], x] /; FreeQ[{c, d, e, f}, x] &&
 NeQ[d*e - c*f, 0]
```

Rule 3299

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[SinInte
gral[e + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*e - c*f, 0]
```

Rule 3302

```
Int[sin[(e_.) + (f_.)*(x_)]/((c_.) + (d_.)*(x_)), x_Symbol] :> Simp[CosInte
gral[e - Pi/2 + f*x]/d, x] /; FreeQ[{c, d, e, f}, x] && EqQ[d*(e - Pi/2) -
c*f, 0]
```

Rubi steps

$$\int \frac{1}{x^4\left(a+b\sec^{-1}(cx)\right)^3}\,dx = c^3\,\text{Subst}\left(\int \frac{\cos^2(x)\sin(x)}{(a+bx)^3}\,dx, x, \sec^{-1}(cx)\right)$$

$$= c^3\,\text{Subst}\left(\int \left(\frac{\sin(x)}{4(a+bx)^3}+\frac{\sin(3x)}{4(a+bx)^3}\right)dx, x, \sec^{-1}(cx)\right)$$

$$= \frac{1}{4}c^3\,\text{Subst}\left(\int \frac{\sin(x)}{(a+bx)^3}\,dx, x, \sec^{-1}(cx)\right)+\frac{1}{4}c^3\,\text{Subst}\left(\int \frac{\sin(3x)}{(a+bx)^3}\,dx, x, \sec^{-1}(cx)\right)$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{8b\left(a+b\sec^{-1}(cx)\right)^2}-\frac{c^3\sin\left(3\sec^{-1}(cx)\right)}{8b\left(a+b\sec^{-1}(cx)\right)^2}+\frac{c^3\,\text{Subst}\left(\int \frac{\cos(x)}{(a+bx)^2}\,dx, x, \sec^{-1}(cx)\right)}{8b}+\frac{(3}{}$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{8b\left(a+b\sec^{-1}(cx)\right)^2}-\frac{c^2}{8b^2x\left(a+b\sec^{-1}(cx)\right)}-\frac{3c^3\cos\left(3\sec^{-1}(cx)\right)}{8b^2\left(a+b\sec^{-1}(cx)\right)}-\frac{c^3\sin\left(3\sec^{-1}(\right.}{8b\left(a+b\sec^{-1}(\right.}$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{8b\left(a+b\sec^{-1}(cx)\right)^2}-\frac{c^2}{8b^2x\left(a+b\sec^{-1}(cx)\right)}-\frac{3c^3\cos\left(3\sec^{-1}(cx)\right)}{8b^2\left(a+b\sec^{-1}(cx)\right)}-\frac{c^3\sin\left(3\sec^{-1}(\right.}{8b\left(a+b\sec^{-1}(\right.}$$

$$= -\frac{c^3\sqrt{1-\frac{1}{c^2x^2}}}{8b\left(a+b\sec^{-1}(cx)\right)^2}-\frac{c^2}{8b^2x\left(a+b\sec^{-1}(cx)\right)}-\frac{3c^3\cos\left(3\sec^{-1}(cx)\right)}{8b^2\left(a+b\sec^{-1}(cx)\right)}+\frac{c^3\text{Ci}\left(\frac{a}{b}+\sec^{-1}\right.}{8b^3}$$

Mathematica [A] time = 0.444805, size = 169, normalized size = 0.74

$$\frac{-\frac{4b^2c\sqrt{1-\frac{1}{c^2x^2}}}{x^2\left(a+b\sec^{-1}(cx)\right)^2}+c^3\sin\left(\frac{a}{b}\right)\text{CosIntegral}\left(\frac{a}{b}+\sec^{-1}(cx)\right)+9c^3\sin\left(\frac{3a}{b}\right)\text{CosIntegral}\left(3\left(\frac{a}{b}+\sec^{-1}(cx)\right)\right)-c^3\cos\left(\frac{a}{b}\right)\text{S}}{8b^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x^4*(a + b*ArcSec[c*x])^3),x]
```

```
[Out] ((-4*b^2*c*Sqrt[1 - 1/(c^2*x^2)])/(x^2*(a + b*ArcSec[c*x])^2) - (12*b)/(x^3
*(a + b*ArcSec[c*x])) + (8*b*c^2)/(a*x + b*x*ArcSec[c*x]) + c^3*CosIntegral
```

```
[a/b + ArcSec[c*x]]*Sin[a/b] + 9*c^3*CosIntegral[3*(a/b + ArcSec[c*x])]*Sin
[(3*a)/b] - c^3*Cos[a/b]*SinIntegral[a/b + ArcSec[c*x]] - 9*c^3*Cos[(3*a)/b
]*SinIntegral[3*(a/b + ArcSec[c*x])])/(8*b^3)
```

Maple [A] time = 0.25, size = 307, normalized size = 1.4

$$c^3\left(-\frac{\sin(3\,\mathrm{arcsec}\,(cx))}{8\,(a+b\mathrm{arcsec}\,(cx))^2\,b}-\frac{3}{(8\,a+8\,b\mathrm{arcsec}\,(cx))\,b^3}\left(3\,\mathrm{Si}\left(3\,\frac{a}{b}+3\,\mathrm{arcsec}\,(cx)\right)\cos\left(3\,\frac{a}{b}\right)\mathrm{arcsec}\,(cx)\,b-3\,\mathrm{Ci}\left(3\,\frac{a}{b}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x^4/(a+b*arcsec(c*x))^3,x)
```

```
[Out] c^3*(-1/8*sin(3*arcsec(c*x))/(a+b*arcsec(c*x))^2/b-3/8*(3*Si(3*a/b+3*arcsec
(c*x))*cos(3*a/b)*arcsec(c*x)*b-3*Ci(3*a/b+3*arcsec(c*x))*sin(3*a/b)*arcsec
(c*x)*b+3*Si(3*a/b+3*arcsec(c*x))*cos(3*a/b)*a-3*Ci(3*a/b+3*arcsec(c*x))*si
n(3*a/b)*a+cos(3*arcsec(c*x))*b)/(a+b*arcsec(c*x))/b^3-1/8*((c^2*x^2-1)/c^2
/x^2)^(1/2)/(a+b*arcsec(c*x))^2/b-1/8*(Si(a/b+arcsec(c*x))*cos(a/b)*arcsec(
c*x)*c*x*b-Ci(a/b+arcsec(c*x))*sin(a/b)*arcsec(c*x)*c*x*b+Si(a/b+arcsec(c*x
))*cos(a/b)*c*x*a-Ci(a/b+arcsec(c*x))*sin(a/b)*c*x*a+b)/c/x/(a+b*arcsec(c*x
))/b^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] -(24*a*b^2*log(c)^2 - 8*(2*b^3*c^2*x^2 - 3*b^3)*arctan(sqrt(c*x + 1)*sqrt(c
*x - 1))^3 + 24*a^3 - 16*(a*b^2*c^2*log(c)^2 + a^3*c^2)*x^2 - 24*(2*a*b^2*c
^2*x^2 - 3*a*b^2)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - 2*(2*a*b^2*c^2*x^
2 - 3*a*b^2)*log(c^2*x^2)^2 - 8*(2*a*b^2*c^2*x^2 - 3*a*b^2)*log(x)^2 + 2*(4
*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - b^3*log(c^2*x^2)^2 - 4*b^3*log
(c)^2 - 8*b^3*log(c)*log(x) - 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*x + 1)
*sqrt(c*x - 1)) + 4*a^2*b + 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))*sqrt(
c*x + 1)*sqrt(c*x - 1) + 2*(12*b^3*log(c)^2 + 36*a^2*b - 8*(b^3*c^2*log(c)^
2 + 3*a^2*b*c^2)*x^2 - (2*b^3*c^2*x^2 - 3*b^3)*log(c^2*x^2)^2 - 4*(2*b^3*c^
2*x^2 - 3*b^3)*log(x)^2 + 4*(2*b^3*c^2*x^2*log(c) - 3*b^3*log(c) + (2*b^3*c
^2*x^2 - 3*b^3)*log(x))*log(c^2*x^2) - 8*(2*b^3*c^2*x^2*log(c) - 3*b^3*log(
c))*log(x))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - (16*b^6*x^3*arctan(sqrt(c
*x + 1)*sqrt(c*x - 1))^4 + b^6*x^3*log(c^2*x^2)^4 + 64*b^6*x^3*log(c)*log(x
)^3 + 16*b^6*x^3*log(x)^4 + 64*a*b^5*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)
)^3 + 32*(3*b^6*log(c)^2 + a^2*b^4)*x^3*log(x)^2 + 64*(b^6*log(c)^3 + a^2*b
^4*log(c))*x^3*log(x) + 16*(b^6*log(c)^4 + 2*a^2*b^4*log(c)^2 + a^4*b^2)*x^
3 - 8*(b^6*x^3*log(c) + b^6*x^3*log(x))*log(c^2*x^2)^3 + 8*(b^6*x^3*log(c^2
*x^2)^2 + 8*b^6*x^3*log(c)*log(x) + 4*b^6*x^3*log(x)^2 + 4*(b^6*log(c)^2 +
3*a^2*b^4)*x^3 - 4*(b^6*x^3*log(c) + b^6*x^3*log(x))*log(c^2*x^2))*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))^2 + 8*(6*b^6*x^3*log(c)*log(x) + 3*b^6*x^3*log(
x)^2 + (3*b^6*log(c)^2 + a^2*b^4)*x^3)*log(c^2*x^2)^2 + 16*(a*b^5*x^3*log(c
^2*x^2)^2 + 8*a*b^5*x^3*log(c)*log(x) + 4*a*b^5*x^3*log(x)^2 + 4*(a*b^5*log
(c)^2 + a^3*b^3)*x^3 - 4*(a*b^5*x^3*log(c) + a*b^5*x^3*log(x))*log(c^2*x^2)
)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32*(3*b^6*x^3*log(c)*log(x)^2 + b^6
```

```
*x^3*log(x)^3 + (3*b^6*log(c)^2 + a^2*b^4)*x^3*log(x) + (b^6*log(c)^3 + a^2
*b^4*log(c))*x^3)*log(c^2*x^2))*integrate(2*(2*a*c^2*x^2 + (2*b*c^2*x^2 - 9
*b)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 9*a)/(4*b^4*x^4*arctan(sqrt(c*x +
 1)*sqrt(c*x - 1))^2 + b^4*x^4*log(c^2*x^2)^2 + 8*b^4*x^4*log(c)*log(x) + 4
*b^4*x^4*log(x)^2 + 8*a*b^3*x^4*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*(b^
4*log(c)^2 + a^2*b^2)*x^4 - 4*(b^4*x^4*log(c) + b^4*x^4*log(x))*log(c^2*x^2
)), x) + 8*(2*a*b^2*c^2*x^2*log(c) - 3*a*b^2*log(c) + (2*a*b^2*c^2*x^2 - 3*
a*b^2)*log(x))*log(c^2*x^2) - 16*(2*a*b^2*c^2*x^2*log(c) - 3*a*b^2*log(c))*
log(x))/(16*b^6*x^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^4 + b^6*x^3*log(c^2
*x^2)^4 + 64*b^6*x^3*log(c)*log(x)^3 + 16*b^6*x^3*log(x)^4 + 64*a*b^5*x^3*a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))^3 + 32*(3*b^6*log(c)^2 + a^2*b^4)*x^3*lo
g(x)^2 + 64*(b^6*log(c)^3 + a^2*b^4*log(c))*x^3*log(x) + 16*(b^6*log(c)^4 +
 2*a^2*b^4*log(c)^2 + a^4*b^2)*x^3 - 8*(b^6*x^3*log(c) + b^6*x^3*log(x))*lo
g(c^2*x^2)^3 + 8*(b^6*x^3*log(c^2*x^2)^2 + 8*b^6*x^3*log(c)*log(x) + 4*b^6*
x^3*log(x)^2 + 4*(b^6*log(c)^2 + 3*a^2*b^4)*x^3 - 4*(b^6*x^3*log(c) + b^6*x
^3*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + 8*(6*b^6*x
^3*log(c)*log(x) + 3*b^6*x^3*log(x)^2 + (3*b^6*log(c)^2 + a^2*b^4)*x^3)*log
(c^2*x^2)^2 + 16*(a*b^5*x^3*log(c^2*x^2)^2 + 8*a*b^5*x^3*log(c)*log(x) + 4*
a*b^5*x^3*log(x)^2 + 4*(a*b^5*log(c)^2 + a^3*b^3)*x^3 - 4*(a*b^5*x^3*log(c)
 + a*b^5*x^3*log(x))*log(c^2*x^2))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 32
*(3*b^6*x^3*log(c)*log(x)^2 + b^6*x^3*log(x)^3 + (3*b^6*log(c)^2 + a^2*b^4)
*x^3*log(x) + (b^6*log(c)^3 + a^2*b^4*log(c))*x^3)*log(c^2*x^2))
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{b^3x^4\operatorname{arcsec}(cx)^3+3\,ab^2x^4\operatorname{arcsec}(cx)^2+3\,a^2bx^4\operatorname{arcsec}(cx)+a^3x^4},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral(1/(b^3*x^4*arcsec(c*x)^3 + 3*a*b^2*x^4*arcsec(c*x)^2 + 3*a^2*b*x^4
*arcsec(c*x) + a^3*x^4), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{x^4\left(a+b\operatorname{asec}(cx)\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**4/(a+b*asec(c*x))**3,x)
```

```
[Out] Integral(1/(x**4*(a + b*asec(c*x))**3), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\left(b\operatorname{arcsec}(cx)+a\right)^3x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x^4/(a+b*arcsec(c*x))^3,x, algorithm="giac")

[Out] integrate(1/((b*arcsec(c*x) + a)^3*x^4), x)
```

3.51 $\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^3 \, dx$

Optimal. Leaf size=18

$$\text{Unintegrable}\left((dx)^m \left(a+b\sec^{-1}(cx)\right)^3,x\right)$$

```
[Out] Unintegrable[(d*x)^m*(a + b*ArcSec[c*x])^3, x]
```

Rubi [A] time = 0.0220289, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^3 \, dx$$

Verification is Not applicable to the result.

```
[In] Int[(d*x)^m*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] Defer[Int][(d*x)^m*(a + b*ArcSec[c*x])^3, x]
```

Rubi steps

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^3 \, dx = \int (dx)^m \left(a+b\sec^{-1}(cx)\right)^3 \, dx$$

Mathematica [A] time = 4.39341, size = 0, normalized size = 0.

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^3 \, dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(d*x)^m*(a + b*ArcSec[c*x])^3,x]
```

```
[Out] Integrate[(d*x)^m*(a + b*ArcSec[c*x])^3, x]
```

Maple [A] time = 1.964, size = 0, normalized size = 0.

$$\int (dx)^m \left(a+b\operatorname{arcsec}(cx)\right)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x)^m*(a+b*arcsec(c*x))^3,x)
```

```
[Out] int((d*x)^m*(a+b*arcsec(c*x))^3,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(b^{3}\,\mathrm{arcsec}\left(cx\right)^{3}+3\,ab^{2}\,\mathrm{arcsec}\left(cx\right)^{2}+3\,a^{2}b\,\mathrm{arcsec}\left(cx\right)+a^{3}\right)\left(dx\right)^{m},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^3,x, algorithm="fricas")
```

```
[Out] integral((b^3*arcsec(c*x)^3 + 3*a*b^2*arcsec(c*x)^2 + 3*a^2*b*arcsec(c*x) +
 a^3)*(d*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)**m*(a+b*asec(c*x))**3,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \left(b\,\mathrm{arcsec}\left(cx\right)+a\right)^{3}\left(dx\right)^{m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^3*(d*x)^m, x)
```

3.52 $\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^2 dx$

Optimal. Leaf size=18

$$\text{Unintegrable}\left((dx)^m \left(a+b\sec^{-1}(cx)\right)^2,x\right)$$

```
[Out] Unintegrable[(d*x)^m*(a + b*ArcSec[c*x])^2, x]
```

Rubi [A] time = 0.0222411, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^2 dx$$

Verification is Not applicable to the result.

```
[In] Int[(d*x)^m*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Defer[Int][(d*x)^m*(a + b*ArcSec[c*x])^2, x]
```

Rubi steps

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^2 dx = \int (dx)^m \left(a+b\sec^{-1}(cx)\right)^2 dx$$

Mathematica [A] time = 2.86291, size = 0, normalized size = 0.

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right)^2 dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(d*x)^m*(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Integrate[(d*x)^m*(a + b*ArcSec[c*x])^2, x]
```

Maple [A] time = 1.876, size = 0, normalized size = 0.

$$\int (dx)^m (a+b\,\mathrm{arcsec}(cx))^2\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x)^m*(a+b*arcsec(c*x))^2,x)
```

```
[Out] int((d*x)^m*(a+b*arcsec(c*x))^2,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(b^2 \operatorname{arcsec}(cx)^2 + 2\,ab \operatorname{arcsec}(cx) + a^2\right)(dx)^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral((b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2)*(d*x)^m, x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int (dx)^m (a + b \operatorname{asec}(cx))^2\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)**m*(a+b*asec(c*x))**2,x)
```

```
[Out] Integral((d*x)**m*(a + b*asec(c*x))**2, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)^2 (dx)^m\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)^2*(d*x)^m, x)
```

3.53 $\int (dx)^m \left(a + b \sec^{-1}(cx)\right) dx$

Optimal. Leaf size=67

$$\frac{(dx)^{m+1} \left(a + b \sec^{-1}(cx)\right)}{d(m+1)} - \frac{b(dx)^m \, {}_2F_1\left(\frac{1}{2}, -\frac{m}{2}; 1 - \frac{m}{2}; \frac{1}{c^2x^2}\right)}{cm(m+1)}$$

```
[Out] ((d*x)^(1 + m)*(a + b*ArcSec[c*x]))/(d*(1 + m)) - (b*(d*x)^m*Hypergeometric
2F1[1/2, -m/2, 1 - m/2, 1/(c^2*x^2)])/(c*m*(1 + m))
```

Rubi [A] time = 0.0426474, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214, Rules used = {5220, 339, 364}

$$\frac{(dx)^{m+1} \left(a + b \sec^{-1}(cx)\right)}{d(m+1)} - \frac{b(dx)^m \, {}_2F_1\left(\frac{1}{2}, -\frac{m}{2}; 1 - \frac{m}{2}; \frac{1}{c^2x^2}\right)}{cm(m+1)}$$

Antiderivative was successfully verified.

```
[In] Int[(d*x)^m*(a + b*ArcSec[c*x]),x]
```

```
[Out] ((d*x)^(1 + m)*(a + b*ArcSec[c*x]))/(d*(1 + m)) - (b*(d*x)^m*Hypergeometric
2F1[1/2, -m/2, 1 - m/2, 1/(c^2*x^2)])/(c*m*(1 + m))
```

Rule 5220

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.)*(x_))^(m_.), x_Symbol] :> Sim
p[((d*x)^(m + 1)*(a + b*ArcSec[c*x]))/(d*(m + 1)), x] - Dist[(b*d)/(c*(m +
1)), Int[(d*x)^(m - 1)/Sqrt[1 - 1/(c^2*x^2)], x], x] /; FreeQ[{a, b, c, d,
m}, x] && NeQ[m, -1]
```

Rule 339

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Dist[((c
*x)^(m + 1)*(1/x)^(m + 1))/c, Subst[Int[(a + b/x^n)^p/x^(m + 2), x], x, 1/x
], x] /; FreeQ[{a, b, c, m, p}, x] && ILtQ[n, 0] &&  !RationalQ[m]
```

Rule 364

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a^
p*(c*x)^(m + 1)*Hypergeometric2F1[-p, (m + 1)/n, (m + 1)/n + 1, -((b*x^n)/a
)])/(c*(m + 1)), x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0] && (ILt
Q[p, 0] || GtQ[a, 0])
```

Rubi steps

$$\int (dx)^m \left(a+b\sec^{-1}(cx)\right) dx = \frac{(dx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{d(1+m)} - \frac{(bd)\int \frac{(dx)^{-1+m}}{\sqrt{1-\frac{1}{c^2x^2}}} dx}{c(1+m)}$$

$$= \frac{(dx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{d(1+m)} + \frac{\left(b\left(\frac{1}{x}\right)^m (dx)^m\right) \text{Subst}\left(\int \frac{x^{-1-m}}{\sqrt{1-\frac{x^2}{c^2}}} dx, x, \frac{1}{x}\right)}{c(1+m)}$$

$$= \frac{(dx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{d(1+m)} - \frac{b(dx)^m\, {}_2F_1\left(\frac{1}{2}, -\frac{m}{2}; 1-\frac{m}{2}; \frac{1}{c^2x^2}\right)}{cm(1+m)}$$

Mathematica [A] time = 0.240203, size = 82, normalized size = 1.22

$$\frac{x(dx)^m \left((m+1)\left(a+b\sec^{-1}(cx)\right) + \frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\, {}_2F_1\left(\frac{1}{2}, \frac{m+1}{2}; \frac{m+3}{2}; c^2x^2\right)}{\sqrt{1-c^2x^2}}\right)}{(m+1)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(d*x)^m*(a + b*ArcSec[c*x]),x]
```

```
[Out] (x*(d*x)^m*((1 + m)*(a + b*ArcSec[c*x]) + (b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Hype
rgeometric2F1[1/2, (1 + m)/2, (3 + m)/2, c^2*x^2])/Sqrt[1 - c^2*x^2]))/(1 +
 m)^2
```

Maple [F] time = 1.828, size = 0, normalized size = 0.

$$\int (dx)^m (a + b\,\text{arcsec}\,(cx))\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x)^m*(a+b*arcsec(c*x)),x)
```

```
[Out] int((d*x)^m*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((b\,\text{arcsec}\,(cx) + a)\,(dx)^m\,, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)*(d*x)^m, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (dx)^m (a + b \operatorname{asec}(cx)) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)**m*(a+b*asec(c*x)),x)
```

```
[Out] Integral((d*x)**m*(a + b*asec(c*x)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (b \operatorname{arcsec}(cx) + a)(dx)^m dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(d*x)^m, x)
```

3.54 $\int \frac{(dx)^m}{a+b\sec^{-1}(cx)}\,dx$

Optimal. Leaf size=18

$$\text{Unintegrable}\left(\frac{(dx)^m}{a+b\sec^{-1}(cx)},x\right)$$

```
[Out] Unintegrable[(d*x)^m/(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0255718, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(dx)^m}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(d*x)^m/(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][(d*x)^m/(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int \frac{(dx)^m}{a+b\sec^{-1}(cx)}\,dx=\int \frac{(dx)^m}{a+b\sec^{-1}(cx)}\,dx$$

Mathematica [A] time = 0.244577, size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{a+b\sec^{-1}(cx)}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(d*x)^m/(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(d*x)^m/(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.791, size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{a+b\,\text{arcsec}\,(cx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x)^m/(a+b*arcsec(c*x)),x)
```

```
[Out] int((d*x)^m/(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{b \operatorname{arcsec}(cx) + a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate((d*x)^m/(b*arcsec(c*x) + a), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{(dx)^m}{b \operatorname{arcsec}(cx) + a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((d*x)^m/(b*arcsec(c*x) + a), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{a + b \operatorname{asec}(cx)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)**m/(a+b*asec(c*x)),x)
```

```
[Out] Integral((d*x)**m/(a + b*asec(c*x)), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{b \operatorname{arcsec}(cx) + a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((d*x)^m/(b*arcsec(c*x) + a), x)
```

3.55 $\int \frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$

Optimal. Leaf size=18

$$\text{Unintegrable}\left(\frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2},x\right)$$

```
[Out] Unintegrable[(d*x)^m/(a + b*ArcSec[c*x])^2, x]
```

Rubi [A] time = 0.0240248, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(d*x)^m/(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Defer[Int][(d*x)^m/(a + b*ArcSec[c*x])^2, x]
```

Rubi steps

$$\int \frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx = \int \frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Mathematica [A] time = 0.499552, size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{\left(a+b\sec^{-1}(cx)\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(d*x)^m/(a + b*ArcSec[c*x])^2,x]
```

```
[Out] Integrate[(d*x)^m/(a + b*ArcSec[c*x])^2, x]
```

Maple [A] time = 1.411, size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{\left(a+b\,\mathrm{arcsec}\,(cx)\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x)^m/(a+b*arcsec(c*x))^2,x)
```

```
[Out] int((d*x)^m/(a+b*arcsec(c*x))^2,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x))^2,x, algorithm="maxima")
```

```
[Out] -(4*(b*d^m*x*x^m*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + a*d^m*x*x^m)*sqrt(c*
x + 1)*sqrt(c*x - 1) - (4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*l
og(c^2*x^2)^2 + 4*b^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a
*b^2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*lo
g(x))*log(c^2*x^2))*integrate(4*((b*d^m*m - (b*c^2*d^m*m + 2*b*c^2*d^m)*x^2
 + b*d^m)*x^m*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + (a*d^m*m - (a*c^2*d^m*m
 + 2*a*c^2*d^m)*x^2 + a*d^m)*x^m)*sqrt(c*x + 1)*sqrt(c*x - 1)/(4*b^3*log(c)
^2 + 4*a^2*b - 4*(b^3*c^2*log(c)^2 + a^2*b*c^2)*x^2 - 4*(b^3*c^2*x^2 - b^3)
*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 - (b^3*c^2*x^2 - b^3)*log(c^2*x^2)^2
 - 4*(b^3*c^2*x^2 - b^3)*log(x)^2 - 8*(a*b^2*c^2*x^2 - a*b^2)*arctan(sqrt(c
*x + 1)*sqrt(c*x - 1)) + 4*(b^3*c^2*x^2*log(c) - b^3*log(c) + (b^3*c^2*x^2
- b^3)*log(x))*log(c^2*x^2) - 8*(b^3*c^2*x^2*log(c) - b^3*log(c))*log(x)),
x))/(4*b^3*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))^2 + b^3*log(c^2*x^2)^2 + 4*b
^3*log(c)^2 + 8*b^3*log(c)*log(x) + 4*b^3*log(x)^2 + 8*a*b^2*arctan(sqrt(c*
x + 1)*sqrt(c*x - 1)) + 4*a^2*b - 4*(b^3*log(c) + b^3*log(x))*log(c^2*x^2))
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx)^m}{b^2\,\text{arcsec}\,(cx)^2 + 2\,ab\,\text{arcsec}\,(cx) + a^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x))^2,x, algorithm="fricas")
```

```
[Out] integral((d*x)^m/(b^2*arcsec(c*x)^2 + 2*a*b*arcsec(c*x) + a^2), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{(a + b\,\text{asec}\,(cx))^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)**m/(a+b*asec(c*x))**2,x)
```

```
[Out] Integral((d*x)**m/(a + b*asec(c*x))**2, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx)^m}{(b\,\mathrm{arcsec}\,(cx) + a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x)^m/(a+b*arcsec(c*x))^2,x, algorithm="giac")
```

```
[Out] integrate((d*x)^m/(b*arcsec(c*x) + a)^2, x)
```

3.56 $\int (d+ex)^3 \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=167

$$\frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e}-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}\left(9c^2d^2+e^2\right)}{6c^3}-\frac{bd\left(2c^2d^2+e^2\right)\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{2c^3}-\frac{bde^2x^2\sqrt{1-\frac{1}{c^2x^2}}}{2c}-\frac{be^3x$$

```
[Out] -(b*e*(9*c^2*d^2 + e^2)*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*d*e^2*Sqrt[1
- 1/(c^2*x^2)]*x^2)/(2*c) - (b*e^3*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(12*c) + (b*d
^4*ArcCsc[c*x])/(4*e) + ((d + e*x)^4*(a + b*ArcSec[c*x]))/(4*e) - (b*d*(2*c
^2*d^2 + e^2)*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(2*c^3)
```

Rubi [A] time = 0.401404, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 9, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.562, Rules used = {5226, 1568, 1475, 1807, 844, 216, 266, 63, 208}

$$\frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e}-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}\left(9c^2d^2+e^2\right)}{6c^3}-\frac{bd\left(2c^2d^2+e^2\right)\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{2c^3}-\frac{bde^2x^2\sqrt{1-\frac{1}{c^2x^2}}}{2c}-\frac{be^3x$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x)^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*e*(9*c^2*d^2 + e^2)*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*d*e^2*Sqrt[1
- 1/(c^2*x^2)]*x^2)/(2*c) - (b*e^3*Sqrt[1 - 1/(c^2*x^2)]*x^3)/(12*c) + (b*d
^4*ArcCsc[c*x])/(4*e) + ((d + e*x)^4*(a + b*ArcSec[c*x]))/(4*e) - (b*d*(2*c
^2*d^2 + e^2)*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(2*c^3)
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1568

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_.)*((a_) + (c_.)*(x_)^(n2_.))^
(p_.), x_Symbol] :> Int[x^(m + mn*q)*(e + d/x^mn)^q*(a + c*x^n2)^p, x] /; F
reeQ[{a, c, d, e, m, mn, p}, x] && EqQ[n2, -2*mn] && IntegerQ[q] && (PosQ[n
2] ||  !IntegerQ[p])
```

Rule 1475

```
Int[(x_)^(m_.)*((a_) + (c_.)*(x_)^(n2_.))^(p_.)*((d_) + (e_.)*(x_)^(n_))^(q
_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(d + e*x)
^q*(a + c*x^2)^p, x], x, x^n], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] &&
EqQ[n2, 2*n] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 1807

```
Int[(Pq_)*((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^2)^(p_), x_Symbol] :> With[{
Q = PolynomialQuotient[Pq, c*x, x], R = PolynomialRemainder[Pq, c*x, x]}, S
imp[(R*(c*x)^(m + 1)*(a + b*x^2)^(p + 1))/(a*c*(m + 1)), x] + Dist[1/(a*c*(
m + 1)), Int[(c*x)^(m + 1)*(a + b*x^2)^p*ExpandToSum[a*c*(m + 1)*Q - b*R*(m
```

```
 + 2*p + 3)*x, x], x], x]] /; FreeQ[{a, b, c, p}, x] && PolyQ[Pq, x] && LtQ
[m, -1] && (IntegerQ[2*p] || NeQ[Expon[Pq, x], 1])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int (d+ex)^3\left(a+b\sec^{-1}(cx)\right)dx = \frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{b\int \frac{(d+ex)^4}{\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{4ce}$$

$$= \frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{b\int \frac{\left(e+\frac{d}{x}\right)^4x^2}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{4ce}$$

$$= \frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e} + \frac{b\,\text{Subst}\left(\int \frac{(e+dx)^4}{x^4\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{4ce}$$

$$= -\frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{b\,\text{Subst}\left(\int \frac{-12de^3-2e^2\left(9d^2+\frac{e^2}{c^2}\right)x-12d^3ex^2}{x^3\sqrt{1-\frac{x^2}{c^2}}}\right.}{12ce}$$

$$= -\frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{(d+ex)^4\left(a+b\sec^{-1}(cx)\right)}{4e} + \frac{b\,\text{Subst}\left(\int \frac{4e^2(9c}{}\right.}{}$$

$$= -\frac{be\left(9c^2d^2+e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3} - \frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{(d+ex)^4\left(a+b\,s\right.}{4e}$$

$$= -\frac{be\left(9c^2d^2+e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3} - \frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{(d+ex)^4\left(a+b\,s\right.}{4e}$$

$$= -\frac{be\left(9c^2d^2+e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3} - \frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{bd^4\csc^{-1}(cx)}{4e} +$$

$$= -\frac{be\left(9c^2d^2+e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3} - \frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{bd^4\csc^{-1}(cx)}{4e} +$$

$$= -\frac{be\left(9c^2d^2+e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3} - \frac{bde^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{2c} - \frac{be^3\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c} + \frac{bd^4\csc^{-1}(cx)}{4e} +$$

Mathematica [A] time = 0.278559, size = 166, normalized size = 0.99

$$\frac{3ac^3x\left(6d^2ex+4d^3+4de^2x^2+e^3x^3\right)-bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(18d^2+6dex+e^2x^2\right)+2e^2\right)-6bd\left(2c^2d^2+e^2\right)\log\left(x\left(\sqrt{1-\frac{1}{c^2x^2}}\right.\right.}{12c^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x)^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] (3*a*c^3*x*(4*d^3 + 6*d^2*e*x + 4*d*e^2*x^2 + e^3*x^3) - b*e*Sqrt[1 - 1/(c^
2*x^2)]*x*(2*e^2 + c^2*(18*d^2 + 6*d*e*x + e^2*x^2)) + 3*b*c^3*x*(4*d^3 + 6
*d^2*e*x + 4*d*e^2*x^2 + e^3*x^3)*ArcSec[c*x] - 6*b*d*(2*c^2*d^2 + e^2)*Log
[(1 + Sqrt[1 - 1/(c^2*x^2)])*x])/(12*c^3)
```

Maple [B] time = 0.135, size = 486, normalized size = 2.9

$$\frac{ae^3x^4}{4} + ae^2x^3d + \frac{3\,aex^2d^2}{2} + axd^3 + \frac{ad^4}{4e} + \frac{be^3\mathrm{arcsec}\,(cx)\,x^4}{4} + be^2\mathrm{arcsec}\,(cx)\,x^3d + \frac{3\,be\mathrm{arcsec}\,(cx)\,x^2d^2}{2} + b\mathrm{arcsec}\,($$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x+d)^3*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/4*a*e^3*x^4+a*e^2*x^3*d+3/2*a*e*x^2*d^2+a*x*d^3+1/4*a/e*d^4+1/4*b*e^3*arc
sec(c*x)*x^4+b*e^2*arcsec(c*x)*x^3*d+3/2*b*e*arcsec(c*x)*x^2*d^2+b*arcsec(c
*x)*x*d^3+1/4*b/e*arcsec(c*x)*d^4+1/4/c*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/
c^2/x^2)^(1/2)/x*d^4*arctan(1/(c^2*x^2-1)^(1/2))-1/c^2*b*(c^2*x^2-1)^(1/2)/
((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d^3*ln(c*x+(c^2*x^2-1)^(1/2))-1/12/c*b*e^3/((
c^2*x^2-1)/c^2/x^2)^(1/2)*x^3-1/12/c^3*b*e^3/((c^2*x^2-1)/c^2/x^2)^(1/2)*x-
1/2/c*b*e^2/((c^2*x^2-1)/c^2/x^2)^(1/2)*d*x^2+1/2/c^3*b*e^2/((c^2*x^2-1)/c^
2/x^2)^(1/2)*d-3/2/c*b*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x*d^2+3/2/c^3*b*e/((c^
2*x^2-1)/c^2/x^2)^(1/2)/x*d^2-1/2/c^4*b*e^2*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/
c^2/x^2)^(1/2)/x*d*ln(c*x+(c^2*x^2-1)^(1/2))+1/6/c^5*b*e^3/((c^2*x^2-1)/c^2
/x^2)^(1/2)/x
```

Maxima [A] time = 0.97603, size = 367, normalized size = 2.2

$$\frac{1}{4}\,ae^3x^4 + ade^2x^3 + \frac{3}{2}\,ad^2ex^2 + \frac{3}{2}\left(x^2\,\mathrm{arcsec}\,(cx) - \frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)bd^2e + \frac{1}{4}\left(4\,x^3\,\mathrm{arcsec}\,(cx) - \frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2} + \frac{\log\left(\sqrt{-\frac{1}{c^2 x^2}}\right.}{c^2}}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^3*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/4*a*e^3*x^4 + a*d*e^2*x^3 + 3/2*a*d^2*e*x^2 + 3/2*(x^2*arcsec(c*x) - x*sq
rt(-1/(c^2*x^2) + 1)/c)*b*d^2*e + 1/4*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*
x^2) + 1)/(c^2*(1/(c^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c
^2 - log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^2)/c)*b*d*e^2 + 1/12*(3*x^4*arcsec(c
*x) - (c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*
b*e^3 + a*d^3*x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1)
+ log(-sqrt(-1/(c^2*x^2) + 1) + 1))*b*d^3/c
```

Fricas [A] time = 4.56251, size = 633, normalized size = 3.79

$$\frac{3\,ac^4e^3x^4 + 12\,ac^4de^2x^3 + 18\,ac^4d^2ex^2 + 12\,ac^4d^3x + 3\left(bc^4e^3x^4 + 4\,bc^4de^2x^3 + 6\,bc^4d^2ex^2 + 4\,bc^4d^3x - 4\,bc^4d^3 - 6\,bc^4\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^3*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/12*(3*a*c^4*e^3*x^4 + 12*a*c^4*d*e^2*x^3 + 18*a*c^4*d^2*e*x^2 + 12*a*c^4*
d^3*x + 3*(b*c^4*e^3*x^4 + 4*b*c^4*d*e^2*x^3 + 6*b*c^4*d^2*e*x^2 + 4*b*c^4*
```

```
d^3*x - 4*b*c^4*d^3 - 6*b*c^4*d^2*e - 4*b*c^4*d*e^2 - b*c^4*e^3)*arcsec(c*x
) + 6*(4*b*c^4*d^3 + 6*b*c^4*d^2*e + 4*b*c^4*d*e^2 + b*c^4*e^3)*arctan(-c*x
 + sqrt(c^2*x^2 - 1)) + 6*(2*b*c^3*d^3 + b*c*d*e^2)*log(-c*x + sqrt(c^2*x^2
 - 1)) - (b*c^2*e^3*x^2 + 6*b*c^2*d*e^2*x + 18*b*c^2*d^2*e + 2*b*e^3)*sqrt(
c^2*x^2 - 1))/c^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\,\mathrm{asec}\,(cx))\,(d + ex)^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)**3*(a+b*asec(c*x)),x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x)**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (ex + d)^3 (b\,\mathrm{arcsec}\,(cx) + a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^3*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x + d)^3*(b*arcsec(c*x) + a), x)
```

3.57 $\int (d+ex)^2 \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=124

$$\frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e}-\frac{b\left(6c^2d^2+e^2\right)\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{6c^3}-\frac{bdex\sqrt{1-\frac{1}{c^2x^2}}}{c}-\frac{be^2x^2\sqrt{1-\frac{1}{c^2x^2}}}{6c}+\frac{bd^3\csc^{-1}(cx)}{3e}$$

```
[Out] -((b*d*e*Sqrt[1 - 1/(c^2*x^2)]*x)/c) - (b*e^2*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(6
*c) + (b*d^3*ArcCsc[c*x])/(3*e) + ((d + e*x)^3*(a + b*ArcSec[c*x]))/(3*e) -
 (b*(6*c^2*d^2 + e^2)*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(6*c^3)
```

Rubi [A] time = 0.266256, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 9, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.562, Rules used = {5226, 1568, 1475, 1807, 844, 216, 266, 63, 208}

$$\frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e}-\frac{b\left(6c^2d^2+e^2\right)\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{6c^3}-\frac{bdex\sqrt{1-\frac{1}{c^2x^2}}}{c}-\frac{be^2x^2\sqrt{1-\frac{1}{c^2x^2}}}{6c}+\frac{bd^3\csc^{-1}(cx)}{3e}$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x)^2*(a + b*ArcSec[c*x]),x]
```



```
[Out] -((b*d*e*Sqrt[1 - 1/(c^2*x^2)]*x)/c) - (b*e^2*Sqrt[1 - 1/(c^2*x^2)]*x^2)/(6
*c) + (b*d^3*ArcCsc[c*x])/(3*e) + ((d + e*x)^3*(a + b*ArcSec[c*x]))/(3*e) -
 (b*(6*c^2*d^2 + e^2)*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(6*c^3)
```


Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1568

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_.)*((a_) + (c_.)*(x_)^(n2_.))^
(p_.), x_Symbol] :> Int[x^(m + mn*q)*(e + d/x^mn)^q*(a + c*x^n2)^p, x] /; F
reeQ[{a, c, d, e, m, mn, p}, x] && EqQ[n2, -2*mn] && IntegerQ[q] && (PosQ[n
2] ||  !IntegerQ[p])
```

Rule 1475

```
Int[(x_)^(m_.)*((a_) + (c_.)*(x_)^(n2_.))^(p_.)*((d_) + (e_.)*(x_)^(n_))^(q
_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(d + e*x)
^q*(a + c*x^2)^p, x], x, x^n], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] &&
EqQ[n2, 2*n] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 1807

```
Int[(Pq_)*((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^2)^(p_), x_Symbol] :> With[{
Q = PolynomialQuotient[Pq, c*x, x], R = PolynomialRemainder[Pq, c*x, x]}, S
imp[(R*(c*x)^(m + 1)*(a + b*x^2)^(p + 1))/(a*c*(m + 1)), x] + Dist[1/(a*c*(
m + 1)), Int[(c*x)^(m + 1)*(a + b*x^2)^p*ExpandToSum[a*c*(m + 1)*Q - b*R*(m
 + 2*p + 3)*x, x], x], x]] /; FreeQ[{a, b, c, p}, x] && PolyQ[Pq, x] && LtQ
[m, -1] && (IntegerQ[2*p] || NeQ[Expon[Pq, x], 1])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int (d+ex)^2\left(a+b\sec^{-1}(cx)\right)dx = \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{b\int \frac{(d+ex)^3}{\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{3ce}$$

$$= \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{b\int \frac{\left(e+\frac{d}{x}\right)^3 x}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{3ce}$$

$$= \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{b\,\text{Subst}\left(\int \frac{(e+dx)^3}{x^3\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{3ce}$$

$$= -\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{b\,\text{Subst}\left(\int \frac{-6de^2-e\left(6d^2+\frac{e^2}{c^2}\right)x-2d^3x^2}{x^2\sqrt{1-\frac{x^2}{c^2}}} \right.}{6ce}$$

$$= -\frac{bde\sqrt{1-\frac{1}{c^2x^2}}x}{c} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{b\,\text{Subst}\left(\int \frac{e\left(6d\right.}{}\right.}{}$$

$$= -\frac{bde\sqrt{1-\frac{1}{c^2x^2}}x}{c} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{\left(bd^3\right)\text{Subst}\left(\int \right.}{3}$$

$$= -\frac{bde\sqrt{1-\frac{1}{c^2x^2}}x}{c} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{bd^3\csc^{-1}(cx)}{3e} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} +$$

$$= -\frac{bde\sqrt{1-\frac{1}{c^2x^2}}x}{c} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{bd^3\csc^{-1}(cx)}{3e} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} -$$

$$= -\frac{bde\sqrt{1-\frac{1}{c^2x^2}}x}{c} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^2}{6c} + \frac{bd^3\csc^{-1}(cx)}{3e} + \frac{(d+ex)^3\left(a+b\sec^{-1}(cx)\right)}{3e} -$$

Mathematica [A] time = 0.176971, size = 124, normalized size = 1.

$$\frac{c^2x\left(2ac\left(3d^2+3dex+e^2x^2\right)-be\sqrt{1-\frac{1}{c^2x^2}}(6d+ex)\right)-b\left(6c^2d^2+e^2\right)\log\left(x\left(\sqrt{1-\frac{1}{c^2x^2}}+1\right)\right)+2bc^3x\sec^{-1}(cx)\left(3d^2\right.}{6c^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (c^2*x*(-(b*e*Sqrt[1 - 1/(c^2*x^2)]*(6*d + e*x)) + 2*a*c*(3*d^2 + 3*d*e*x +
 e^2*x^2)) + 2*b*c^3*x*(3*d^2 + 3*d*e*x + e^2*x^2)*ArcSec[c*x] - b*(6*c^2*d
^2 + e^2)*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x])/(6*c^3)
```

Maple [B] time = 0.129, size = 362, normalized size = 2.9

$$\frac{ae^2x^3}{3} + aex^2d + axd^2 + \frac{ad^3}{3e} + \frac{be^2\text{arcsec}(cx)x^3}{3} + be\text{arcsec}(cx)x^2d + b\text{arcsec}(cx)xd^2 + \frac{b\text{arcsec}(cx)d^3}{3e} + \frac{bd^3}{3cex}\sqrt{c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/3*a*e^2*x^3+a*e*x^2*d+a*x*d^2+1/3*a/e*d^3+1/3*b*e^2*arcsec(c*x)*x^3+b*e*a
rcsec(c*x)*x^2*d+b*arcsec(c*x)*x*d^2+1/3*b/e*arcsec(c*x)*d^3+1/3/c*b/e*(c^2
*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d^3*arctan(1/(c^2*x^2-1)^(1/2))
-1/c^2*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d^2*ln(c*x+(c^2*x^
2-1)^(1/2))-1/6/c*b*e^2/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2+1/6/c^3*b*e^2/((c^2
*x^2-1)/c^2/x^2)^(1/2)-1/c*b*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x*d+1/c^3*b*e/((
c^2*x^2-1)/c^2/x^2)^(1/2)/x*d-1/6/c^4*b*e^2*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/
c^2/x^2)^(1/2)/x*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 1.01039, size = 270, normalized size = 2.18

$$\frac{1}{3}ae^2x^3 + adex^2 + \left(x^2\operatorname{arcsec}(cx) - \frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)bde + \frac{1}{12}\left(4x^3\operatorname{arcsec}(cx) - \frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2} + \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2} - \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}}\right.}{c^2}}{c}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/3*a*e^2*x^3 + a*d*e*x^2 + (x^2*arcsec(c*x) - x*sqrt(-1/(c^2*x^2) + 1)/c)*
b*d*e + 1/12*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c^2*x^
2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^2*x^2
) + 1) - 1)/c^2)/c)*b*e^2 + a*d^2*x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/
(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*b*d^2/c
```

Fricas [A] time = 3.90167, size = 462, normalized size = 3.73

$$\frac{2\,ac^3e^2x^3 + 6\,ac^3dex^2 + 6\,ac^3d^2x + 2\left(bc^3e^2x^3 + 3\,bc^3dex^2 + 3\,bc^3d^2x - 3\,bc^3d^2 - 3\,bc^3de - bc^3e^2\right)\operatorname{arcsec}(cx) + 4\left(3\,bc^3d^2\right.}{6\,c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/6*(2*a*c^3*e^2*x^3 + 6*a*c^3*d*e*x^2 + 6*a*c^3*d^2*x + 2*(b*c^3*e^2*x^3 +
 3*b*c^3*d*e*x^2 + 3*b*c^3*d^2*x - 3*b*c^3*d^2 - 3*b*c^3*d*e - b*c^3*e^2)*a
rcsec(c*x) + 4*(3*b*c^3*d^2 + 3*b*c^3*d*e + b*c^3*e^2)*arctan(-c*x + sqrt(c
^2*x^2 - 1)) + (6*b*c^2*d^2 + b*e^2)*log(-c*x + sqrt(c^2*x^2 - 1)) - (b*c*e
^2*x + 6*b*c*d*e)*sqrt(c^2*x^2 - 1))/c^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\operatorname{asec}(cx))(d + ex)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (ex+d)^2(b\operatorname{arcsec}(cx)+a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x + d)^2*(b*arcsec(c*x) + a), x)
```

3.58 $\int (d+ex)\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=84

$$\frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e}-\frac{bd\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}}{2c}+\frac{bd^2\csc^{-1}(cx)}{2e}$$

```
[Out] -(b*e*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) + (b*d^2*ArcCsc[c*x])/(2*e) + ((d + e*
x)^2*(a + b*ArcSec[c*x]))/(2*e) - (b*d*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rubi [A] time = 0.166727, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 9, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.643, Rules used = {5226, 1568, 1396, 1807, 844, 216, 266, 63, 208}

$$\frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e}-\frac{bd\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}}{2c}+\frac{bd^2\csc^{-1}(cx)}{2e}$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*e*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) + (b*d^2*ArcCsc[c*x])/(2*e) + ((d + e*
x)^2*(a + b*ArcSec[c*x]))/(2*e) - (b*d*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1568

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_.)*((a_) + (c_.)*(x_)^(n2_.))^
(p_.), x_Symbol] :> Int[x^(m + mn*q)*(e + d/x^mn)^q*(a + c*x^n2)^p, x] /; F
reeQ[{a, c, d, e, m, mn, p}, x] && EqQ[n2, -2*mn] && IntegerQ[q] && (PosQ[n
2] ||  !IntegerQ[p])
```

Rule 1396

```
Int[((d_) + (e_.)*(x_)^(n_))^(q_.)*((a_) + (c_.)*(x_)^(n2_))^(p_), x_Symbol
] :> -Subst[Int[((d + e/x^n)^q*(a + c/x^(2*n))^p)/x^2, x], x, 1/x] /; FreeQ
[{a, c, d, e, p, q}, x] && EqQ[n2, 2*n] && ILtQ[n, 0]
```

Rule 1807

```
Int[(Pq_)*((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^2)^(p_), x_Symbol] :> With[{
Q = PolynomialQuotient[Pq, c*x, x], R = PolynomialRemainder[Pq, c*x, x]}, S
imp[(R*(c*x)^(m + 1)*(a + b*x^2)^(p + 1))/(a*c*(m + 1)), x] + Dist[1/(a*c*(
m + 1)), Int[(c*x)^(m + 1)*(a + b*x^2)^p*ExpandToSum[a*c*(m + 1)*Q - b*R*(m
 + 2*p + 3)*x, x], x], x]] /; FreeQ[{a, b, c, p}, x] && PolyQ[Pq, x] && LtQ
[m, -1] && (IntegerQ[2*p] || NeQ[Expon[Pq, x], 1])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int (d+ex)\left(a+b\sec^{-1}(cx)\right)dx = \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} - \frac{b\int \frac{(d+ex)^2}{\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{2ce}$$

$$= \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} - \frac{b\int \frac{\left(e+\frac{d}{x}\right)^2}{\sqrt{1-\frac{1}{c^2x^2}}}dx}{2ce}$$

$$= \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} + \frac{b\,\mathrm{Subst}\left(\int \frac{(e+dx)^2}{x^2\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{2ce}$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}x}{2c} + \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} - \frac{b\,\mathrm{Subst}\left(\int \frac{-2de-d^2x}{x\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{2ce}$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}x}{2c} + \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} + \frac{(bd)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{c} + \frac{\left(bd^2\right)}{}$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}x}{2c} + \frac{bd^2\csc^{-1}(cx)}{2e} + \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} + \frac{(bd)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x}{c^2}}}\right.}{2c}$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}x}{2c} + \frac{bd^2\csc^{-1}(cx)}{2e} + \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} - (bcd)\,\mathrm{Subst}\left(\int \frac{1}{c^2-c^2}\right.$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}x}{2c} + \frac{bd^2\csc^{-1}(cx)}{2e} + \frac{(d+ex)^2\left(a+b\sec^{-1}(cx)\right)}{2e} - \frac{bd\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}$$

Mathematica [A] time = 0.20826, size = 114, normalized size = 1.36

$$adx + \frac{1}{2}aex^2 - \frac{bdx\sqrt{1-\frac{1}{c^2x^2}}\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2-1}} - \frac{bex\sqrt{\frac{c^2x^2-1}{c^2x^2}}}{2c} + bdx\sec^{-1}(cx) + \frac{1}{2}bex^2\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x)*(a + b*ArcSec[c*x]),x]
```

```
[Out] a*d*x + (a*e*x^2)/2 - (b*e*x*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])/(2*c) + b*d*x*
ArcSec[c*x] + (b*e*x^2*ArcSec[c*x])/2 - (b*d*Sqrt[1 - 1/(c^2*x^2)]*x*ArcTan
h[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[-1 + c^2*x^2]
```

Maple [A] time = 0.163, size = 141, normalized size = 1.7

$$\frac{ax^2e}{2} + adx + \frac{b\,\mathrm{arcsec}\,(cx)\,x^2e}{2} + b\,\mathrm{arcsec}\,(cx)\,xd - \frac{bd}{c^2x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{bex}{2\,c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + \frac{be}{2\,c^3x}\frac{}{\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/2*a*x^2*e+a*d*x+1/2*b*arcsec(c*x)*x^2*e+b*arcsec(c*x)*x*d-1/c^2*b/((c^2*x
^2-1)/c^2/x^2)^(1/2)/x*(c^2*x^2-1)^(1/2)*d*ln(c*x+(c^2*x^2-1)^(1/2))-1/2/c*
b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x*e+1/2/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e
```

Maxima [A] time = 0.994765, size = 126, normalized size = 1.5

$$\frac{1}{2}aex^2 + \frac{1}{2}\left(x^2 \operatorname{arcsec}(cx) - \frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)be + adx + \frac{\left(2\,cx \operatorname{arcsec}(cx) - \log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right) + \log\left(-\sqrt{-\frac{1}{c^2x^2}+1}+ \right.\right.}{2\,c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/2*a*e*x^2 + 1/2*(x^2*arcsec(c*x) - x*sqrt(-1/(c^2*x^2) + 1)/c)*b*e + a*d*
x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1
/(c^2*x^2) + 1) + 1))*b*d/c
```

Fricas [A] time = 2.82923, size = 302, normalized size = 3.6

$$\frac{ac^2ex^2 + 2\,ac^2dx + 2\,bcd\log\left(-cx + \sqrt{c^2x^2-1}\right) - \sqrt{c^2x^2-1}be + \left(bc^2ex^2 + 2\,bc^2dx - 2\,bc^2d - bc^2e\right)\operatorname{arcsec}(cx) + 2\left(2\right.}{2\,c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/2*(a*c^2*e*x^2 + 2*a*c^2*d*x + 2*b*c*d*log(-c*x + sqrt(c^2*x^2 - 1)) - sq
rt(c^2*x^2 - 1)*b*e + (b*c^2*e*x^2 + 2*b*c^2*d*x - 2*b*c^2*d - b*c^2*e)*arc
sec(c*x) + 2*(2*b*c^2*d + b*c^2*e)*arctan(-c*x + sqrt(c^2*x^2 - 1)))/c^2
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b \operatorname{asec}(cx))(d + ex)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (ex + d)(b \operatorname{arcsec}(cx) + a)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x + d)*(b*arcsec(c*x) + a), x)
```

3.59 $\int \left(a + b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=32

$$ax - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c} + bx\sec^{-1}(cx)$$

```
[Out] a*x + b*x*ArcSec[c*x] - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rubi [A] time = 0.0221793, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 8, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5214, 266, 63, 208}

$$ax - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c} + bx\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Int[a + b*ArcSec[c*x],x]
```

```
[Out] a*x + b*x*ArcSec[c*x] - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/c
```

Rule 5214

```
Int[ArcSec[(c_.)*(x_)], x_Symbol] :> Simp[x*ArcSec[c*x], x] - Dist[1/c, Int
[1/(x*Sqrt[1 - 1/(c^2*x^2)]), x], x] /; FreeQ[c, x]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int \left(a+b\sec^{-1}(cx)\right) dx = ax+b\int \sec^{-1}(cx)\, dx$$
$$= ax+bx\sec^{-1}(cx)-\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x}\, dx}{c}$$
$$= ax+bx\sec^{-1}(cx)+\frac{b\,\text{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x}{c^2}}}\, dx, x, \frac{1}{x^2}\right)}{2c}$$
$$= ax+bx\sec^{-1}(cx)-(bc)\,\text{Subst}\left(\int \frac{1}{c^2-c^2x^2}\, dx, x, \sqrt{1-\frac{1}{c^2x^2}}\right)$$
$$= ax+bx\sec^{-1}(cx)-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{c}$$

Mathematica [A] time = 0.0508688, size = 59, normalized size = 1.84

$$ax-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2-1}}+bx\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[a + b*ArcSec[c*x],x]
```

```
[Out] a*x + b*x*ArcSec[c*x] - (b*Sqrt[1 - 1/(c^2*x^2)]*x*ArcTanh[(c*x)/Sqrt[-1 +
c^2*x^2]])/Sqrt[-1 + c^2*x^2]
```

Maple [A] time = 0.158, size = 38, normalized size = 1.2

$$ax+bx\text{arcsec}\,(cx)-\frac{b}{c}\ln\left(cx+cx\sqrt{1-\frac{1}{c^2x^2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(a+b*arcsec(c*x),x)
```

```
[Out] a*x+b*x*arcsec(c*x)-b/c*ln(c*x+c*x*(1-1/c^2/x^2)^(1/2))
```

Maxima [A] time = 0.981574, size = 72, normalized size = 2.25

$$ax+\frac{\left(2\,cx\,\text{arcsec}\,(cx)-\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)+\log\left(-\sqrt{-\frac{1}{c^2x^2}+1}+1\right)\right)b}{2\,c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="maxima")
```

```
[Out] a*x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(
-1/(c^2*x^2) + 1) + 1))*b/c
```

Fricas [B] time = 2.82384, size = 154, normalized size = 4.81

$$\frac{acx + 2\,bc \arctan\left(-cx + \sqrt{c^2x^2 - 1}\right) + (bcx - bc) \operatorname{arcsec}(cx) + b \log\left(-cx + \sqrt{c^2x^2 - 1}\right)}{c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="fricas")
```

```
[Out] (a*c*x + 2*b*c*arctan(-c*x + sqrt(c^2*x^2 - 1)) + (b*c*x - b*c)*arcsec(c*x)
 + b*log(-c*x + sqrt(c^2*x^2 - 1)))/c
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b \operatorname{asec}(cx))\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*asec(c*x),x)
```

```
[Out] Integral(a + b*asec(c*x), x)
```

Giac [A] time = 1.11822, size = 62, normalized size = 1.94

$$\left(x \arccos\left(\frac{1}{cx}\right) + \frac{c \log\left(\left|-x|c| + \sqrt{c^2x^2 - 1}\right|\right)}{|c|^2 \operatorname{sgn}(x)}\right)b + ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(a+b*arcsec(c*x),x, algorithm="giac")
```

```
[Out] (x*arccos(1/(c*x)) + c*log(abs(-x*abs(c) + sqrt(c^2*x^2 - 1)))/(abs(c)^2*sg
n(x)))*b + a*x
```

3.60 $\int \frac{a+b\sec^{-1}(cx)}{d+ex}\,dx$

Optimal. Leaf size=247

$$-\frac{ib\text{PolyLog}\left(2,-\frac{\left(e-\sqrt{e^2-c^2d^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}-\frac{ib\text{PolyLog}\left(2,-\frac{\left(\sqrt{e^2-c^2d^2}+e\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}+\frac{ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2e}+\frac{(a+b\ldots}{\ldots}$$

```
[Out] ((a + b*ArcSec[c*x])*Log[1 + ((e - Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x]
))/(c*d)])/e + ((a + b*ArcSec[c*x])*Log[1 + ((e + Sqrt[-(c^2*d^2) + e^2])*E
^(I*ArcSec[c*x]))/(c*d)])/e - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[
c*x])])/e - (I*b*PolyLog[2, -(((e - Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x
]))/(c*d))])/e - (I*b*PolyLog[2, -(((e + Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSe
c[c*x]))/(c*d))])/e + ((I/2)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])])/e
```

Rubi [A] time = 0.37276, antiderivative size = 247, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125, Rules used = {5224, 2518}

$$-\frac{ib\text{PolyLog}\left(2,-\frac{\left(e-\sqrt{e^2-c^2d^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}-\frac{ib\text{PolyLog}\left(2,-\frac{\left(\sqrt{e^2-c^2d^2}+e\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}+\frac{ib\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)}{2e}+\frac{(a+b\ldots}{\ldots}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x),x]
```

```
[Out] ((a + b*ArcSec[c*x])*Log[1 + ((e - Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x]
))/(c*d)])/e + ((a + b*ArcSec[c*x])*Log[1 + ((e + Sqrt[-(c^2*d^2) + e^2])*E
^(I*ArcSec[c*x]))/(c*d)])/e - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[
c*x])])/e - (I*b*PolyLog[2, -(((e - Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x
]))/(c*d))])/e - (I*b*PolyLog[2, -(((e + Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSe
c[c*x]))/(c*d))])/e + ((I/2)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])])/e
```

Rule 5224

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))/((d_.) + (e_.)*(x_)), x_Symbol] :> S
imp[((a + b*ArcSec[c*x])*Log[1 + ((e - Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[
c*x]))/(c*d)])/e, x] + (-Dist[b/(c*e), Int[Log[1 + ((e - Sqrt[-(c^2*d^2) +
e^2])*E^(I*ArcSec[c*x]))/(c*d)]/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] - Dist[
b/(c*e), Int[Log[1 + ((e + Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x]))/(c*d)
]/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] + Dist[b/(c*e), Int[Log[1 + E^(2*I*Ar
cSec[c*x])]/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] + Simp[((a + b*ArcSec[c*x])
*Log[1 + ((e + Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x]))/(c*d)])/e, x] - S
imp[((a + b*ArcSec[c*x])*Log[1 + E^(2*I*ArcSec[c*x])])/e, x]) /; FreeQ[{a,
b, c, d, e}, x]
```

Rule 2518

```
Int[Log[v_]*(u_), x_Symbol] :> With[{w = DerivativeDivides[v, u*(1 - v), x]
}, Simp[w*PolyLog[2, 1 - v], x] /;  !FalseQ[w]]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{d+ex}\,dx = \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{\left(e-\sqrt{-c^2d^2+e^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{\left(e+\sqrt{-c^2d^2+e^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}$$

$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{\left(e-\sqrt{-c^2d^2+e^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{\left(e+\sqrt{-c^2d^2+e^2}\right)e^{i\sec^{-1}(cx)}}{cd}\right)}{e}$$

Mathematica [A] time = 0.587821, size = 333, normalized size = 1.35

$$\frac{a\log(d+ex)}{e} + \frac{b\left(-i\left(\text{PolyLog}\left(2,\frac{\left(\sqrt{e^2-c^2d^2}-e\right)e^{i\sec^{-1}(cx)}}{cd}\right)+\text{PolyLog}\left(2,-\frac{\left(\sqrt{e^2-c^2d^2}+e\right)e^{i\sec^{-1}(cx)}}{cd}\right)\right)+\frac{1}{2}i\text{PolyLog}\left(2,-e^{2i\sec^{-1}}\right.\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x),x]
```

```
[Out] (a*Log[d + e*x])/e + (b*((4*I)*ArcSin[Sqrt[1 + e/(c*d)]/Sqrt[2]]*ArcTan[((-
(c*d) + e)*Tan[ArcSec[c*x]/2])/Sqrt[-(c^2*d^2) + e^2]] + (ArcSec[c*x] + 2*A
rcSin[Sqrt[1 + e/(c*d)]/Sqrt[2]])*Log[1 + ((e - Sqrt[-(c^2*d^2) + e^2])*E^(
I*ArcSec[c*x]))/(c*d)] + (ArcSec[c*x] - 2*ArcSin[Sqrt[1 + e/(c*d)]/Sqrt[2]]
)*Log[1 + ((e + Sqrt[-(c^2*d^2) + e^2])*E^(I*ArcSec[c*x]))/(c*d)] - ArcSec[
c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - I*(PolyLog[2, ((-e + Sqrt[-(c^2*d^2)
+ e^2])*E^(I*ArcSec[c*x]))/(c*d)] + PolyLog[2, -(((e + Sqrt[-(c^2*d^2) + e^
2])*E^(I*ArcSec[c*x]))/(c*d))]) + (I/2)*PolyLog[2, -E^((2*I)*ArcSec[c*x])])
)/e
```

Maple [A] time = 0.374, size = 456, normalized size = 1.9

$$\frac{a\ln(cex+dc)}{e} + \frac{b\,\text{arcsec}(cx)}{e}\ln\left(\left(dc\left(\frac{1}{cx}+i\sqrt{1-\frac{1}{c^2x^2}}\right)+\sqrt{-c^2d^2+e^2}+e\right)\left(e+\sqrt{-c^2d^2+e^2}\right)^{-1}\right) + \frac{b\,\text{arcsec}(cx)}{e}\ln\left(\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d),x)
```

```
[Out] a*ln(c*e*x+c*d)/e+b/e*arcsec(c*x)*ln((d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))+(-c
^2*d^2+e^2)^(1/2)+e)/(e+(-c^2*d^2+e^2)^(1/2)))+b/e*arcsec(c*x)*ln((-d*c*(1/
c/x+I*(1-1/c^2/x^2)^(1/2))+(-c^2*d^2+e^2)^(1/2)-e)/(-e+(-c^2*d^2+e^2)^(1/2)
))-I*b/e*dilog((d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))+(-c^2*d^2+e^2)^(1/2)+e)/(
e+(-c^2*d^2+e^2)^(1/2)))-I*b/e*dilog((-d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))+(-
c^2*d^2+e^2)^(1/2)-e)/(-e+(-c^2*d^2+e^2)^(1/2)))-b/e*arcsec(c*x)*ln(1+I*(1/
c/x+I*(1-1/c^2/x^2)^(1/2)))-b/e*arcsec(c*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(
1/2)))+I*b/e*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I*b/e*dilog(1-I*(1/c/
x+I*(1-1/c^2/x^2)^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$b\int \frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{ex+d}\,dx + \frac{a\log(ex+d)}{e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d),x, algorithm="maxima")
```

```
[Out] b*integrate(arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e*x + d), x) + a*log(e*x +
 d)/e
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{b\,\mathrm{arcsec}\,(cx)+a}{ex+d},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e*x + d), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{asec}\,(cx)}{d+ex}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d),x)
```

```
[Out] Integral((a + b*asec(c*x))/(d + e*x), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx)+a}{ex+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d), x)
```

3.61 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^2}\,dx$

Optimal. Leaf size=104

$$-\frac{a+b\sec^{-1}(cx)}{e(d+ex)}-\frac{b\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}}\right)}{d\sqrt{c^2d^2-e^2}}-\frac{b\csc^{-1}(cx)}{de}$$

```
[Out] -((b*ArcCsc[c*x])/(d*e)) - (a + b*ArcSec[c*x])/(e*(d + e*x)) - (b*ArcTanh[(
c^2*d + e/x)/(c*Sqrt[c^2*d^2 - e^2]*Sqrt[1 - 1/(c^2*x^2)])])/(d*Sqrt[c^2*d^
2 - e^2])
```

Rubi [A] time = 0.156008, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.438, Rules used = {5226, 1568, 1475, 844, 216, 725, 206}

$$-\frac{a+b\sec^{-1}(cx)}{e(d+ex)}-\frac{b\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}}\right)}{d\sqrt{c^2d^2-e^2}}-\frac{b\csc^{-1}(cx)}{de}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x)^2,x]
```

```
[Out] -((b*ArcCsc[c*x])/(d*e)) - (a + b*ArcSec[c*x])/(e*(d + e*x)) - (b*ArcTanh[(
c^2*d + e/x)/(c*Sqrt[c^2*d^2 - e^2]*Sqrt[1 - 1/(c^2*x^2)])])/(d*Sqrt[c^2*d^
2 - e^2])
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1568

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_.)*((a_) + (c_.)*(x_)^(n2_.))^
(p_.), x_Symbol] :> Int[x^(m + mn*q)*(e + d/x^mn)^q*(a + c*x^n2)^p, x] /; F
reeQ[{a, c, d, e, m, mn, p}, x] && EqQ[n2, -2*mn] && IntegerQ[q] && (PosQ[n
2] ||  !IntegerQ[p])
```

Rule 1475

```
Int[(x_)^(m_.)*((a_) + (c_.)*(x_)^(n2_.))^(p_.)*((d_) + (e_.)*(x_)^(n_))^(q
_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(d + e*x)
^q*(a + c*x^2)^p, x], x, x^n], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] &&
EqQ[n2, 2*n] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
```

```
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$
\begin{aligned}
\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^2}\,dx &= -\frac{a+b\sec^{-1}(cx)}{e(d+ex)}+\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}\,x^2(d+ex)}\,dx}{ce}\\
&= -\frac{a+b\sec^{-1}(cx)}{e(d+ex)}+\frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}\left(e+\frac{d}{x}\right)x^3}\,dx}{ce}\\
&= -\frac{a+b\sec^{-1}(cx)}{e(d+ex)}-\frac{b\,\text{Subst}\left(\int \frac{x}{(e+dx)\sqrt{1-\frac{x^2}{c^2}}}\,dx,x,\frac{1}{x}\right)}{ce}\\
&= -\frac{a+b\sec^{-1}(cx)}{e(d+ex)}+\frac{b\,\text{Subst}\left(\int \frac{1}{(e+dx)\sqrt{1-\frac{x^2}{c^2}}}\,dx,x,\frac{1}{x}\right)}{cd}-\frac{b\,\text{Subst}\left(\int \frac{1}{\sqrt{1-\frac{x^2}{c^2}}}\,dx,x,\frac{1}{x}\right)}{cde}\\
&= -\frac{b\csc^{-1}(cx)}{de}-\frac{a+b\sec^{-1}(cx)}{e(d+ex)}-\frac{b\,\text{Subst}\left(\int \frac{1}{d^2-\frac{e^2}{c^2}-x^2}\,dx,x,\frac{d+\frac{e}{c^2x}}{\sqrt{1-\frac{1}{c^2x^2}}}\right)}{cd}\\
&= -\frac{b\csc^{-1}(cx)}{de}-\frac{a+b\sec^{-1}(cx)}{e(d+ex)}-\frac{b\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{c^2d^2-e^2}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{d\sqrt{c^2d^2-e^2}}
\end{aligned}
$$

Mathematica [A] time = 0.222711, size = 142, normalized size = 1.37

$$
-\frac{a}{e(d+ex)}+\frac{b\log\left(cx\left(cd-\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}\right)+e\right)}{d\sqrt{c^2d^2-e^2}}-\frac{b\log(d+ex)}{d\sqrt{c^2d^2-e^2}}-\frac{b\sin^{-1}\left(\frac{1}{cx}\right)}{de}-\frac{b\sec^{-1}(cx)}{e(d+ex)}
$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x)^2,x]
```

```
[Out] -(a/(e*(d + e*x))) - (b*ArcSec[c*x])/(e*(d + e*x)) - (b*ArcSin[1/(c*x)])/(d
*e) - (b*Log[d + e*x])/(d*Sqrt[c^2*d^2 - e^2]) + (b*Log[e + c*(c*d - Sqrt[c
^2*d^2 - e^2]*Sqrt[1 - 1/(c^2*x^2)])*x])/(d*Sqrt[c^2*d^2 - e^2])
```

Maple [B] time = 0.25, size = 214, normalized size = 2.1

$$-\frac{ac}{(cex+dc)\,e}-\frac{c b\operatorname{arcsec}(cx)}{(cex+dc)\,e}-\frac{b}{cexd}\sqrt{c^2x^2-1}\arctan\left(\frac{1}{\sqrt{c^2x^2-1}}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{b}{cexd}\sqrt{c^2x^2-1}\ln\left(2\frac{1}{cex+dc}\left(\sqrt{\frac{c^2d^2-e^2}{e^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^2,x)
```

```
[Out] -c*a/(c*e*x+c*d)/e-c*b/(c*e*x+c*d)/e*arcsec(c*x)-1/c*b/e*(c^2*x^2-1)^(1/2)/
((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d*arctan(1/(c^2*x^2-1)^(1/2))+1/c*b/e*(c^2*x^
2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/((c^2*d^2-e^2)/e^2)^(1/2)*ln(2*(
((c^2*d^2-e^2)/e^2)^(1/2)*(c^2*x^2-1)^(1/2)*e-d*c^2*x-e)/(c*e*x+c*d))
```

Maxima [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^2,x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [B] time = 3.28274, size = 960, normalized size = 9.23

$$\left[-\frac{ac^2d^3-ade^2-\sqrt{c^2d^2-e^2}\left(be^2x+bde\right)\log\left(\frac{c^3d^2x+cde-\sqrt{c^2d^2-e^2}\left(c^2dx+e\right)+\left(c^2d^2-\sqrt{c^2d^2-e^2}cd-e^2\right)\sqrt{c^2x^2-1}}{ex+d}\right)+\left(bc^2d^3-bde^2\right)\operatorname{arcsec}}{c^2d^4e-d^2e^3+\left(c^2d^3e^2-de^4\right)x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^2,x, algorithm="fricas")
```

```
[Out] [-(a*c^2*d^3 - a*d*e^2 - sqrt(c^2*d^2 - e^2)*(b*e^2*x + b*d*e)*log((c^3*d^2
*x + c*d*e - sqrt(c^2*d^2 - e^2)*(c^2*d*x + e) + (c^2*d^2 - sqrt(c^2*d^2 -
e^2)*c*d - e^2)*sqrt(c^2*x^2 - 1))/(e*x + d)) + (b*c^2*d^3 - b*d*e^2)*arcse
c(c*x) - 2*(b*c^2*d^3 - b*d*e^2 + (b*c^2*d^2*e - b*e^3)*x)*arctan(-c*x + sq
rt(c^2*x^2 - 1)))/(c^2*d^4*e - d^2*e^3 + (c^2*d^3*e^2 - d*e^4)*x), -(a*c^2*
d^3 - a*d*e^2 - 2*sqrt(-c^2*d^2 + e^2)*(b*e^2*x + b*d*e)*arctan(-(sqrt(-c^2
*d^2 + e^2)*sqrt(c^2*x^2 - 1)*e - sqrt(-c^2*d^2 + e^2)*(c*e*x + c*d))/(c^2*
d^2 - e^2)) + (b*c^2*d^3 - b*d*e^2)*arcsec(c*x) - 2*(b*c^2*d^3 - b*d*e^2 +
(b*c^2*d^2*e - b*e^3)*x)*arctan(-c*x + sqrt(c^2*x^2 - 1)))/(c^2*d^4*e - d^2
*e^3 + (c^2*d^3*e^2 - d*e^4)*x)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a + b \operatorname{asec}(cx)}{(d + ex)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**2,x)
```

```
[Out] Integral((a + b*asec(c*x))/(d + e*x)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{(ex + d)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d)^2, x)
```

3.62 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^3}\,dx$

Optimal. Leaf size=172

$$-\frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2}+\frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(\frac{d}{x}+e\right)}-\frac{b\left(2c^2d^2-e^2\right)\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}}\right)}{2d^2\left(c^2d^2-e^2\right)^{3/2}}-\frac{b\csc^{-1}(cx)}{2d^2e}$$

```
[Out] (b*c*e*Sqrt[1 - 1/(c^2*x^2)])/(2*d*(c^2*d^2 - e^2)*(e + d/x)) - (b*ArcCsc[c
*x])/(2*d^2*e) - (a + b*ArcSec[c*x])/(2*e*(d + e*x)^2) - (b*(2*c^2*d^2 - e^
2)*ArcTanh[(c^2*d + e/x)/(c*Sqrt[c^2*d^2 - e^2]*Sqrt[1 - 1/(c^2*x^2)])])/(2
*d^2*(c^2*d^2 - e^2)^(3/2))
```

Rubi [A] time = 0.29226, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5226, 1568, 1475, 1651, 844, 216, 725, 206}

$$-\frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2}+\frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(\frac{d}{x}+e\right)}-\frac{b\left(2c^2d^2-e^2\right)\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}}\right)}{2d^2\left(c^2d^2-e^2\right)^{3/2}}-\frac{b\csc^{-1}(cx)}{2d^2e}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x)^3,x]
```

```
[Out] (b*c*e*Sqrt[1 - 1/(c^2*x^2)])/(2*d*(c^2*d^2 - e^2)*(e + d/x)) - (b*ArcCsc[c
*x])/(2*d^2*e) - (a + b*ArcSec[c*x])/(2*e*(d + e*x)^2) - (b*(2*c^2*d^2 - e^
2)*ArcTanh[(c^2*d + e/x)/(c*Sqrt[c^2*d^2 - e^2]*Sqrt[1 - 1/(c^2*x^2)])])/(2
*d^2*(c^2*d^2 - e^2)^(3/2))
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1568

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_.)*((a_) + (c_.)*(x_)^(n2_.))^
(p_.), x_Symbol] :> Int[x^(m + mn*q)*(e + d/x^mn)^q*(a + c*x^n2)^p, x] /; F
reeQ[{a, c, d, e, m, mn, p}, x] && EqQ[n2, -2*mn] && IntegerQ[q] && (PosQ[n
2] ||  !IntegerQ[p])
```

Rule 1475

```
Int[(x_)^(m_.)*((a_) + (c_.)*(x_)^(n2_.))^(p_.)*((d_) + (e_.)*(x_)^(n_))^(q
_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(d + e*x)
^q*(a + c*x^2)^p, x], x, x^n], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] &&
EqQ[n2, 2*n] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 1651

```
Int[(Pq_)*((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :>
 With[{Q = PolynomialQuotient[Pq, d + e*x, x], R = PolynomialRemainder[Pq,
d + e*x, x]}, Simp[(e*R*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*
d^2 + a*e^2)), x] + Dist[1/((m + 1)*(c*d^2 + a*e^2)), Int[(d + e*x)^(m + 1)
*(a + c*x^2)^p*ExpandToSum[(m + 1)*(c*d^2 + a*e^2)*Q + c*d*R*(m + 1) - c*e*
R*(m + 2*p + 3)*x, x], x], x]] /; FreeQ[{a, c, d, e, p}, x] && PolyQ[Pq, x]
 && NeQ[c*d^2 + a*e^2, 0] && LtQ[m, -1]
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^3}\,dx = -\frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^2(d+ex)^2}\,dx}{2ce}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} + \frac{b\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}\left(e+\frac{d}{x}\right)^2x^4}\,dx}{2ce}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} - \frac{b\,\mathrm{Subst}\left(\int \frac{x^2}{(e+dx)^2\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2ce}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(e+\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} + \frac{(bc)\,\mathrm{Subst}\left(\int \frac{e-\left(d-\frac{e^2}{c^2d}\right)x}{(e+dx)\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2e\left(c^2d^2-e^2\right)}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(e+\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} - \frac{b\,\mathrm{Subst}\left(\int \frac{1}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2cd^2e} + \frac{\left(bc\left(2-\frac{e^2}{c^2d^2}\right)\right)\mathrm{Subst}\left(\int\right.}{2\left(c^2d^2\right.}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(e+\frac{d}{x}\right)} - \frac{b\csc^{-1}(cx)}{2d^2e} - \frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} - \frac{\left(bc\left(2-\frac{e^2}{c^2d^2}\right)\right)\mathrm{Subst}\left(\int \frac{1}{d^2-\frac{e^2}{c^2}-x^2}\,dx, x,\right.}{2\left(c^2d^2-e^2\right)}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{2d\left(c^2d^2-e^2\right)\left(e+\frac{d}{x}\right)} - \frac{b\csc^{-1}(cx)}{2d^2e} - \frac{a+b\sec^{-1}(cx)}{2e(d+ex)^2} - \frac{b\left(2c^2d^2-e^2\right)\tanh^{-1}\left(\frac{c^2d+\frac{e}{x}}{c\sqrt{c^2d^2-e^2}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{2d^2\left(c^2d^2-e^2\right)^{3/2}}$$

Mathematica [A] time = 0.480236, size = 247, normalized size = 1.44

$$\frac{1}{2}\left(-\frac{a}{e(d+ex)^2} + \frac{bcex\sqrt{1-\frac{1}{c^2x^2}}}{d\left(c^2d^2-e^2\right)(d+ex)} + \frac{b\left(2c^2d^2-e^2\right)\log\left(cx\left(cd-\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2d^2-e^2}\right)+e\right)}{d^2(cd-e)(cd+e)\sqrt{c^2d^2-e^2}} + \frac{b\left(e^2-2c^2d^2\right)\log(d}{d^2(cd-e)(cd+e)\sqrt{c^2}}\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x)^3,x]
```

```
[Out] (-(a/(e*(d + e*x)^2)) + (b*c*e*Sqrt[1 - 1/(c^2*x^2)]*x)/(d*(c^2*d^2 - e^2)*
(d + e*x)) - (b*ArcSec[c*x])/(e*(d + e*x)^2) - (b*ArcSin[1/(c*x)])/(d^2*e)
+ (b*(-2*c^2*d^2 + e^2)*Log[d + e*x])/(d^2*(c*d - e)*(c*d + e)*Sqrt[c^2*d^2
 - e^2]) + (b*(2*c^2*d^2 - e^2)*Log[e + c*(c*d - Sqrt[c^2*d^2 - e^2]*Sqrt[1
 - 1/(c^2*x^2)])*x])/(d^2*(c*d - e)*(c*d + e)*Sqrt[c^2*d^2 - e^2]))/2
```

Maple [B] time = 0.28, size = 1005, normalized size = 5.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^3,x)
```

```
[Out] -1/2*c^2*a/(c*e*x+c*d)^2/e-1/2*c^2*b/(c*e*x+c*d)^2/e*arcsec(c*x)-1/2*c^2*b*
(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/(c^2*d^2-e^2)/(c*e*x+c*d)*arc
tan(1/(c^2*x^2-1)^(1/2))-1/2*c^2*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2
)^(1/2)/x*d/(c^2*d^2-e^2)/(c*e*x+c*d)*arctan(1/(c^2*x^2-1)^(1/2))+c^2*b*(c^
2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/((c^2*d^2-e^2)/e^2)^(1/2)/(c^2*d
^2-e^2)/(c*e*x+c*d)*ln(2*(((c^2*d^2-e^2)/e^2)^(1/2)*(c^2*x^2-1)^(1/2)*e-d*c
^2*x-e)/(c*e*x+c*d))+c^2*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/
x*d/((c^2*d^2-e^2)/e^2)^(1/2)/(c^2*d^2-e^2)/(c*e*x+c*d)*ln(2*(((c^2*d^2-e^2
)/e^2)^(1/2)*(c^2*x^2-1)^(1/2)*e-d*c^2*x-e)/(c*e*x+c*d))+1/2*b*e^2*(c^2*x^2
-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/d^2/(c^2*d^2-e^2)/(c*e*x+c*d)*arctan(
1/(c^2*x^2-1)^(1/2))+1/2*b*e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/
x/d/(c^2*d^2-e^2)/(c*e*x+c*d)*arctan(1/(c^2*x^2-1)^(1/2))+1/2*c^2*b*e/((c^2
*x^2-1)/c^2/x^2)^(1/2)*x/d/(c^2*d^2-e^2)/(c*e*x+c*d)-1/2*b*e/((c^2*x^2-1)/c
^2/x^2)^(1/2)/x/d/(c^2*d^2-e^2)/(c*e*x+c*d)-1/2*b*e^2*(c^2*x^2-1)^(1/2)/((c
^2*x^2-1)/c^2/x^2)^(1/2)/d^2/((c^2*d^2-e^2)/e^2)^(1/2)/(c^2*d^2-e^2)/(c*e*x
+c*d)*ln(2*(((c^2*d^2-e^2)/e^2)^(1/2)*(c^2*x^2-1)^(1/2)*e-d*c^2*x-e)/(c*e*x
+c*d))-1/2*b*e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/((c^2*d^2-
e^2)/e^2)^(1/2)/(c^2*d^2-e^2)/(c*e*x+c*d)*ln(2*(((c^2*d^2-e^2)/e^2)^(1/2)*(
c^2*x^2-1)^(1/2)*e-d*c^2*x-e)/(c*e*x+c*d))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{\left(\left(c^2e^3x^2+2\,c^2de^2x+c^2d^2e\right)\int \frac{xe^{\left(\frac{1}{2}\,\log(cx+1)+\frac{1}{2}\,\log(cx-1)\right)}}{c^2e^3x^4+2\,c^2de^2x^3-2\,de^2x+\left(c^2e^3x^4+2\,c^2de^2x^3-2\,de^2x-d^2e+\left(c^2d^2e-e^3\right)x^2\right)(cx+1)(cx-1)-d^2e+\left(c^2d^2e-e^3\right)x^2}\,dx - a}{2\left(e^3x^2+2\,de^2x+d^2e\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(2*(c^2*e^3*x^2 + 2*c^2*d*e^2*x + c^2*d^2*e)*integrate(1/2*x*e^(1/2*log
(c*x + 1) + 1/2*log(c*x - 1))/(c^2*e^3*x^4 + 2*c^2*d*e^2*x^3 - 2*d*e^2*x -
d^2*e + (c^2*d^2*e - e^3)*x^2 + (c^2*e^3*x^4 + 2*c^2*d*e^2*x^3 - 2*d*e^2*x
- d^2*e + (c^2*d^2*e - e^3)*x^2)*e^(log(c*x + 1) + log(c*x - 1))), x) - arc
tan(sqrt(c*x + 1)*sqrt(c*x - 1)))*b/(e^3*x^2 + 2*d*e^2*x + d^2*e) - 1/2*a/(
e^3*x^2 + 2*d*e^2*x + d^2*e)
```

Fricas [B] time = 7.15157, size = 2223, normalized size = 12.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^3,x, algorithm="fricas")
```

```
[Out] [-1/2*(a*c^4*d^6 - b*c^3*d^5*e - 2*a*c^2*d^4*e^2 + b*c*d^3*e^3 + a*d^2*e^4
- (b*c^3*d^3*e^3 - b*c*d*e^5)*x^2 - (2*b*c^2*d^4*e - b*d^2*e^3 + (2*b*c^2*d
^2*e^3 - b*e^5)*x^2 + 2*(2*b*c^2*d^3*e^2 - b*d*e^4)*x)*sqrt(c^2*d^2 - e^2)*
log((c^3*d^2*x + c*d*e - sqrt(c^2*d^2 - e^2)*(c^2*d*x + e) + (c^2*d^2 - sqr
t(c^2*d^2 - e^2)*c*d - e^2)*sqrt(c^2*x^2 - 1))/(e*x + d)) - 2*(b*c^3*d^4*e^
2 - b*c*d^2*e^4)*x + (b*c^4*d^6 - 2*b*c^2*d^4*e^2 + b*d^2*e^4)*arcsec(c*x)
```

```
- 2*(b*c^4*d^6 - 2*b*c^2*d^4*e^2 + b*d^2*e^4 + (b*c^4*d^4*e^2 - 2*b*c^2*d^2
*e^4 + b*e^6)*x^2 + 2*(b*c^4*d^5*e - 2*b*c^2*d^3*e^3 + b*d*e^5)*x)*arctan(-
c*x + sqrt(c^2*x^2 - 1)) - (b*c^2*d^4*e^2 - b*d^2*e^4 + (b*c^2*d^3*e^3 - b*
d*e^5)*x)*sqrt(c^2*x^2 - 1))/(c^4*d^8*e - 2*c^2*d^6*e^3 + d^4*e^5 + (c^4*d^
6*e^3 - 2*c^2*d^4*e^5 + d^2*e^7)*x^2 + 2*(c^4*d^7*e^2 - 2*c^2*d^5*e^4 + d^3
*e^6)*x), -1/2*(a*c^4*d^6 - b*c^3*d^5*e - 2*a*c^2*d^4*e^2 + b*c*d^3*e^3 + a
*d^2*e^4 - (b*c^3*d^3*e^3 - b*c*d*e^5)*x^2 - 2*(2*b*c^2*d^4*e - b*d^2*e^3 +
 (2*b*c^2*d^2*e^3 - b*e^5)*x^2 + 2*(2*b*c^2*d^3*e^2 - b*d*e^4)*x)*sqrt(-c^2
*d^2 + e^2)*arctan(-(sqrt(-c^2*d^2 + e^2)*sqrt(c^2*x^2 - 1)*e - sqrt(-c^2*d
^2 + e^2)*(c*e*x + c*d))/(c^2*d^2 - e^2)) - 2*(b*c^3*d^4*e^2 - b*c*d^2*e^4)
*x + (b*c^4*d^6 - 2*b*c^2*d^4*e^2 + b*d^2*e^4)*arcsec(c*x) - 2*(b*c^4*d^6 -
 2*b*c^2*d^4*e^2 + b*d^2*e^4 + (b*c^4*d^4*e^2 - 2*b*c^2*d^2*e^4 + b*e^6)*x^
2 + 2*(b*c^4*d^5*e - 2*b*c^2*d^3*e^3 + b*d*e^5)*x)*arctan(-c*x + sqrt(c^2*x
^2 - 1)) - (b*c^2*d^4*e^2 - b*d^2*e^4 + (b*c^2*d^3*e^3 - b*d*e^5)*x)*sqrt(c
^2*x^2 - 1))/(c^4*d^8*e - 2*c^2*d^6*e^3 + d^4*e^5 + (c^4*d^6*e^3 - 2*c^2*d^
4*e^5 + d^2*e^7)*x^2 + 2*(c^4*d^7*e^2 - 2*c^2*d^5*e^4 + d^3*e^6)*x)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a + b\operatorname{asec}(cx)}{(d + ex)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**3,x)
```

```
[Out] Integral((a + b*asec(c*x))/(d + e*x)**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}(cx) + a}{(ex + d)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d)^3, x)
```

3.63 $\int (d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)dx$

Optimal. Leaf size=372

$$\frac{4b\sqrt{1-c^2x^2}\left(2c^2d^2+e^2\right)\sqrt{\frac{c(d+ex)}{cd+e}}\text{EllipticF}\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right),\frac{2e}{cd+e}\right)}{15c^4x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}+\frac{4bd^3\sqrt{1-c^2x^2}\sqrt{}}{5cex}$$

```
[Out] (4*b*e*Sqrt[d + e*x]*(1 - c^2*x^2))/(15*c^3*Sqrt[1 - 1/(c^2*x^2)]*x) + (2*(
d + e*x)^(5/2)*(a + b*ArcSec[c*x]))/(5*e) + (28*b*d*Sqrt[d + e*x]*Sqrt[1 -
c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*c^2
*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) + (4*b*(2*c^2*d^2 +
 e^2)*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt
[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*c^4*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[
d + e*x]) + (4*b*d^3*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*Ellipt
icPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(5*c*e*Sqrt[1 - 1/
(c^2*x^2)]*x*Sqrt[d + e*x])
```

Rubi [A] time = 0.759352, antiderivative size = 372, normalized size of antiderivative = 1., number of steps used = 22, number of rules used = 13, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.722, Rules used = {5226, 1574, 958, 719, 419, 933, 168, 538, 537, 844, 424, 931, 1584}

$$\frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}+\frac{4b\sqrt{1-c^2x^2}\left(2c^2d^2+e^2\right)\sqrt{\frac{c(d+ex)}{cd+e}}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{15c^4x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{4bd^3\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi}{5cex\sqrt{1-\frac{1}{c^2}}}$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x)^(3/2)*(a + b*ArcSec[c*x]),x]
```


```
[Out] (4*b*e*Sqrt[d + e*x]*(1 - c^2*x^2))/(15*c^3*Sqrt[1 - 1/(c^2*x^2)]*x) + (2*(
d + e*x)^(5/2)*(a + b*ArcSec[c*x]))/(5*e) + (28*b*d*Sqrt[d + e*x]*Sqrt[1 -
c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*c^2
*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) + (4*b*(2*c^2*d^2 +
 e^2)*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt
[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*c^4*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[
d + e*x]) + (4*b*d^3*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*Ellipt
icPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(5*c*e*Sqrt[1 - 1/
(c^2*x^2)]*x*Sqrt[d + e*x])
```


Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 958

```
Int[((f_.) + (g_.)*(x_))^(n_)/(((d_.) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^
2]), x_Symbol] :> Int[ExpandIntegrand[1/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), (f
 + g*x)^(n + 1/2)/(d + e*x), x], x] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[
e*f - d*g, 0] && NeQ[c*d^2 + a*e^2, 0] && IntegerQ[n + 1/2]
```

Rule 719

```
Int[((d_) + (e_.)*(x_))^(m_)/Sqrt[(a_) + (c_.)*(x_)^2], x_Symbol] :> Dist[(
2*a*Rt[-(c/a), 2]*(d + e*x)^m*Sqrt[1 + (c*x^2)/a])/(c*Sqrt[a + c*x^2]*((c*(
d + e*x))/(c*d - a*e*Rt[-(c/a), 2]))^m), Subst[Int[(1 + (2*a*e*Rt[-(c/a), 2
]*x^2)/(c*d - a*e*Rt[-(c/a), 2]))^m/Sqrt[1 - x^2], x], x, Sqrt[(1 - Rt[-(c/
a), 2]*x)/2]], x] /; FreeQ[{a, c, d, e}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ
[m^2, 1/4]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
 a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
```

```
e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] && !IGtQ[m, 0]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 931

```
Int[((d_.) + (e_.)*(x_))^(m_)/(Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(
x_)^2]), x_Symbol] :> Simp[(2*e^2*(d + e*x)^(m - 2)*Sqrt[f + g*x]*Sqrt[a +
c*x^2])/(c*g*(2*m - 1)), x] - Dist[1/(c*g*(2*m - 1)), Int[((d + e*x)^(m - 3
)*Simp[a*e^2*(d*g + 2*e*f*(m - 2)) - c*d^3*g*(2*m - 1) + e*(e*(a*e*g*(2*m -
 3)) + c*d*(2*e*f - 3*d*g*(2*m - 1)))*x + 2*e^2*(c*e*f - 3*c*d*g)*(m - 1)*x
^2, x])/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), x], x] /; FreeQ[{a, c, d, e, f, g}
, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a*e^2, 0] && IntegerQ[2*m] && GeQ[
m, 2]
```

Rule 1584

```
Int[(u_.)*(x_)^(m_.)*((a_.)*(x_)^(p_.) + (b_.)*(x_)^(q_.))^(n_.), x_Symbol]
 :> Int[u*x^(m + n*p)*(a + b*x^(q - p))^n, x] /; FreeQ[{a, b, m, p, q}, x]
&& IntegerQ[n] && PosQ[q - p]
```

Rubi steps

$$\int (d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)dx = \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} - \frac{(2b)\int \frac{(d+ex)^{5/2}}{\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{5ce}$$

$$= \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{(d+ex)^{5/2}}{x\sqrt{-\frac{1}{c^2}+x^2}}dx}{5ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int\left(\frac{3d^2e}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}} + \frac{d^3}{x\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}} + \cdots\right.}{5ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} - \frac{\left(6bd^2\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}dx}{5c\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\left(2bd^3\sqrt{-\frac{1}{c^2}\cdots\right.}{5\cdots}$$

$$= \frac{4be\sqrt{d+ex}\left(1-c^2x^2\right)}{15c^3\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} - \frac{\left(6bd\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{\sqrt{d+ex}}{\sqrt{-\frac{1}{c^2}+x^2}}\cdots}{5c\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{4be\sqrt{d+ex}\left(1-c^2x^2\right)}{15c^3\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} + \frac{12bd^2\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}F\left(\cdots\right.}{5c^2\sqrt{1-\frac{1}{c^2x^2}}x\cdots}$$

$$= \frac{4be\sqrt{d+ex}\left(1-c^2x^2\right)}{15c^3\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} + \frac{12bd\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\cdots\right.}{5c^2\sqrt{1-\frac{1}{c^2x^2}}x\cdots}$$

$$= \frac{4be\sqrt{d+ex}\left(1-c^2x^2\right)}{15c^3\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} + \frac{12bd\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\cdots\right.}{5c^2\sqrt{1-\frac{1}{c^2x^2}}x\cdots}$$

$$= \frac{4be\sqrt{d+ex}\left(1-c^2x^2\right)}{15c^3\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{2(d+ex)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e} + \frac{28bd\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\cdots\right.}{15c^2\sqrt{1-\frac{1}{c^2x^2}}x\cdots}$$

Mathematica [C] time = 1.40631, size = 333, normalized size = 0.9

$$\frac{1}{15}\left(\frac{4ib\sqrt{\frac{e(cx+1)}{e-cd}}\sqrt{\frac{e-cex}{cd+e}}\left(\left(9c^2d^2-7cde+e^2\right)\text{EllipticF}\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right),\frac{cd+e}{cd-e}\right)-3c^2d^2\Pi\left(\frac{e}{cd}+1;i\sinh^{-1}\left(\sqrt{-\cdots}\right.\right.\right.}{c^3ex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{-\frac{c}{cd+e}}}\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] ((-4*b*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])/c + (6*a*(d + e*x)^(5/2))/e
 + (6*b*(d + e*x)^(5/2)*ArcSec[c*x])/e + ((4*I)*b*Sqrt[(e*(1 + c*x))/(-(c*d
) + e)]*Sqrt[(e - c*e*x)/(c*d + e)]*(-7*c*d*(c*d - e)*EllipticE[I*ArcSinh[S
qrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)] + (9*c^2*d^2 - 7*c
*d*e + e^2)*EllipticF[I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d +
 e)/(c*d - e)] - 3*c^2*d^2*EllipticPi[1 + e/(c*d), I*ArcSinh[Sqrt[-(c/(c*d
+ e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)]))/(c^3*e*Sqrt[-(c/(c*d + e))]*S
qrt[1 - 1/(c^2*x^2)]*x))/15
```

Maple [B] time = 0.371, size = 812, normalized size = 2.2

$$2\,\frac{1}{e}\left(1/5\,(ex+d)^{5/2}\,a+b\left(1/5\,(ex+d)^{5/2}\,\mathrm{arcsec}\,(cx)+2/15\,\frac{1}{c^3x}\left(-\sqrt{\frac{c}{dc-e}}\,(ex+d)^{5/2}\,c^2+3\,d^2\sqrt{-\frac{(ex+d)\,c-dc+e}{dc-e}}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] 2/e*(1/5*(e*x+d)^(5/2)*a+b*(1/5*(e*x+d)^(5/2)*arcsec(c*x)+2/15/c^3*(-(c/(c*
d-e))^(1/2)*(e*x+d)^(5/2)*c^2+3*d^2*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((
e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticPi((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1
/c*(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^(1/2))*c^2-9*d^2*(-((e*x+d)*c-d*
c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^(1
/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*c^2+7*(-((e*x+d)*c-d*c+e)/(c
*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticE((e*x+d)^(1/2)*(c/
(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*c^2*d^2+2*(c/(c*d-e))^(1/2)*(e*x+d)
^(3/2)*c^2*d-7*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+
e))^(1/2)*EllipticF((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2)
)*c*d*e+7*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(
1/2)*EllipticE((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*c*d
*e-(c/(c*d-e))^(1/2)*(e*x+d)^(1/2)*c^2*d^2-(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/
2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^(1/2)*(c/(c*d-e))^(
1/2),((c*d-e)/(c*d+e))^(1/2))*e^2+(c/(c*d-e))^(1/2)*(e*x+d)^(1/2)*e^2)/(c/(
c*d-e))^(1/2)/x/((c^2*(e*x+d)^2-2*d*c^2*(e*x+d)+c^2*d^2-e^2)/c^2/e^2/x^2)^(
1/2)))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int (ex+d)^{\frac{3}{2}}(b\operatorname{arcsec}(cx)+a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x + d)^(3/2)*(b*arcsec(c*x) + a), x)
```

3.64 $\int \sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=315

$$\frac{4bd\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\text{EllipticF}\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right),\frac{2e}{cd+e}\right)}{3c^2x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e}+\frac{4bd^2\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\right.}{3cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{}}$$

```
[Out] (2*(d + e*x)^(3/2)*(a + b*ArcSec[c*x]))/(3*e) + (4*b*Sqrt[d + e*x]*Sqrt[1 -
 c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c^2
*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) + (4*b*d*Sqrt[(c*(d
 + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c*x]/Sqrt[2
]], (2*e)/(c*d + e)])/(3*c^2*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) + (4*b*
d^2*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sq
rt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt
[d + e*x])
```

Rubi [A] time = 0.463358, antiderivative size = 315, normalized size of antiderivative = 1., number of steps used = 15, number of rules used = 11, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.611, Rules used = {5226, 1574, 958, 719, 419, 933, 168, 538, 537, 844, 424}

$$\frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e}+\frac{4bd^2\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{4bd\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}F\left(\sin^{-1}\left(\right.\right.}{3c^2x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[d + e*x]*(a + b*ArcSec[c*x]),x]
```


```
[Out] (2*(d + e*x)^(3/2)*(a + b*ArcSec[c*x]))/(3*e) + (4*b*Sqrt[d + e*x]*Sqrt[1 -
 c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c^2
*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) + (4*b*d*Sqrt[(c*(d
 + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c*x]/Sqrt[2
]], (2*e)/(c*d + e)])/(3*c^2*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) + (4*b*
d^2*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sq
rt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt
[d + e*x])
```


Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 958

```
Int[((f_.) + (g_.)*(x_))^(n_)/(((d_.) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^
2]), x_Symbol] :> Int[ExpandIntegrand[1/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), (f
 + g*x)^(n + 1/2)/(d + e*x), x], x] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[
e*f - d*g, 0] && NeQ[c*d^2 + a*e^2, 0] && IntegerQ[n + 1/2]
```

Rule 719

```
Int[((d_) + (e_.)*(x_))^(m_)/Sqrt[(a_) + (c_.)*(x_)^2], x_Symbol] :> Dist[(
2*a*Rt[-(c/a), 2]*(d + e*x)^m*Sqrt[1 + (c*x^2)/a])/(c*Sqrt[a + c*x^2]*((c*(
d + e*x))/(c*d - a*e*Rt[-(c/a), 2]))^m), Subst[Int[(1 + (2*a*e*Rt[-(c/a), 2
]*x^2)/(c*d - a*e*Rt[-(c/a), 2]))^m/Sqrt[1 - x^2], x], x, Sqrt[(1 - Rt[-(c/
a), 2]*x)/2]], x] /; FreeQ[{a, c, d, e}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ
[m^2, 1/4]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
 a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rubi steps

$$\int \sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)dx = \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{(2b)\int \frac{(d+ex)^{3/2}}{\sqrt{1-\frac{1}{c^2x^2}}x^2}\,dx}{3ce}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{(d+ex)^{3/2}}{x\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \left(\frac{2de}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}} + \frac{d^2}{x\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}} \cdots\right.}{3ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(4bd\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3c\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\left(2bd^2\sqrt{-\frac{1}{c^2}\cdots}\right.}{\cdots}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{\sqrt{d+ex}}{\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3c\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{\left(2bd\sqrt{-\frac{1}{c^2}+x^2}\right)\int \cdots}{3c\sqrt{1-\cdots}}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{8bd\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3c^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} + \frac{(4b\cdots}{\cdots}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{4b\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3c^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{\frac{c(d+ex)}{cd+e}}} + \frac{4bd\cdots}{\cdots}$$

$$= \frac{2(d+ex)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{4b\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3c^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{\frac{c(d+ex)}{cd+e}}} + \frac{4bd\cdots}{\cdots}$$

Mathematica [C] time = 6.01815, size = 277, normalized size = 0.88

$$\frac{2\left(\frac{2ib\sqrt{\frac{e(cx+1)}{e-cd}}\sqrt{\frac{e-cex}{cd+e}}\left((2cd-e)\text{EllipticF}\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right),\frac{cd+e}{cd-e}\right)+(e-cd)E\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd+e}{cd-e}\right)-cd\Pi\left(\frac{e}{cd}+1;i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd\cdots}{cd\cdots}\right.\cdots\right)}{c^2x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{-\frac{c}{cd+e}}}\cdots\right)}{3e}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[d + e*x]*(a + b*ArcSec[c*x]),x]
```

```
[Out] (2*(a*(d + e*x)^(3/2) + b*(d + e*x)^(3/2)*ArcSec[c*x] + ((2*I)*b*Sqrt[(e*(1
 + c*x))/(-(c*d) + e)]*Sqrt[(e - c*e*x)/(c*d + e)]*((-(c*d) + e)*EllipticE[
I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)] + (2*c*
d - e)*EllipticF[I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(
c*d - e)] - c*d*EllipticPi[1 + e/(c*d), I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt
[d + e*x]], (c*d + e)/(c*d - e)]))/(c^2*Sqrt[-(c/(c*d + e))]*Sqrt[1 - 1/(c^
2*x^2)]*x)))/(3*e)
```

Maple [A] time = 0.255, size = 388, normalized size = 1.2

$$2\frac{1}{e}\left(1/3\,(ex+d)^{3/2}a+b\left(1/3\,(ex+d)^{3/2}\operatorname{arcsec}(cx)-2/3\,\frac{1}{c^2x}\left(2\,d\mathrm{EllipticF}\left(\sqrt{ex+d}\sqrt{\frac{c}{dc-e}},\sqrt{\frac{dc-e}{dc+e}}\right)c-\mathrm{EllipticE}\left(\right.\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x+d)^(1/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] 2/e*(1/3*(e*x+d)^(3/2)*a+b*(1/3*(e*x+d)^(3/2)*arcsec(c*x)-2/3/c^2*(2*d*Elli
pticF((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*c-EllipticE(
(e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*c*d-d*EllipticPi((
e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^
(1/2))*c+EllipticF((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))
*e-EllipticE((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*e)*(-
((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)/(c/(c*d
-e))^(1/2)/x/((c^2*(e*x+d)^2-2*d*c^2*(e*x+d)+c^2*d^2-e^2)/c^2/e^2/x^2)^(1/2
)))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)**(1/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex+d}(b\operatorname{arcsec}(cx)+a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x + d)*(b*arcsec(c*x) + a), x)
```

3.65 $\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=212

$$\frac{4b\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\text{EllipticF}\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right),\frac{2e}{cd+e}\right)}{c^2x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{4bd\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\sin^{-1}\left(\cdots\right)\right)}{cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}$$

```
[Out] (2*Sqrt[d + e*x]*(a + b*ArcSec[c*x]))/e + (4*b*Sqrt[(c*(d + e*x))/(c*d + e)
]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e
)])/(c^2*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) + (4*b*d*Sqrt[(c*(d + e*x))
/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]],
(2*e)/(c*d + e)])/(c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])
```

Rubi [A] time = 0.303554, antiderivative size = 212, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 9, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.5, Rules used = {5226, 1574, 944, 719, 419, 933, 168, 538, 537}

$$\frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{4b\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{c^2x\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}+\frac{4bd\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\cdots\right)}{cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/Sqrt[d + e*x],x]
```

```
[Out] (2*Sqrt[d + e*x]*(a + b*ArcSec[c*x]))/e + (4*b*Sqrt[(c*(d + e*x))/(c*d + e)
]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e
)])/(c^2*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) + (4*b*d*Sqrt[(c*(d + e*x))
/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]],
(2*e)/(c*d + e)])/(c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 944

```
Int[Sqrt[(f_.) + (g_.)*(x_)]/(((d_.) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2
]), x_Symbol] :> Dist[g/e, Int[1/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), x], x] +
Dist[(e*f - d*g)/e, Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[a + c*x^2]), x], x]
 /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a*e^2,
 0]
```

Rule 719

```
Int[((d_) + (e_.)*(x_))^(m_)/Sqrt[(a_) + (c_.)*(x_)^2], x_Symbol] :> Dist[(
2*a*Rt[-(c/a), 2]*(d + e*x)^m*Sqrt[1 + (c*x^2)/a])/(c*Sqrt[a + c*x^2]*((c*(
d + e*x))/(c*d - a*e*Rt[-(c/a), 2]))^m), Subst[Int[(1 + (2*a*e*Rt[-(c/a), 2
]*x^2)/(c*d - a*e*Rt[-(c/a), 2]))^m/Sqrt[1 - x^2], x], x, Sqrt[(1 - Rt[-(c/
a), 2]*x)/2]], x] /; FreeQ[{a, c, d, e}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ
[m^2, 1/4]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
 a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex}}\,dx = \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} - \frac{(2b)\int \frac{\sqrt{d+ex}}{\sqrt{1-\frac{1}{c^2x^2}}\,x^2}\,dx}{ce}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{\sqrt{d+ex}}{x\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{ce\sqrt{1-\frac{1}{c^2x^2}}\,x}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{c\sqrt{1-\frac{1}{c^2x^2}}\,x} - \frac{\left(2bd\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{x\sqrt{d+ex}\sqrt{-\ldots}}}{ce\sqrt{1-\frac{1}{c^2x^2}}\,x}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} - \frac{\left(2bd\sqrt{1-c^2x^2}\right)\int \frac{1}{x\sqrt{1-cx}\sqrt{1+cx}\sqrt{d+ex}}\,dx}{ce\sqrt{1-\frac{1}{c^2x^2}}\,x} + \frac{\left(4b\sqrt{\frac{d+ex}{d+\frac{e}{c}}}\sqrt{1-c^2x^2}\right)\text{Sub}\ldots}{c^2\sqrt{1\ldots}}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} + \frac{4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{c^2\sqrt{1-\frac{1}{c^2x^2}}\,x\sqrt{d+ex}} + \frac{\left(4bd\sqrt{1-c^2x^2}\right)\text{Sub}\ldots}{\ldots}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} + \frac{4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{c^2\sqrt{1-\frac{1}{c^2x^2}}\,x\sqrt{d+ex}} + \frac{\left(4bd\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c\ldots}\right.}{\ldots}$$

$$= \frac{2\sqrt{d+ex}\left(a+b\sec^{-1}(cx)\right)}{e} + \frac{4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}F\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{c^2\sqrt{1-\frac{1}{c^2x^2}}\,x\sqrt{d+ex}} + \frac{4bd\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2\ldots}}{ce\sqrt{1-\ldots}}$$

Mathematica [C] time = 2.65761, size = 212, normalized size = 1.

$$\frac{2\left(\frac{2ib\sqrt{\frac{e(cx+1)}{e-cd}}\sqrt{\frac{e-cex}{cd+e}}\left(\text{EllipticF}\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right),\frac{cd+e}{cd-e}\right)-\Pi\left(\frac{e}{cd}+1;i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd+e}{cd-e}\right)\right)}{cx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{-\frac{c}{cd+e}}}+a\sqrt{d+ex}+b\sec^{-1}(cx)\sqrt{d+ex}\right)}{e}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/Sqrt[d + e*x],x]
```

```
[Out] (2*(a*Sqrt[d + e*x] + b*Sqrt[d + e*x]*ArcSec[c*x] + ((2*I)*b*Sqrt[(e*(1 + c
*x))/(-(c*d) + e)]*Sqrt[(e - c*e*x)/(c*d + e)]*(EllipticF[I*ArcSinh[Sqrt[-(
c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)] - EllipticPi[1 + e/(c*d)
, I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)]))/(c*
Sqrt[-(c/(c*d + e))]*Sqrt[1 - 1/(c^2*x^2)]*x)))/e
```

Maple [A] time = 0.257, size = 254, normalized size = 1.2

$$2\frac{1}{e}\left(a\sqrt{ex+d}+b\left(\sqrt{ex+d}\operatorname{arcsec}(cx)-2\frac{1}{cx}\sqrt{-\frac{(ex+d)c-dc+e}{dc-e}}\sqrt{-\frac{(ex+d)c-dc-e}{dc+e}}\left(\operatorname{EllipticF}\left(\sqrt{ex+d}\sqrt{\frac{c}{dc\cdots}}\right.\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^(1/2),x)
```

```
[Out] 2/e*(a*(e*x+d)^(1/2)+b*((e*x+d)^(1/2)*arcsec(c*x)-2/c*(-((e*x+d)*c-d*c+e)/(
c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*(EllipticF((e*x+d)^(1/2)*(
c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))-EllipticPi((e*x+d)^(1/2)*(c/(c*d-
e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^(1/2)))/((c^2*(e*x+d)
^2-2*d*c^2*(e*x+d)+c^2*d^2-e^2)/c^2/e^2/x^2)^(1/2)/x/(c/(c*d-e))^(1/2)))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{b\operatorname{arcsec}(cx)+a}{\sqrt{ex+d}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/sqrt(e*x + d), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\operatorname{asec}(cx)}{\sqrt{d+ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**(1/2),x)
```

```
[Out] Integral((a + b*asec(c*x))/sqrt(d + e*x), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\sqrt{ex + d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/sqrt(e*x + d), x)
```

3.66 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=119

$$-\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}-\frac{4b\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}$$

```
[Out] (-2*(a + b*ArcSec[c*x]))/(e*Sqrt[d + e*x]) - (4*b*Sqrt[(c*(d + e*x))/(c*d +
 e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(
c*d + e)])/(c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])
```

Rubi [A] time = 0.219172, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5226, 1574, 933, 168, 538, 537}

$$-\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}-\frac{4b\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{cex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x)^(3/2),x]
```


```
[Out] (-2*(a + b*ArcSec[c*x]))/(e*Sqrt[d + e*x]) - (4*b*Sqrt[(c*(d + e*x))/(c*d +
 e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(
c*d + e)])/(c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])
```


Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
```

```
a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rubi steps

$$
\begin{aligned}
\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{3/2}}\,dx &= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}+\frac{(2b)\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^2\sqrt{d+ex}}\,dx}{ce}\\
&= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}+\frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{x\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{ce\sqrt{1-\frac{1}{c^2x^2}}x}\\
&= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}+\frac{\left(2b\sqrt{1-c^2x^2}\right)\int \frac{1}{x\sqrt{1-cx}\sqrt{1+cx}\sqrt{d+ex}}\,dx}{ce\sqrt{1-\frac{1}{c^2x^2}}x}\\
&= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}-\frac{\left(4b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{1}{(1-x^2)\sqrt{2-x^2}\sqrt{d+\frac{e}{c}-\frac{ex^2}{c}}}\,dx,x,\sqrt{1-cx}\right)}{ce\sqrt{1-\frac{1}{c^2x^2}}x}\\
&= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}-\frac{\left(4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{1}{(1-x^2)\sqrt{2-x^2}\sqrt{1-\frac{ex^2}{c\left(d+\frac{e}{c}\right)}}}\,dx,x,\sqrt{1-cx}\right)}{ce\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}}\\
&= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{e\sqrt{d+ex}}-\frac{4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}\,\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{ce\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}}
\end{aligned}
$$

Mathematica [A] time = 0.267054, size = 124, normalized size = 1.04

$$
-\frac{2\left(\left(c^2x^2-1\right)\left(a+b\sec^{-1}(cx)\right)+2bcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\,\Pi\left(2;\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)\right)}{e\left(c^2x^2-1\right)\sqrt{d+ex}}
$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x)^(3/2),x]
```

```
[Out] (-2*((-1 + c^2*x^2)*(a + b*ArcSec[c*x]) + 2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqr
t[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2, ArcSin[Sqrt[1 -
c*x]/Sqrt[2]], (2*e)/(c*d + e)]))/(e*Sqrt[d + e*x]*(-1 + c^2*x^2))
```

Maple [A] time = 0.247, size = 217, normalized size = 1.8

$$2\frac{1}{e}\left(-\frac{a}{\sqrt{ex+d}}+b\left(-\frac{\operatorname{arcsec}(cx)}{\sqrt{ex+d}}-2\frac{1}{cdx}\sqrt{-\frac{(ex+d)c-dc+e}{dc-e}}\sqrt{-\frac{(ex+d)c-dc-e}{dc+e}}\mathrm{EllipticPi}\left(\sqrt{ex+d}\sqrt{\frac{c}{dc-e}},\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^(3/2),x)
```

```
[Out] 2/e*(-1/(e*x+d)^(1/2)*a+b*(-1/(e*x+d)^(1/2)*arcsec(c*x)-2/c/((c^2*(e*x+d)^2
-2*d*c^2*(e*x+d)+c^2*d^2-e^2)/c^2/e^2/x^2)^(1/2)/x/d/(c/(c*d-e))^(1/2)*(-((
e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticP
i((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e
))^(1/2))))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(3/2),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+b\operatorname{asec}(cx)}{(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**(3/2),x)
```

```
[Out] Integral((a + b*asec(c*x))/(d + e*x)**(3/2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{(ex + d)^{\frac{3}{2}}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d)^(3/2), x)
```

3.67 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=298

$$-\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}}-\frac{4be\left(1-c^2x^2\right)}{3cdx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{d+ex}}+\frac{4b\sqrt{1-c^2x^2}\sqrt{d+ex}E\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3dx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{\frac{c(d+ex)}{cd+e}}}-4b\sqrt{1-c^2}$$

```
[Out] (-4*b*e*(1 - c^2*x^2))/(3*c*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[
d + e*x]) - (2*(a + b*ArcSec[c*x]))/(3*e*(d + e*x)^(3/2)) + (4*b*Sqrt[d + e
*x]*Sqrt[1 - c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d +
 e)])/(3*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d
+ e)]) - (4*b*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2,
 ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c*d*e*Sqrt[1 - 1/(c^2*
x^2)]*x*Sqrt[d + e*x])
```

Rubi [A] time = 0.405632, antiderivative size = 298, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 11, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.611, Rules used = {5226, 1574, 958, 745, 21, 719, 424, 933, 168, 538, 537}

$$-\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}}-\frac{4be\left(1-c^2x^2\right)}{3cdx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{d+ex}}+\frac{4b\sqrt{1-c^2x^2}\sqrt{d+ex}E\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right)|\frac{2e}{cd+e}\right)}{3dx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{\frac{c(d+ex)}{cd+e}}}-4b\sqrt{1-c^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x)^(5/2),x]
```

```
[Out] (-4*b*e*(1 - c^2*x^2))/(3*c*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[
d + e*x]) - (2*(a + b*ArcSec[c*x]))/(3*e*(d + e*x)^(3/2)) + (4*b*Sqrt[d + e
*x]*Sqrt[1 - c^2*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d +
 e)])/(3*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d
+ e)]) - (4*b*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[2,
 ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(3*c*d*e*Sqrt[1 - 1/(c^2*
x^2)]*x*Sqrt[d + e*x])
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 958

```
Int[((f_.) + (g_.)*(x_))^(n_)/(((d_.) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^
2]), x_Symbol] :> Int[ExpandIntegrand[1/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), (f
```

```
 + g*x)^(n + 1/2)/(d + e*x), x], x] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[
e*f - d*g, 0] && NeQ[c*d^2 + a*e^2, 0] && IntegerQ[n + 1/2]
```

Rule 745

```
Int[((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :> Simp[
(e*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*d^2 + a*e^2)), x] + D
ist[c/((m + 1)*(c*d^2 + a*e^2)), Int[(d + e*x)^(m + 1)*Simp[d*(m + 1) - e*(
m + 2*p + 3)*x, x]*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d, e, m, p}, x] &&
 NeQ[c*d^2 + a*e^2, 0] && NeQ[m, -1] && ((LtQ[m, -1] && IntQuadraticQ[a, 0,
 c, d, e, m, p, x]) || (SumSimplerQ[m, 1] && IntegerQ[p]) || ILtQ[Simplify[
m + 2*p + 3], 0])
```

Rule 21

```
Int[(u_.)*((a_) + (b_.)*(v_))^(m_.)*((c_) + (d_.)*(v_))^(n_.), x_Symbol] :>
 Dist[(b/d)^m, Int[u*(c + d*v)^(m + n), x], x] /; FreeQ[{a, b, c, d, n}, x]
 && EqQ[b*c - a*d, 0] && IntegerQ[m] && ( !IntegerQ[n] || SimplerQ[c + d*x,
 a + b*x])
```

Rule 719

```
Int[((d_) + (e_.)*(x_))^(m_)/Sqrt[(a_) + (c_.)*(x_)^2], x_Symbol] :> Dist[(
2*a*Rt[-(c/a), 2]*(d + e*x)^m*Sqrt[1 + (c*x^2)/a])/(c*Sqrt[a + c*x^2]*((c*(
d + e*x))/(c*d - a*e*Rt[-(c/a), 2]))^m), Subst[Int[(1 + (2*a*e*Rt[-(c/a), 2
]*x^2)/(c*d - a*e*Rt[-(c/a), 2]))^m/Sqrt[1 - x^2], x], x, Sqrt[(1 - Rt[-(c/
a), 2]*x)/2]], x] /; FreeQ[{a, c, d, e}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ
[m^2, 1/4]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
 a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{5/2}}\,dx = -\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} + \frac{(2b)\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^2(d+ex)^{3/2}}\,dx}{3ce}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} + \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{x(d+ex)^{3/2}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} + \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \left(-\frac{e}{d(d+ex)^{3/2}\sqrt{-\frac{1}{c^2}+x^2}} + \frac{1}{dx\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}\right)dx}{3ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{(d+ex)^{3/2}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3cd\sqrt{1-\frac{1}{c^2x^2}}x} + \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{x\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+}}}{3cde\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{3cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} + \frac{\left(4b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{-\frac{d}{2}-\frac{ex}{2}}{\sqrt{d+ex}\sqrt{-\frac{1}{c^2}+x^2}}}{3cd\left(d^2-\frac{e^2}{c^2}\right)\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{3cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{\sqrt{d+ex}}{\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{3cd\left(d^2-\frac{e^2}{c^2}\right)\sqrt{1-\frac{1}{c^2x^2}}x} -$$

$$= -\frac{4be\left(1-c^2x^2\right)}{3cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} - \frac{\left(4b\sqrt{\frac{c(d+ex)}{cd+e}}\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int\right.}{3cde\sqrt{1-}}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{3cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{2\left(a+b\sec^{-1}(cx)\right)}{3e(d+ex)^{3/2}} + \frac{4b\sqrt{d+ex}\sqrt{1-c^2x^2}E\left(\sin^{-1}\left(\right.\right.}{3d\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{}}$$

Mathematica [C] time = 6.17543, size = 326, normalized size = 1.09

$$\frac{2\left(-\frac{2ib\sqrt{\frac{e(cx+1)}{e-cd}}\sqrt{\frac{e-cex}{cd+e}}\left(cd\,\text{EllipticF}\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right),\frac{cd+e}{cd-e}\right)-cdE\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd+e}{cd-e}\right)+(cd+e)\Pi\left(\frac{e}{cd}+1;i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd+e}{cd-e}\right)\right.}{d^2x\sqrt{1-\frac{1}{c^2x^2}}\left(-\frac{c}{cd+e}\right)^{3/2}(cd+e)^2}\right.}{3e}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x)^(5/2),x]
```

```
[Out] (2*(-(a/(d + e*x)^(3/2)) + (2*b*c*e^2*Sqrt[1 - 1/(c^2*x^2)]*x)/((c^2*d^3 -
d*e^2)*Sqrt[d + e*x]) - (b*ArcSec[c*x])/(d + e*x)^(3/2) - ((2*I)*b*Sqrt[(e*
(1 + c*x))/(-(c*d) + e)]*Sqrt[(e - c*e*x)/(c*d + e)]*(-(c*d*EllipticE[I*Arc
Sinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)]) + c*d*Ellip
ticF[I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)] +
(c*d + e)*EllipticPi[1 + e/(c*d), I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e
*x]], (c*d + e)/(c*d - e)]))/(d^2*(-(c/(c*d + e)))^(3/2)*(c*d + e)^2*Sqrt[1
 - 1/(c^2*x^2)]*x)))/(3*e)
```

Maple [B] time = 0.267, size = 886, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^(5/2),x)
```

```
[Out] 2/e*(-1/3*a/(e*x+d)^(3/2)+b*(-1/3/(e*x+d)^(3/2)*arcsec(c*x)+2/3/c*((c/(c*d-
e))^(1/2)*(e*x+d)^2*c^2*d-(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d
*c-e)/(c*d+e))^(1/2)*EllipticPi((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)
/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^(1/2))*(e*x+d)^(1/2)*c^2*d^2-(-((e*x+d)*c-
d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^
(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(1/2)*c^2*d^2+(-((
e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticE
((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(1/2)*c^2
*d^2-2*(c/(c*d-e))^(1/2)*(e*x+d)*c^2*d^2-(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)
*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^(1/2)*(c/(c*d-e))^(1/
2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(1/2)*c*d*e+(-((e*x+d)*c-d*c+e)/(c*d-e)
)^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticE((e*x+d)^(1/2)*(c/(c*d-
e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(1/2)*c*d*e+(c/(c*d-e))^(1/2)*c^
2*d^3+(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)
*EllipticPi((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1/2)
/(c/(c*d-e))^(1/2))*(e*x+d)^(1/2)*e^2-(c/(c*d-e))^(1/2)*d*e^2)/(c*d-e)/(e*x
+d)^(1/2)/(c*d+e)/(c/(c*d-e))^(1/2)/d^2/x/((c^2*(e*x+d)^2-2*d*c^2*(e*x+d)+c
^2*d^2-e^2)/c^2/e^2/x^2)^(1/2)))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{\sqrt{ex+d}(b\operatorname{arcsec}(cx)+a)}{e^3x^3+3\,de^2x^2+3\,d^2ex+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x + d)*(b*arcsec(c*x) + a)/(e^3*x^3 + 3*d*e^2*x^2 + 3*d^2*e
*x + d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx) + a}{(ex + d)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d)^(5/2), x)
```

3.68 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=540

$$-\frac{4b\sqrt{1-c^2x^2}\sqrt{\frac{c(d+ex)}{cd+e}}\text{EllipticF}\left(\sin^{-1}\left(\frac{\sqrt{1-cx}}{\sqrt{2}}\right),\frac{2e}{cd+e}\right)}{15dx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{d+ex}}-\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}}-\frac{4be\left(1-c^2x^2\right)}{5cd^2x\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{d+ex}}-\frac{}{15x}$$

```
[Out] (-4*b*e*(1 - c^2*x^2))/(15*c*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*(d +
 e*x)^(3/2)) - (16*b*c*e*(1 - c^2*x^2))/(15*(c^2*d^2 - e^2)^2*Sqrt[1 - 1/(c
^2*x^2)]*x*Sqrt[d + e*x]) - (4*b*e*(1 - c^2*x^2))/(5*c*d^2*(c^2*d^2 - e^2)*
Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) - (2*(a + b*ArcSec[c*x]))/(5*e*(d +
e*x)^(5/2)) + (4*b*(7*c^2*d^2 - 3*e^2)*Sqrt[d + e*x]*Sqrt[1 - c^2*x^2]*Elli
pticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*(c^2*d^3 - d*e^2
)^2*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) - (4*b*Sqrt[(c*(
d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c*x]/Sqrt[
2]], (2*e)/(c*d + e)])/(15*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d
 + e*x]) - (4*b*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticPi[
2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(5*c*d^2*e*Sqrt[1 - 1/(
c^2*x^2)]*x*Sqrt[d + e*x])
```

Rubi [A] time = 0.710878, antiderivative size = 637, normalized size of antiderivative = 1.18, number of steps used = 19, number of rules used = 14, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.778, Rules used = {5226, 1574, 958, 745, 835, 844, 719, 424, 419, 21, 933, 168, 538, 537}

$$-\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}}-\frac{16bce\left(1-c^2x^2\right)}{15x\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)^2\sqrt{d+ex}}-\frac{4be\left(1-c^2x^2\right)}{5cd^2x\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2-e^2\right)\sqrt{d+ex}}-\frac{4be\left(1-c\right.}{15cdx\sqrt{1-\frac{1}{c^2x^2}}\left(c^2d^2\right.}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x)^(7/2),x]
```

```
[Out] (-4*b*e*(1 - c^2*x^2))/(15*c*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*(d +
 e*x)^(3/2)) - (16*b*c*e*(1 - c^2*x^2))/(15*(c^2*d^2 - e^2)^2*Sqrt[1 - 1/(c
^2*x^2)]*x*Sqrt[d + e*x]) - (4*b*e*(1 - c^2*x^2))/(5*c*d^2*(c^2*d^2 - e^2)*
Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x]) - (2*(a + b*ArcSec[c*x]))/(5*e*(d +
e*x)^(5/2)) + (16*b*c^2*Sqrt[d + e*x]*Sqrt[1 - c^2*x^2]*EllipticE[ArcSin[Sq
rt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*(c^2*d^2 - e^2)^2*Sqrt[1 - 1/(c
^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) + (4*b*Sqrt[d + e*x]*Sqrt[1 - c^2
*x^2]*EllipticE[ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(5*d^2*(c^
2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[(c*(d + e*x))/(c*d + e)]) - (4*b*
Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*EllipticF[ArcSin[Sqrt[1 - c
*x]/Sqrt[2]], (2*e)/(c*d + e)])/(15*d*(c^2*d^2 - e^2)*Sqrt[1 - 1/(c^2*x^2)]
*x*Sqrt[d + e*x]) - (4*b*Sqrt[(c*(d + e*x))/(c*d + e)]*Sqrt[1 - c^2*x^2]*El
lipticPi[2, ArcSin[Sqrt[1 - c*x]/Sqrt[2]], (2*e)/(c*d + e)])/(5*c*d^2*e*Sqr
t[1 - 1/(c^2*x^2)]*x*Sqrt[d + e*x])
```

Rule 5226

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_))^(m_.), x_Symbol
] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcSec[c*x]))/(e*(m + 1)), x] - Dist[b/
(c*e*(m + 1)), Int[(d + e*x)^(m + 1)/(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x] /;
 FreeQ[{a, b, c, d, e, m}, x] && NeQ[m, -1]
```

Rule 1574

```
Int[(x_)^(m_.)*((a_.) + (c_.)*(x_)^(mn2_.))^(p_)*((d_) + (e_.)*(x_)^(n_.))^
(q_.), x_Symbol] :> Dist[(x^(2*n*FracPart[p])*(a + c/x^(2*n))^FracPart[p])/
(c + a*x^(2*n))^FracPart[p], Int[x^(m - 2*n*p)*(d + e*x^n)^q*(c + a*x^(2*n)
)^p, x], x] /; FreeQ[{a, c, d, e, m, n, p, q}, x] && EqQ[mn2, -2*n] &&  !In
tegerQ[p] &&  !IntegerQ[q] && PosQ[n]
```

Rule 958

```
Int[((f_.) + (g_.)*(x_))^(n_)/(((d_.) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^
2]), x_Symbol] :> Int[ExpandIntegrand[1/(Sqrt[f + g*x]*Sqrt[a + c*x^2]), (f
 + g*x)^(n + 1/2)/(d + e*x), x], x] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[
e*f - d*g, 0] && NeQ[c*d^2 + a*e^2, 0] && IntegerQ[n + 1/2]
```

Rule 745

```
Int[((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :> Simp[
(e*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*d^2 + a*e^2)), x] + D
ist[c/((m + 1)*(c*d^2 + a*e^2)), Int[(d + e*x)^(m + 1)*Simp[d*(m + 1) - e*(
m + 2*p + 3)*x, x]*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d, e, m, p}, x] &&
 NeQ[c*d^2 + a*e^2, 0] && NeQ[m, -1] && ((LtQ[m, -1] && IntQuadraticQ[a, 0,
 c, d, e, m, p, x]) || (SumSimplerQ[m, 1] && IntegerQ[p]) || ILtQ[Simplify[
m + 2*p + 3], 0])
```

Rule 835

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Simp[((e*f - d*g)*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/
((m + 1)*(c*d^2 + a*e^2)), x] + Dist[1/((m + 1)*(c*d^2 + a*e^2)), Int[(d +
e*x)^(m + 1)*(a + c*x^2)^p*Simp[(c*d*f + a*e*g)*(m + 1) - c*(e*f - d*g)*(m
+ 2*p + 3)*x, x], x], x] /; FreeQ[{a, c, d, e, f, g, p}, x] && NeQ[c*d^2 +
a*e^2, 0] && LtQ[m, -1] && (IntegerQ[m] || IntegerQ[p] || IntegersQ[2*m, 2*
p])
```

Rule 844

```
Int[((d_.) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p
_.), x_Symbol] :> Dist[g/e, Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] + D
ist[(e*f - d*g)/e, Int[(d + e*x)^m*(a + c*x^2)^p, x], x] /; FreeQ[{a, c, d,
 e, f, g, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] &&  !IGtQ[m, 0]
```

Rule 719

```
Int[((d_) + (e_.)*(x_))^(m_)/Sqrt[(a_) + (c_.)*(x_)^2], x_Symbol] :> Dist[(
2*a*Rt[-(c/a), 2]*(d + e*x)^m*Sqrt[1 + (c*x^2)/a])/(c*Sqrt[a + c*x^2]*((c*(
d + e*x))/(c*d - a*e*Rt[-(c/a), 2]))^m), Subst[Int[(1 + (2*a*e*Rt[-(c/a), 2
]*x^2)/(c*d - a*e*Rt[-(c/a), 2]))^m/Sqrt[1 - x^2], x], x, Sqrt[(1 - Rt[-(c/
a), 2]*x)/2]], x] /; FreeQ[{a, c, d, e}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ
[m^2, 1/4]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 21

```
Int[(u_.)*((a_) + (b_.)*(v_))^(m_.)*((c_) + (d_.)*(v_))^(n_.), x_Symbol] :>
 Dist[(b/d)^m, Int[u*(c + d*v)^(m + n), x], x] /; FreeQ[{a, b, c, d, n}, x]
 && EqQ[b*c - a*d, 0] && IntegerQ[m] && ( !IntegerQ[n] || SimplerQ[c + d*x,
 a + b*x])
```

Rule 933

```
Int[1/(((d_.) + (e_.)*(x_))*Sqrt[(f_.) + (g_.)*(x_)]*Sqrt[(a_) + (c_.)*(x_)
^2]), x_Symbol] :> With[{q = Rt[-(c/a), 2]}, Dist[Sqrt[1 + (c*x^2)/a]/Sqrt[
a + c*x^2], Int[1/((d + e*x)*Sqrt[f + g*x]*Sqrt[1 - q*x]*Sqrt[1 + q*x]), x]
, x]] /; FreeQ[{a, c, d, e, f, g}, x] && NeQ[e*f - d*g, 0] && NeQ[c*d^2 + a
*e^2, 0] &&  !GtQ[a, 0]
```

Rule 168

```
Int[1/(((a_.) + (b_.)*(x_))*Sqrt[(c_.) + (d_.)*(x_)]*Sqrt[(e_.) + (f_.)*(x_
)]*Sqrt[(g_.) + (h_.)*(x_)]), x_Symbol] :> Dist[-2, Subst[Int[1/(Simp[b*c -
 a*d - b*x^2, x]*Sqrt[Simp[(d*e - c*f)/d + (f*x^2)/d, x]]*Sqrt[Simp[(d*g -
c*h)/d + (h*x^2)/d, x]]), x], x, Sqrt[c + d*x]], x] /; FreeQ[{a, b, c, d, e
, f, g, h}, x] && GtQ[(d*e - c*f)/d, 0]
```

Rule 538

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Dist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/((a +
b*x^2)*Sqrt[1 + (d*x^2)/c]*Sqrt[e + f*x^2]), x], x] /; FreeQ[{a, b, c, d, e
, f}, x] &&  !GtQ[c, 0]
```

Rule 537

```
Int[1/(((a_) + (b_.)*(x_)^2)*Sqrt[(c_) + (d_.)*(x_)^2]*Sqrt[(e_) + (f_.)*(x
_)^2]), x_Symbol] :> Simp[(1*EllipticPi[(b*c)/(a*d), ArcSin[Rt[-(d/c), 2]*x
], (c*f)/(d*e)])/(a*Sqrt[c]*Sqrt[e]*Rt[-(d/c), 2]), x] /; FreeQ[{a, b, c, d
, e, f}, x] &&  !GtQ[d/c, 0] && GtQ[c, 0] && GtQ[e, 0] &&  !( !GtQ[f/e, 0]
&& SimplerSqrtQ[-(f/e), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{(d+ex)^{7/2}}\,dx = -\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}} + \frac{(2b)\int \frac{1}{\sqrt{1-\frac{1}{c^2x^2}}x^2(d+ex)^{5/2}}\,dx}{5ce}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}} + \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{x(d+ex)^{5/2}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{5ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}} + \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \left(-\frac{e}{d(d+ex)^{5/2}\sqrt{-\frac{1}{c^2}+x^2}} - \frac{e}{d^2(d+ex)^{3/2}\sqrt{-\frac{1}{c^2}+x^2}} + \frac{1}{d^2x\sqrt{d+ex}\sqrt{-\cdots}}\right.}{5ce\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{2\left(a+b\sec^{-1}(cx)\right)}{5e(d+ex)^{5/2}} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{(d+ex)^{3/2}\sqrt{-\frac{1}{c^2}+x^2}}\,dx}{5cd^2\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\left(2b\sqrt{-\frac{1}{c^2}+x^2}\right)\int \frac{1}{(d+ex)^{5/2}\sqrt{-\frac{1}{c^2}\cdots}}}{5cd\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{15cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x(d+ex)^{3/2}} - \frac{4be\left(1-c^2x^2\right)}{5cd^2\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{2\left(a+b\sec^{-\cdots}\right.}{5e(d+ex\cdots}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{15cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x(d+ex)^{3/2}} - \frac{16bce\left(1-c^2x^2\right)}{15\left(c^2d^2-e^2\right)^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{4b\cdots}{5cd^2\left(c^2d^2-e\cdots\right.}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{15cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x(d+ex)^{3/2}} - \frac{16bce\left(1-c^2x^2\right)}{15\left(c^2d^2-e^2\right)^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{4b\cdots}{5cd^2\left(c^2d^2-e\cdots\right.}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{15cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x(d+ex)^{3/2}} - \frac{16bce\left(1-c^2x^2\right)}{15\left(c^2d^2-e^2\right)^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{4b\cdots}{5cd^2\left(c^2d^2-e\cdots\right.}$$

$$= -\frac{4be\left(1-c^2x^2\right)}{15cd\left(c^2d^2-e^2\right)\sqrt{1-\frac{1}{c^2x^2}}x(d+ex)^{3/2}} - \frac{16bce\left(1-c^2x^2\right)}{15\left(c^2d^2-e^2\right)^2\sqrt{1-\frac{1}{c^2x^2}}x\sqrt{d+ex}} - \frac{4b\cdots}{5cd^2\left(c^2d^2-e\cdots\right.}$$

Mathematica [C] time = 8.30249, size = 407, normalized size = 0.75

$$\frac{2\left(\frac{2ib\sqrt{\frac{e(cx+1)}{e-cd}}\sqrt{\frac{e-cex}{cd+e}}\left(-cd\left(6c^2d^2-cde-3e^2\right)\text{EllipticF}\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right),\frac{cd+e}{cd-e}\right)+cd\left(7c^2d^2-3e^2\right)E\left(i\sinh^{-1}\left(\sqrt{-\frac{c}{cd+e}}\sqrt{d+ex}\right)|\frac{cd+e}{cd-e}\right)-3(cd-e)(cd+e)^2\Pi\left(\cdots\right.\right.}{d^3x\sqrt{1-\frac{1}{c^2x^2}}(cd-e)\left(-\frac{c}{cd+e}\right)^{3/2}(cd+e)^3}\cdots\right)}{15e}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x)^(7/2),x]
```

```
[Out] (2*((-3*a)/(d + e*x)^(5/2) + (2*b*c*e^2*Sqrt[1 - 1/(c^2*x^2)]*x*(-(e^2*(4*d
 + 3*e*x)) + c^2*d^2*(8*d + 7*e*x)))/((c^2*d^3 - d*e^2)^2*(d + e*x)^(3/2))
- (3*b*ArcSec[c*x])/(d + e*x)^(5/2) + ((2*I)*b*Sqrt[(e*(1 + c*x))/(-(c*d) +
 e)]*Sqrt[(e - c*e*x)/(c*d + e)]*(c*d*(7*c^2*d^2 - 3*e^2)*EllipticE[I*ArcSi
nh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)] - c*d*(6*c^2*d
^2 - c*d*e - 3*e^2)*EllipticF[I*ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]]
, (c*d + e)/(c*d - e)] - 3*(c*d - e)*(c*d + e)^2*EllipticPi[1 + e/(c*d), I*
ArcSinh[Sqrt[-(c/(c*d + e))]*Sqrt[d + e*x]], (c*d + e)/(c*d - e)]))/(d^3*(c
*d - e)*(-(c/(c*d + e)))^(3/2)*(c*d + e)^3*Sqrt[1 - 1/(c^2*x^2)]*x)))/(15*e
)
```

Maple [B] time = 0.276, size = 1640, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x+d)^(7/2),x)
```

```
[Out] 2/e*(-1/5*a/(e*x+d)^(5/2)+b*(-1/5/(e*x+d)^(5/2)*arcsec(c*x)+2/15/c*(7*(c/(c
*d-e))^(1/2)*(e*x+d)^3*c^4*d^3-3*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x
+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticPi((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*
(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^(1/2))*(e*x+d)^(3/2)*c^4*d^4-6*(-((
e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF
((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*c^4
*d^4+7*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2
)*EllipticE((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d
)^(3/2)*c^4*d^4-13*(c/(c*d-e))^(1/2)*(e*x+d)^2*c^4*d^4-7*(-((e*x+d)*c-d*c+e
)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^(1/2)
*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*c^3*d^3*e+7*(-((e
*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticE(
(e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*c^3*
d^3*e-3*(c/(c*d-e))^(1/2)*(e*x+d)^3*c^2*d*e^2+5*(c/(c*d-e))^(1/2)*(e*x+d)*c
^4*d^5+6*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1
/2)*EllipticPi((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1
/2)/(c/(c*d-e))^(1/2))*(e*x+d)^(3/2)*c^2*d^2*e^2+2*(-((e*x+d)*c-d*c+e)/(c*d
-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticF((e*x+d)^(1/2)*(c/(c
*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*c^2*d^2*e^2-3*(-((e*x+d
)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticE((e*x
+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*c^2*d^2*
e^2+5*(c/(c*d-e))^(1/2)*(e*x+d)^2*c^2*d^2*e^2+(c/(c*d-e))^(1/2)*c^4*d^6+3*(
-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*Ellipt
icF((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*x+d)^(3/2)*
c*d*e^3-3*(-((e*x+d)*c-d*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(
1/2)*EllipticE((e*x+d)^(1/2)*(c/(c*d-e))^(1/2),((c*d-e)/(c*d+e))^(1/2))*(e*
x+d)^(3/2)*c*d*e^3-8*(c/(c*d-e))^(1/2)*(e*x+d)*c^2*d^3*e^2-3*(-((e*x+d)*c-d
*c+e)/(c*d-e))^(1/2)*(-((e*x+d)*c-d*c-e)/(c*d+e))^(1/2)*EllipticPi((e*x+d)^
(1/2)*(c/(c*d-e))^(1/2),1/c*(c*d-e)/d,(c/(c*d+e))^(1/2)/(c/(c*d-e))^(1/2))*
(e*x+d)^(3/2)*e^4-2*(c/(c*d-e))^(1/2)*c^2*d^4*e^2+3*(c/(c*d-e))^(1/2)*(e*x+
d)*d*e^4+(c/(c*d-e))^(1/2)*d^2*e^4)/(c*d-e)/(e*x+d)^(3/2)/(c*d+e)/(c^2*d^2-
e^2)/(c/(c*d-e))^(1/2)/d^3/x/((c^2*(e*x+d)^2-2*d*c^2*(e*x+d)+c^2*d^2-e^2)/c
^2/e^2/x^2)^(1/2)))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(7/2),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{(ex + d)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x+d)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x + d)^(7/2), x)
```

3.69 $\int x^4 (d + ex^2) (a + b\sec^{-1}(cx))\, dx$

Optimal. Leaf size=206

$$\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}ex^7\left(a+b\sec^{-1}(cx)\right)-\frac{bx^4\sqrt{c^2x^2-1}\,(42c^2d+25e)}{840c^3\sqrt{c^2x^2}}-\frac{bx^2\sqrt{c^2x^2-1}\,(42c^2d+25e)}{560c^5\sqrt{c^2x^2}}-\frac{bx\,(42c^2\cdots}{\cdots}$$

```
[Out] -(b*(42*c^2*d + 25*e)*x^2*Sqrt[-1 + c^2*x^2])/(560*c^5*Sqrt[c^2*x^2]) - (b*
(42*c^2*d + 25*e)*x^4*Sqrt[-1 + c^2*x^2])/(840*c^3*Sqrt[c^2*x^2]) - (b*e*x^
6*Sqrt[-1 + c^2*x^2])/(42*c*Sqrt[c^2*x^2]) + (d*x^5*(a + b*ArcSec[c*x]))/5
+ (e*x^7*(a + b*ArcSec[c*x]))/7 - (b*(42*c^2*d + 25*e)*x*ArcTanh[(c*x)/Sqrt
[-1 + c^2*x^2]])/(560*c^6*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.12817, antiderivative size = 206, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.368, Rules used = {14, 5238, 12, 459, 321, 217, 206}

$$\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}ex^7\left(a+b\sec^{-1}(cx)\right)-\frac{bx^4\sqrt{c^2x^2-1}\,(42c^2d+25e)}{840c^3\sqrt{c^2x^2}}-\frac{bx^2\sqrt{c^2x^2-1}\,(42c^2d+25e)}{560c^5\sqrt{c^2x^2}}-\frac{bx\,(42c^2\cdots}{\cdots}$$

Antiderivative was successfully verified.

```
[In] Int[x^4*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```


```
[Out] -(b*(42*c^2*d + 25*e)*x^2*Sqrt[-1 + c^2*x^2])/(560*c^5*Sqrt[c^2*x^2]) - (b*
(42*c^2*d + 25*e)*x^4*Sqrt[-1 + c^2*x^2])/(840*c^3*Sqrt[c^2*x^2]) - (b*e*x^
6*Sqrt[-1 + c^2*x^2])/(42*c*Sqrt[c^2*x^2]) + (d*x^5*(a + b*ArcSec[c*x]))/5
+ (e*x^7*(a + b*ArcSec[c*x]))/7 - (b*(42*c^2*d + 25*e)*x*ArcTanh[(c*x)/Sqrt
[-1 + c^2*x^2]])/(560*c^6*Sqrt[c^2*x^2])
```


Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
```

```
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^4\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}ex^7\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^4\left(7d+5ex^2\right)}{35\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$=\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}ex^7\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^4\left(7d+5ex^2\right)}{\sqrt{-1+c^2x^2}}dx}{35\sqrt{c^2x^2}}$$

$$=-\frac{bex^6\sqrt{-1+c^2x^2}}{42c\sqrt{c^2x^2}}+\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}ex^7\left(a+b\sec^{-1}(cx)\right)+\frac{\left(bc\left(-4\right.\right.}{}$$

$$=-\frac{b\left(42c^2d+25e\right)x^4\sqrt{-1+c^2x^2}}{840c^3\sqrt{c^2x^2}}-\frac{bex^6\sqrt{-1+c^2x^2}}{42c\sqrt{c^2x^2}}+\frac{1}{5}dx^5\left(a+b\sec^{-1}(cx)\right)+$$

$$=-\frac{b\left(42c^2d+25e\right)x^2\sqrt{-1+c^2x^2}}{560c^5\sqrt{c^2x^2}}-\frac{b\left(42c^2d+25e\right)x^4\sqrt{-1+c^2x^2}}{840c^3\sqrt{c^2x^2}}-\frac{bex^6\sqrt{-1+}}{42c\sqrt{c^2x}}$$

$$=-\frac{b\left(42c^2d+25e\right)x^2\sqrt{-1+c^2x^2}}{560c^5\sqrt{c^2x^2}}-\frac{b\left(42c^2d+25e\right)x^4\sqrt{-1+c^2x^2}}{840c^3\sqrt{c^2x^2}}-\frac{bex^6\sqrt{-1+}}{42c\sqrt{c^2x}}$$

$$=-\frac{b\left(42c^2d+25e\right)x^2\sqrt{-1+c^2x^2}}{560c^5\sqrt{c^2x^2}}-\frac{b\left(42c^2d+25e\right)x^4\sqrt{-1+c^2x^2}}{840c^3\sqrt{c^2x^2}}-\frac{bex^6\sqrt{-1+}}{42c\sqrt{c^2x}}$$

Mathematica [A] time = 0.223074, size = 141, normalized size = 0.68

$$\frac{48ac^7x^5\left(7d+5ex^2\right)-bc^2x^2\sqrt{1-\frac{1}{c^2x^2}}\left(c^4\left(84dx^2+40ex^4\right)+2c^2\left(63d+25ex^2\right)+75e\right)-3b\left(42c^2d+25e\right)\log\left(x\left(\sqrt{1\right.\right.}{1680c^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^4*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (48*a*c^7*x^5*(7*d + 5*e*x^2) - b*c^2*Sqrt[1 - 1/(c^2*x^2)]*x^2*(75*e + 2*c
^2*(63*d + 25*e*x^2) + c^4*(84*d*x^2 + 40*e*x^4)) + 48*b*c^7*x^5*(7*d + 5*e
*x^2)*ArcSec[c*x] - 3*b*(42*c^2*d + 25*e)*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x
])/(1680*c^7)
```

Maple [A] time = 0.167, size = 338, normalized size = 1.6

$$\frac{aex^7}{7}+\frac{ax^5d}{5}+\frac{b\,\mathrm{arcsec}\,(cx)\,ex^7}{7}+\frac{b\,\mathrm{arcsec}\,(cx)\,x^5d}{5}-\frac{bx^6e}{42\,c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bx^4e}{168\,c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bx^4d}{20\,c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bx^2d}{40\,c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/7*a*e*x^7+1/5*a*x^5*d+1/7*b*arcsec(c*x)*e*x^7+1/5*b*arcsec(c*x)*x^5*d-1/4
2/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^6*e-1/168/c^3*b/((c^2*x^2-1)/c^2/x^2)^(
1/2)*x^4*e-1/20/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^4*d-1/40/c^3*b/((c^2*x^2-
1)/c^2/x^2)^(1/2)*x^2*d-5/336/c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2*e+3/40/
c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*d-3/40/c^6*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/
x*(c^2*x^2-1)^(1/2)*d*ln(c*x+(c^2*x^2-1)^(1/2))+5/112/c^7*b/((c^2*x^2-1)/c^
2/x^2)^(1/2)*e-5/112/c^8*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*
e*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.974069, size = 400, normalized size = 1.94

$$\frac{1}{7}\,aex^7+\frac{1}{5}\,adx^5+\frac{1}{80}\left(16\,x^5\,\mathrm{arcsec}\,(cx)+\frac{\frac{2\left(3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-5\sqrt{-\frac{1}{c^2x^2}+1}\right)}{c^4\left(\frac{1}{c^2x^2}-1\right)^2+2\,c^4\left(\frac{1}{c^2x^2}-1\right)+c^4}-\frac{3\,\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^4}+\frac{3\,\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^4}}{c}\right)bd+\frac{1}{672}\left(9\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/7*a*e*x^7 + 1/5*a*d*x^5 + 1/80*(16*x^5*arcsec(c*x) + (2*(3*(-1/(c^2*x^2)
+ 1)^(3/2) - 5*sqrt(-1/(c^2*x^2) + 1))/(c^4*(1/(c^2*x^2) - 1)^2 + 2*c^4*(1/
(c^2*x^2) - 1) + c^4) - 3*log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^4 + 3*log(sqrt(
-1/(c^2*x^2) + 1) - 1)/c^4)/c)*b*d + 1/672*(96*x^7*arcsec(c*x) - (2*(15*(-1
/(c^2*x^2) + 1)^(5/2) - 40*(-1/(c^2*x^2) + 1)^(3/2) + 33*sqrt(-1/(c^2*x^2)
+ 1))/(c^6*(1/(c^2*x^2) - 1)^3 + 3*c^6*(1/(c^2*x^2) - 1)^2 + 3*c^6*(1/(c^2*
x^2) - 1) + c^6) + 15*log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^6 - 15*log(sqrt(-1/
(c^2*x^2) + 1) - 1)/c^6)/c)*b*e
```

Fricas [A] time = 4.52195, size = 459, normalized size = 2.23

$$\frac{240\,ac^7ex^7+336\,ac^7dx^5+48\left(5\,bc^7ex^7+7\,bc^7dx^5-7\,bc^7d-5\,bc^7e\right)\mathrm{arcsec}\,(cx)+96\left(7\,bc^7d+5\,bc^7e\right)\arctan\left(-cx+\sqrt{c\right.}{1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/1680*(240*a*c^7*e*x^7 + 336*a*c^7*d*x^5 + 48*(5*b*c^7*e*x^7 + 7*b*c^7*d*x
^5 - 7*b*c^7*d - 5*b*c^7*e)*arcsec(c*x) + 96*(7*b*c^7*d + 5*b*c^7*e)*arctan
(-c*x + sqrt(c^2*x^2 - 1)) + 3*(42*b*c^2*d + 25*b*e)*log(-c*x + sqrt(c^2*x^
2 - 1)) - (40*b*c^5*e*x^5 + 2*(42*b*c^5*d + 25*b*c^3*e)*x^3 + 3*(42*b*c^3*d
 + 25*b*c*e)*x)*sqrt(c^2*x^2 - 1))/c^7
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^4 (a + b \operatorname{asec}(cx)) \left(d + ex^2\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**4*(a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)(b \operatorname{arcsec}(cx) + a)x^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*x^4, x)
```

3.70 $\int x^2 \left(d+e x^2\right) \left(a+b \sec^{-1}(c x)\right) \, dx$

Optimal. Leaf size=161

$$\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}ex^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx^2\sqrt{c^2x^2-1}\left(20c^2d+9e\right)}{120c^3\sqrt{c^2x^2}}-\frac{bx\left(20c^2d+9e\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{120c^4\sqrt{c^2x^2}}-\frac{bex^4 \ldots}{20 \ldots}$$

```
[Out] -(b*(20*c^2*d + 9*e)*x^2*Sqrt[-1 + c^2*x^2])/(120*c^3*Sqrt[c^2*x^2]) - (b*e
*x^4*Sqrt[-1 + c^2*x^2])/(20*c*Sqrt[c^2*x^2]) + (d*x^3*(a + b*ArcSec[c*x]))
/3 + (e*x^5*(a + b*ArcSec[c*x]))/5 - (b*(20*c^2*d + 9*e)*x*ArcTanh[(c*x)/Sq
rt[-1 + c^2*x^2]])/(120*c^4*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.103248, antiderivative size = 161, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.368, Rules used = {14, 5238, 12, 459, 321, 217, 206}

$$\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}ex^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx^2\sqrt{c^2x^2-1}\left(20c^2d+9e\right)}{120c^3\sqrt{c^2x^2}}-\frac{bx\left(20c^2d+9e\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{120c^4\sqrt{c^2x^2}}-\frac{bex^4 \ldots}{20 \ldots}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```



```
[Out] -(b*(20*c^2*d + 9*e)*x^2*Sqrt[-1 + c^2*x^2])/(120*c^3*Sqrt[c^2*x^2]) - (b*e
*x^4*Sqrt[-1 + c^2*x^2])/(20*c*Sqrt[c^2*x^2]) + (d*x^3*(a + b*ArcSec[c*x]))
/3 + (e*x^5*(a + b*ArcSec[c*x]))/5 - (b*(20*c^2*d + 9*e)*x*ArcTanh[(c*x)/Sq
rt[-1 + c^2*x^2]])/(120*c^4*Sqrt[c^2*x^2])
```


Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] && !LinearQ[u, x] && !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] && !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] && !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
```

```
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^2\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}ex^5\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^2\left(5d+3ex^2\right)}{15\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$=\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}ex^5\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^2\left(5d+3ex^2\right)}{\sqrt{-1+c^2x^2}}dx}{15\sqrt{c^2x^2}}$$

$$=-\frac{bex^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}ex^5\left(a+b\sec^{-1}(cx)\right)+\frac{\left(bc\left(-2\right.\right.}{}$$

$$=-\frac{b\left(20c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{bex^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}$$

$$=-\frac{b\left(20c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{bex^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}$$

$$=-\frac{b\left(20c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{bex^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+\frac{1}{3}dx^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}$$

Mathematica [A] time = 0.165548, size = 123, normalized size = 0.76

$$\frac{c^2x^2\left(8ac^3x\left(5d+3ex^2\right)-b\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(20d+6ex^2\right)+9e\right)\right)-b\left(20c^2d+9e\right)\log\left(x\left(\sqrt{1-\frac{1}{c^2x^2}}+1\right)\right)+8bc^5x^3\sec^{-1}(}{120c^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (c^2*x^2*(8*a*c^3*x*(5*d + 3*e*x^2) - b*Sqrt[1 - 1/(c^2*x^2)]*(9*e + c^2*(2
0*d + 6*e*x^2))) + 8*b*c^5*x^3*(5*d + 3*e*x^2)*ArcSec[c*x] - b*(20*c^2*d +
9*e)*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x])/(120*c^5)
```

Maple [B] time = 0.179, size = 282, normalized size = 1.8

$$\frac{aex^5}{5}+\frac{adx^3}{3}+\frac{b\mathrm{arcsec}\left(cx\right)ex^5}{5}+\frac{b\mathrm{arcsec}\left(cx\right)dx^3}{3}-\frac{bx^4e}{20c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bex^2}{40c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bdx^2}{6c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{bd}{6c^3}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/5*a*e*x^5+1/3*a*d*x^3+1/5*b*arcsec(c*x)*e*x^5+1/3*b*arcsec(c*x)*d*x^3-1/2
0/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^4*e-1/40/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1
/2)*x^2*e-1/6/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*d*x^2+1/6/c^3*b/((c^2*x^2-1)/
c^2/x^2)^(1/2)*d-1/6/c^4*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*(c^2*x^2-1)^(1/2)*
d*ln(c*x+(c^2*x^2-1)^(1/2))+3/40/c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e-3/40/c
^6*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e*ln(c*x+(c^2*x^2-1)^(
1/2))
```

Maxima [A] time = 0.980495, size = 313, normalized size = 1.94

$$\frac{1}{5}aex^5+\frac{1}{3}adx^3+\frac{1}{12}\left(4x^3\mathrm{arcsec}\left(cx\right)-\frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2}+\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2}-\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)bd+\frac{1}{80}\left(16x^5\mathrm{arcsec}\left(cx\right)+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/5*a*e*x^5 + 1/3*a*d*x^3 + 1/12*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2)
+ 1)/(c^2*(1/(c^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 -
log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^2)/c)*b*d + 1/80*(16*x^5*arcsec(c*x) + (2
*(3*(-1/(c^2*x^2) + 1)^(3/2) - 5*sqrt(-1/(c^2*x^2) + 1))/(c^4*(1/(c^2*x^2)
- 1)^2 + 2*c^4*(1/(c^2*x^2) - 1) + c^4) - 3*log(sqrt(-1/(c^2*x^2) + 1) + 1)
/c^4 + 3*log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^4)/c)*b*e
```

Fricas [A] time = 3.41077, size = 398, normalized size = 2.47

$$\frac{24\,ac^5ex^5+40\,ac^5dx^3+8\left(3\,bc^5ex^5+5\,bc^5dx^3-5\,bc^5d-3\,bc^5e\right)\mathrm{arcsec}\left(cx\right)+16\left(5\,bc^5d+3\,bc^5e\right)\arctan\left(-cx+\sqrt{c^2x^2}\right.}{120\,c^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/120*(24*a*c^5*e*x^5 + 40*a*c^5*d*x^3 + 8*(3*b*c^5*e*x^5 + 5*b*c^5*d*x^3 -
 5*b*c^5*d - 3*b*c^5*e)*arcsec(c*x) + 16*(5*b*c^5*d + 3*b*c^5*e)*arctan(-c*
x + sqrt(c^2*x^2 - 1)) + (20*b*c^2*d + 9*b*e)*log(-c*x + sqrt(c^2*x^2 - 1))
```

```
- (6*b*c^3*e*x^3 + (20*b*c^3*d + 9*b*c*e)*x)*sqrt(c^2*x^2 - 1))/c^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2 (a + b\operatorname{asec}(cx)) \left(d + ex^2\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)(b\operatorname{arcsec}(cx) + a)x^2 dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*x^2, x)
```

3.71 $\int \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=109

$$dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(6c^2d+e\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{6c^2\sqrt{c^2x^2}}-\frac{bex^2\sqrt{c^2x^2-1}}{6c\sqrt{c^2x^2}}$$

```
[Out] -(b*e*x^2*Sqrt[-1 + c^2*x^2])/(6*c*Sqrt[c^2*x^2]) + d*x*(a + b*ArcSec[c*x])
 + (e*x^3*(a + b*ArcSec[c*x]))/3 - (b*(6*c^2*d + e)*x*ArcTanh[(c*x)/Sqrt[-1
 + c^2*x^2]])/(6*c^2*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.0513458, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.312, Rules used = {5228, 12, 388, 217, 206}

$$dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(6c^2d+e\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{6c^2\sqrt{c^2x^2}}-\frac{bex^2\sqrt{c^2x^2-1}}{6c\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*e*x^2*Sqrt[-1 + c^2*x^2])/(6*c*Sqrt[c^2*x^2]) + d*x*(a + b*ArcSec[c*x])
 + (e*x^3*(a + b*ArcSec[c*x]))/3 - (b*(6*c^2*d + e)*x*ArcTanh[(c*x)/Sqrt[-1
 + c^2*x^2]])/(6*c^2*Sqrt[c^2*x^2])
```

Rule 5228

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_)^2)^(p_.), x_Symb
ol] :> With[{u = IntHide[(d + e*x^2)^p, x]}, Dist[a + b*ArcSec[c*x], u, x]
- Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegrand[u/(x*Sqrt[c^2*x^2 - 1])
, x], x], x]] /; FreeQ[{a, b, c, d, e}, x] && (IGtQ[p, 0] || ILtQ[p + 1/2,
0])
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 388

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Si
mp[(d*x*(a + b*x^n)^(p + 1))/(b*(n*(p + 1) + 1)), x] - Dist[(a*d - b*c*(n*(
p + 1) + 1))/(b*(n*(p + 1) + 1)), Int[(a + b*x^n)^p, x], x] /; FreeQ[{a, b,
 c, d, n}, x] && NeQ[b*c - a*d, 0] && NeQ[n*(p + 1) + 1, 0]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
```

```
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx = dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int \frac{3d+ex^2}{3\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$= dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int \frac{3d+ex^2}{\sqrt{-1+c^2x^2}}dx}{3\sqrt{c^2x^2}}$$

$$= -\frac{bex^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}+dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)+\frac{\left(b\left(-6c^2d-e\right.\right.}{6c}$$

$$= -\frac{bex^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}+dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)+\frac{\left(b\left(-6c^2d-e\right.\right.}{}$$

$$= -\frac{bex^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}+dx\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}ex^3\left(a+b\sec^{-1}(cx)\right)-\frac{b\left(6c^2d+e\right)x}{6c}$$

Mathematica [A] time = 0.26434, size = 150, normalized size = 1.38

$$adx+\frac{1}{3}aex^3-\frac{bdx\sqrt{1-\frac{1}{c^2x^2}}\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2-1}}-\frac{bex^2\sqrt{\frac{c^2x^2-1}{c^2x^2}}}{6c}-\frac{be\log\left(x\left(\sqrt{\frac{c^2x^2-1}{c^2x^2}}+1\right)\right)}{6c^3}+bdx\sec^{-1}(cx)+\frac{1}{3}bex^3\sec$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] a*d*x + (a*e*x^3)/3 - (b*e*x^2*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)])/(6*c) + b*d*
x*ArcSec[c*x] + (b*e*x^3*ArcSec[c*x])/3 - (b*d*Sqrt[1 - 1/(c^2*x^2)]*x*ArcT
anh[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[-1 + c^2*x^2] - (b*e*Log[x*(1 + Sqrt[(-
1 + c^2*x^2)/(c^2*x^2)])])/(6*c^3)
```

Maple [B] time = 0.171, size = 195, normalized size = 1.8

$$\frac{ax^3e}{3}+adx+\frac{b\mathrm{arcsec}\,(cx)\,x^3e}{3}+b\mathrm{arcsec}\,(cx)\,xd-\frac{bd}{c^2x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bex^2}{6c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{be}{6c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/3*a*x^3*e+a*d*x+1/3*b*arcsec(c*x)*x^3*e+b*arcsec(c*x)*x*d-1/c^2*b/((c^2*x
^2-1)/c^2/x^2)^(1/2)/x*(c^2*x^2-1)^(1/2)*d*ln(c*x+(c^2*x^2-1)^(1/2))-1/6/c*
b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e*x^2+1/6/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e
-1/6/c^4*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e*ln(c*x+(c^2*x^
2-1)^(1/2))
```

Maxima [A] time = 0.96545, size = 208, normalized size = 1.91

$$\frac{1}{3}\,aex^3 + \frac{1}{12}\left(4\,x^3\operatorname{arcsec}(cx) - \frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2} + \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2} - \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)be + adx + \frac{\left(2\,cx\operatorname{arcsec}(cx) - \log\left(\sqrt{-\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/3*a*e*x^3 + 1/12*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(
c^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c
^2*x^2) + 1) - 1)/c^2)/c)*b*e + a*d*x + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-
1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*b*d/c
```

Fricas [A] time = 2.54092, size = 327, normalized size = 3.

$$\frac{2\,ac^3ex^3 + 6\,ac^3dx - \sqrt{c^2x^2-1}bcex + 2\left(bc^3ex^3 + 3\,bc^3dx - 3\,bc^3d - bc^3e\right)\operatorname{arcsec}(cx) + 4\left(3\,bc^3d + bc^3e\right)\arctan\left(-cx + \right.}{6\,c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/6*(2*a*c^3*e*x^3 + 6*a*c^3*d*x - sqrt(c^2*x^2 - 1)*b*c*e*x + 2*(b*c^3*e*x
^3 + 3*b*c^3*d*x - 3*b*c^3*d - b*c^3*e)*arcsec(c*x) + 4*(3*b*c^3*d + b*c^3*
e)*arctan(-c*x + sqrt(c^2*x^2 - 1)) + (6*b*c^2*d + b*e)*log(-c*x + sqrt(c^2
*x^2 - 1)))/c^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\operatorname{asec}(cx))\left(d + ex^2\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)(b\operatorname{arcsec}(cx) + a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a), x)
```

3.72 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^2}\,dx$

Optimal. Leaf size=87

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{x}+ex\left(a+b\sec^{-1}(cx)\right)+\frac{bcd\sqrt{c^2x^2-1}}{\sqrt{c^2x^2}}-\frac{bex\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2}}$$

```
[Out] (b*c*d*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*x^2] - (d*(a + b*ArcSec[c*x]))/x + e*x*
(a + b*ArcSec[c*x]) - (b*e*x*ArcTanh[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[c^2*x^
2]
```

Rubi [A] time = 0.0628026, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {14, 5238, 451, 217, 206}

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{x}+ex\left(a+b\sec^{-1}(cx)\right)+\frac{bcd\sqrt{c^2x^2-1}}{\sqrt{c^2x^2}}-\frac{bex\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^2,x]
```


```
[Out] (b*c*d*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*x^2] - (d*(a + b*ArcSec[c*x]))/x + e*x*
(a + b*ArcSec[c*x]) - (b*e*x*ArcTanh[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[c^2*x^
2]
```


Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 451

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[d/e^n, Int[(e*x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c
, d, e, m, n, p}, x] && NeQ[b*c - a*d, 0] && EqQ[m + n*(p + 1) + 1, 0] && (
IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (LtQ[n, 0] && Gt
Q[m + n, -1]))
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\begin{aligned}
\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^2}\,dx &= -\frac{d(a+b\sec^{-1}(cx))}{x}+ex(a+b\sec^{-1}(cx))-\frac{(bcx)\int \frac{-d+ex^2}{x^2\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{d(a+b\sec^{-1}(cx))}{x}+ex(a+b\sec^{-1}(cx))-\frac{(bcex)\int \frac{1}{\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{d(a+b\sec^{-1}(cx))}{x}+ex(a+b\sec^{-1}(cx))-\frac{(bcex)\,\mathrm{Subst}\left(\int \frac{1}{1-c^2x^2}\right.}{\sqrt{c^2x^2}}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{d(a+b\sec^{-1}(cx))}{x}+ex(a+b\sec^{-1}(cx))-\frac{bex\tanh^{-1}\left(\frac{cx}{\sqrt{-1+c^2x^2}}\right)}{\sqrt{c^2x^2}}
\end{aligned}$$

Mathematica [A] time = 0.11802, size = 104, normalized size = 1.2

$$-\frac{ad}{x}+aex+bcd\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{\sqrt{c^2x^2-1}}-\frac{bd\sec^{-1}(cx)}{x}+bex\sec^{-1}(cx)$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^2,x]
```

```
[Out] -((a*d)/x) + a*e*x + b*c*d*Sqrt[(-1 + c^2*x^2)/(c^2*x^2)] - (b*d*ArcSec[c*x
])/x + b*e*x*ArcSec[c*x] - (b*e*Sqrt[1 - 1/(c^2*x^2)]*x*ArcTanh[(c*x)/Sqrt[
-1 + c^2*x^2]])/Sqrt[-1 + c^2*x^2]
```

Maple [A] time = 0.172, size = 137, normalized size = 1.6

$$aex-\frac{ad}{x}+b\operatorname{arcsec}(cx)\,ex-\frac{b\operatorname{arcsec}(cx)\,d}{x}+bcd\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bd}{cx^2}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{be}{c^2x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x^2,x)
```

```
[Out] a*e*x-a*d/x+b*arcsec(c*x)*e*x-b*arcsec(c*x)*d/x+c*b/((c^2*x^2-1)/c^2/x^2)^(
1/2)*d-b/c/x^2/((c^2*x^2-1)/c^2/x^2)^(1/2)*d-b/c^2*(c^2*x^2-1)^(1/2)/((c^2*
x^2-1)/c^2/x^2)^(1/2)/x*e*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.98064, size = 120, normalized size = 1.38

$$\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\operatorname{arcsec}(cx)}{x}\right)bd+aex+\frac{\left(2\,cx\operatorname{arcsec}(cx)-\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)+\log\left(-\sqrt{-\frac{1}{c^2x^2}+1}+1\right)\right)be}{2\,c}-\frac{ad}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^2,x, algorithm="maxima")
```

```
[Out] (c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b*d + a*e*x + 1/2*(2*c*x*arcsec(
c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*
b*e/c - a*d/x
```

Fricas [A] time = 2.32123, size = 286, normalized size = 3.29

$$\frac{bc^2dx+acex^2+bex\log\left(-cx+\sqrt{c^2x^2-1}\right)+\sqrt{c^2x^2-1}bcd-acd-2\,(bcd-bce)x\arctan\left(-cx+\sqrt{c^2x^2-1}\right)+\left(bcex^2\right.}{cx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^2,x, algorithm="fricas")
```

```
[Out] (b*c^2*d*x + a*c*e*x^2 + b*e*x*log(-c*x + sqrt(c^2*x^2 - 1)) + sqrt(c^2*x^2
 - 1)*b*c*d - a*c*d - 2*(b*c*d - b*c*e)*x*arctan(-c*x + sqrt(c^2*x^2 - 1))
+ (b*c*e*x^2 - b*c*d + (b*c*d - b*c*e)*x)*arcsec(c*x))/(c*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\operatorname{asec}(cx))\left(d+ex^2\right)}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x**2,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)(b\operatorname{arcsec}(cx)+a)}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^2,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x^2, x)
```

3.73 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^4}\,dx$

Optimal. Leaf size=105

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{x}+\frac{bc\sqrt{c^2x^2-1}\left(2c^2d+9e\right)}{9\sqrt{c^2x^2}}+\frac{bcd\sqrt{c^2x^2-1}}{9x^2\sqrt{c^2x^2}}$$

```
[Out] (b*c*(2*c^2*d + 9*e)*Sqrt[-1 + c^2*x^2])/(9*Sqrt[c^2*x^2]) + (b*c*d*Sqrt[-1
 + c^2*x^2])/(9*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(3*x^3) - (e*(
a + b*ArcSec[c*x]))/x
```

Rubi [A] time = 0.0748212, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {14, 5238, 12, 453, 264}

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{x}+\frac{bc\sqrt{c^2x^2-1}\left(2c^2d+9e\right)}{9\sqrt{c^2x^2}}+\frac{bcd\sqrt{c^2x^2-1}}{9x^2\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^4,x]
```


```
[Out] (b*c*(2*c^2*d + 9*e)*Sqrt[-1 + c^2*x^2])/(9*Sqrt[c^2*x^2]) + (b*c*d*Sqrt[-1
 + c^2*x^2])/(9*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(3*x^3) - (e*(
a + b*ArcSec[c*x]))/x
```


Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rubi steps

$$\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^4}\,dx = -\frac{d(a+b\sec^{-1}(cx))}{3x^3}-\frac{e(a+b\sec^{-1}(cx))}{x}-\frac{(bcx)\int \frac{-d-3ex^2}{3x^4\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{d(a+b\sec^{-1}(cx))}{3x^3}-\frac{e(a+b\sec^{-1}(cx))}{x}-\frac{(bcx)\int \frac{-d-3ex^2}{x^4\sqrt{-1+c^2x^2}}\,dx}{3\sqrt{c^2x^2}}$$

$$= \frac{bcd\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d(a+b\sec^{-1}(cx))}{3x^3}-\frac{e(a+b\sec^{-1}(cx))}{x}-\frac{(bc(-2c^2d-9e)x)}{9\sqrt{c^2x}}$$

$$= \frac{bc(2c^2d+9e)\sqrt{-1+c^2x^2}}{9\sqrt{c^2x^2}}+\frac{bcd\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d(a+b\sec^{-1}(cx))}{3x^3}-\frac{e(a+b\sec^{-}}{x}$$

Mathematica [A] time = 0.0785472, size = 69, normalized size = 0.66

$$\frac{-3a(d+3ex^2)+bcx\sqrt{1-\frac{1}{c^2x^2}}(2c^2dx^2+d+9ex^2)-3b\sec^{-1}(cx)(d+3ex^2)}{9x^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] (-3*a*(d + 3*e*x^2) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(d + 2*c^2*d*x^2 + 9*e*x^
2) - 3*b*(d + 3*e*x^2)*ArcSec[c*x])/(9*x^3)
```

Maple [A] time = 0.171, size = 121, normalized size = 1.2

$$c^3\left(\frac{a}{c^2}\left(-\frac{e}{cx}-\frac{d}{3cx^3}\right)+\frac{b}{c^2}\left(-\frac{\operatorname{arcsec}(cx)e}{cx}-\frac{\operatorname{arcsec}(cx)d}{3cx^3}+\frac{(c^2x^2-1)(2c^4dx^2+9c^2ex^2+c^2d)}{9c^4x^4}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x^4,x)
```

```
[Out] c^3*(a/c^2*(-e/c/x-1/3/c*d/x^3)+b/c^2*(-arcsec(c*x)*e/c/x-1/3*arcsec(c*x)/c
*d/x^3+1/9*(c^2*x^2-1)*(2*c^4*d*x^2+9*c^2*e*x^2+c^2*d)/((c^2*x^2-1)/c^2/x^2
)^(1/2)/c^4/x^4))
```

Maxima [A] time = 0.983457, size = 127, normalized size = 1.21

$$\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\operatorname{arcsec}(cx)}{x}\right)be-\frac{1}{9}bd\left(\frac{c^4\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-3c^4\sqrt{-\frac{1}{c^2x^2}+1}}{c}+\frac{3\operatorname{arcsec}(cx)}{x^3}\right)-\frac{ae}{x}-\frac{ad}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^4,x, algorithm="maxima")
```

```
[Out] (c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b*e - 1/9*b*d*((c^4*(-1/(c^2*x^2
) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c + 3*arcsec(c*x)/x^3) - a*e/x
 - 1/3*a*d/x^3
```

Fricas [A] time = 1.99869, size = 157, normalized size = 1.5

$$-\frac{9\,aex^2 + 3\,ad + 3\left(3\,bex^2 + bd\right)\operatorname{arcsec}(cx) - \sqrt{c^2x^2-1}\left(\left(2\,bc^2d + 9\,be\right)x^2 + bd\right)}{9\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^4,x, algorithm="fricas")
```

```
[Out] -1/9*(9*a*e*x^2 + 3*a*d + 3*(3*b*e*x^2 + b*d)*arcsec(c*x) - sqrt(c^2*x^2 -
1)*((2*b*c^2*d + 9*b*e)*x^2 + b*d))/x^3
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\operatorname{asec}(cx))\left(d + ex^2\right)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x**4,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x**4, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)(b\operatorname{arcsec}(cx) + a)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^4,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x^4, x)
```

3.74 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^6}\,dx$

Optimal. Leaf size=152

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{3x^3}+\frac{2bc^3\sqrt{c^2x^2-1}\left(12c^2d+25e\right)}{225\sqrt{c^2x^2}}+\frac{bc\sqrt{c^2x^2-1}\left(12c^2d+25e\right)}{225x^2\sqrt{c^2x^2}}+\frac{bcd\sqrt{c^2x^2-}}{25x^4\sqrt{c^2x}}$$

```
[Out] (2*b*c^3*(12*c^2*d + 25*e)*Sqrt[-1 + c^2*x^2])/(225*Sqrt[c^2*x^2]) + (b*c*d
*Sqrt[-1 + c^2*x^2])/(25*x^4*Sqrt[c^2*x^2]) + (b*c*(12*c^2*d + 25*e)*Sqrt[-
1 + c^2*x^2])/(225*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(5*x^5) - (
e*(a + b*ArcSec[c*x]))/(3*x^3)
```

Rubi [A] time = 0.0944528, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 6, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.316, Rules used = {14, 5238, 12, 453, 271, 264}

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{3x^3}+\frac{2bc^3\sqrt{c^2x^2-1}\left(12c^2d+25e\right)}{225\sqrt{c^2x^2}}+\frac{bc\sqrt{c^2x^2-1}\left(12c^2d+25e\right)}{225x^2\sqrt{c^2x^2}}+\frac{bcd\sqrt{c^2x^2-}}{25x^4\sqrt{c^2x}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^6,x]
```

```
[Out] (2*b*c^3*(12*c^2*d + 25*e)*Sqrt[-1 + c^2*x^2])/(225*Sqrt[c^2*x^2]) + (b*c*d
*Sqrt[-1 + c^2*x^2])/(25*x^4*Sqrt[c^2*x^2]) + (b*c*(12*c^2*d + 25*e)*Sqrt[-
1 + c^2*x^2])/(225*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(5*x^5) - (
e*(a + b*ArcSec[c*x]))/(3*x^3)
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] && !LinearQ[u, x] && !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] && !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] && !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
```

```
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx = -\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{(bcx)\int \frac{-3d-5ex^2}{15x^6\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{(bcx)\int \frac{-3d-5ex^2}{x^6\sqrt{-1+c^2x^2}}\,dx}{15\sqrt{c^2x^2}}$$

$$= \frac{bcd\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}-\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{\left(bc\left(-12c^2d-25e\right)x\right)\int}{75\sqrt{c^2x^2}}$$

$$= \frac{bcd\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}+\frac{bc\left(12c^2d+25e\right)\sqrt{-1+c^2x^2}}{225x^2\sqrt{c^2x^2}}-\frac{d\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e\left(a+b\sec^{-1}\right.}{3x^3}$$

$$= \frac{2bc^3\left(12c^2d+25e\right)\sqrt{-1+c^2x^2}}{225\sqrt{c^2x^2}}+\frac{bcd\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}+\frac{bc\left(12c^2d+25e\right)\sqrt{-1+c^2x^2}}{225x^2\sqrt{c^2x^2}}-$$

Mathematica [A] time = 0.125195, size = 94, normalized size = 0.62

$$\frac{-15a\left(3d+5ex^2\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3d\left(8c^4x^4+4c^2x^2+3\right)+25ex^2\left(2c^2x^2+1\right)\right)-15b\sec^{-1}(cx)\left(3d+5ex^2\right)}{225x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^6,x]
```

```
[Out] (-15*a*(3*d + 5*e*x^2) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(25*e*x^2*(1 + 2*c^2*x
^2) + 3*d*(3 + 4*c^2*x^2 + 8*c^4*x^4)) - 15*b*(3*d + 5*e*x^2)*ArcSec[c*x])/
(225*x^5)
```

Maple [A] time = 0.172, size = 140, normalized size = 0.9

$$c^5\left(\frac{a}{c^2}\left(-\frac{d}{5c^3x^5}-\frac{e}{3c^3x^3}\right)+\frac{b}{c^2}\left(-\frac{\operatorname{arcsec}(cx)\,d}{5c^3x^5}-\frac{\operatorname{arcsec}(cx)\,e}{3c^3x^3}+\frac{\left(c^2x^2-1\right)\left(24c^6dx^4+50c^4ex^4+12c^4dx^2+25c^2ex^2+\right.}{225c^6x^6}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x^6,x)
```

```
[Out] c^5*(a/c^2*(-1/5/c^3*d/x^5-1/3*e/c^3/x^3)+b/c^2*(-1/5*arcsec(c*x)/c^3*d/x^5
-1/3*arcsec(c*x)*e/c^3/x^3+1/225*(c^2*x^2-1)*(24*c^6*d*x^4+50*c^4*e*x^4+12*
c^4*d*x^2+25*c^2*e*x^2+9*c^2*d)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^6/x^6))
```

Maxima [A] time = 0.985028, size = 185, normalized size = 1.22

$$\frac{1}{75}\,bd\left(\frac{3\,c^{6}\left(-\frac{1}{c^{2}x^{2}}+1\right)^{\frac{5}{2}}-10\,c^{6}\left(-\frac{1}{c^{2}x^{2}}+1\right)^{\frac{3}{2}}+15\,c^{6}\sqrt{-\frac{1}{c^{2}x^{2}}+1}}{c}-\frac{15\,\mathrm{arcsec}\left(cx\right)}{x^{5}}\right)-\frac{1}{9}\,be\left(\frac{c^{4}\left(-\frac{1}{c^{2}x^{2}}+1\right)^{\frac{3}{2}}-3\,c^{4}\sqrt{-\frac{1}{c^{2}x^{2}}}}{c}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^6,x, algorithm="maxima")
```

```
[Out] 1/75*b*d*((3*c^6*(-1/(c^2*x^2) + 1)^(5/2) - 10*c^6*(-1/(c^2*x^2) + 1)^(3/2)
 + 15*c^6*sqrt(-1/(c^2*x^2) + 1))/c - 15*arcsec(c*x)/x^5) - 1/9*b*e*((c^4*(
-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c + 3*arcsec(c*x)/x
^3) - 1/3*a*e/x^3 - 1/5*a*d/x^5
```

Fricas [A] time = 1.8346, size = 217, normalized size = 1.43

$$-\frac{75\,aex^{2}+45\,ad+15\left(5\,bex^{2}+3\,bd\right)\mathrm{arcsec}\left(cx\right)-\left(2\left(12\,bc^{4}d+25\,bc^{2}e\right)x^{4}+\left(12\,bc^{2}d+25\,be\right)x^{2}+9\,bd\right)\sqrt{c^{2}x^{2}-1}}{225\,x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^6,x, algorithm="fricas")
```

```
[Out] -1/225*(75*a*e*x^2 + 45*a*d + 15*(5*b*e*x^2 + 3*b*d)*arcsec(c*x) - (2*(12*b
*c^4*d + 25*b*c^2*e)*x^4 + (12*b*c^2*d + 25*b*e)*x^2 + 9*b*d)*sqrt(c^2*x^2
- 1))/x^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(a+b\,\mathrm{asec}\left(cx\right)\right)\left(d+ex^{2}\right)}{x^{6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x**6,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x**6, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(ex^{2}+d\right)\left(b\,\mathrm{arcsec}\left(cx\right)+a\right)}{x^{6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^6,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x^6, x)
```

3.75 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^8} dx$

Optimal. Leaf size=197

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{5x^5}+\frac{8bc^5\sqrt{c^2x^2-1}\left(30c^2d+49e\right)}{3675\sqrt{c^2x^2}}+\frac{4bc^3\sqrt{c^2x^2-1}\left(30c^2d+49e\right)}{3675x^2\sqrt{c^2x^2}}+\frac{bc\sqrt{c^2x^2}}{12}$$

```
[Out] (8*b*c^5*(30*c^2*d + 49*e)*Sqrt[-1 + c^2*x^2])/(3675*Sqrt[c^2*x^2]) + (b*c*
d*Sqrt[-1 + c^2*x^2])/(49*x^6*Sqrt[c^2*x^2]) + (b*c*(30*c^2*d + 49*e)*Sqrt[
-1 + c^2*x^2])/(1225*x^4*Sqrt[c^2*x^2]) + (4*b*c^3*(30*c^2*d + 49*e)*Sqrt[-
1 + c^2*x^2])/(3675*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(7*x^7) -
(e*(a + b*ArcSec[c*x]))/(5*x^5)
```

Rubi [A] time = 0.117144, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.316, Rules used = {14, 5238, 12, 453, 271, 264}

$$-\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{5x^5}+\frac{8bc^5\sqrt{c^2x^2-1}\left(30c^2d+49e\right)}{3675\sqrt{c^2x^2}}+\frac{4bc^3\sqrt{c^2x^2-1}\left(30c^2d+49e\right)}{3675x^2\sqrt{c^2x^2}}+\frac{bc\sqrt{c^2x^2}}{12}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^8,x]
```

```
[Out] (8*b*c^5*(30*c^2*d + 49*e)*Sqrt[-1 + c^2*x^2])/(3675*Sqrt[c^2*x^2]) + (b*c*
d*Sqrt[-1 + c^2*x^2])/(49*x^6*Sqrt[c^2*x^2]) + (b*c*(30*c^2*d + 49*e)*Sqrt[
-1 + c^2*x^2])/(1225*x^4*Sqrt[c^2*x^2]) + (4*b*c^3*(30*c^2*d + 49*e)*Sqrt[-
1 + c^2*x^2])/(3675*x^2*Sqrt[c^2*x^2]) - (d*(a + b*ArcSec[c*x]))/(7*x^7) -
(e*(a + b*ArcSec[c*x]))/(5*x^5)
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
```

```
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rubi steps

$$\begin{aligned}
\int \frac{\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)}{x^8}\,dx &= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{(bcx)\int\frac{-5d-7ex^2}{35x^8\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}\\
&= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{(bcx)\int\frac{-5d-7ex^2}{x^8\sqrt{-1+c^2x^2}}\,dx}{35\sqrt{c^2x^2}}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}}-\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{\left(bc\left(-30c^2d-49e\right)x\right)\int}{245\sqrt{c^2x^2}}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}}+\frac{bc\left(30c^2d+49e\right)\sqrt{-1+c^2x^2}}{1225x^4\sqrt{c^2x^2}}-\frac{d\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{e\left(a+b\sec^{-1}\right.}{5x^5}\\
&= \frac{bcd\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}}+\frac{bc\left(30c^2d+49e\right)\sqrt{-1+c^2x^2}}{1225x^4\sqrt{c^2x^2}}+\frac{4bc^3\left(30c^2d+49e\right)\sqrt{-1+c^2x^2}}{3675x^2\sqrt{c^2x^2}}-\\
&= \frac{8bc^5\left(30c^2d+49e\right)\sqrt{-1+c^2x^2}}{3675\sqrt{c^2x^2}}+\frac{bcd\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}}+\frac{bc\left(30c^2d+49e\right)\sqrt{-1+c^2x^2}}{1225x^4\sqrt{c^2x^2}}+
\end{aligned}$$

Mathematica [A] time = 0.144323, size = 110, normalized size = 0.56

$$\frac{-105a\left(5d+7ex^2\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(15d\left(16c^6x^6+8c^4x^4+6c^2x^2+5\right)+49ex^2\left(8c^4x^4+4c^2x^2+3\right)\right)-105b\sec^{-1}(cx)\left(5d\right.}{3675x^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^8,x]
```

```
[Out] (-105*a*(5*d + 7*e*x^2) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(49*e*x^2*(3 + 4*c^2*
x^2 + 8*c^4*x^4) + 15*d*(5 + 6*c^2*x^2 + 8*c^4*x^4 + 16*c^6*x^6)) - 105*b*(
5*d + 7*e*x^2)*ArcSec[c*x])/(3675*x^7)
```

Maple [A] time = 0.184, size = 158, normalized size = 0.8

$$c^7\left(\frac{a}{c^2}\left(-\frac{d}{7c^5x^7}-\frac{e}{5c^5x^5}\right)+\frac{b}{c^2}\left(-\frac{\operatorname{arcsec}(cx)\,d}{7c^5x^7}-\frac{\operatorname{arcsec}(cx)\,e}{5c^5x^5}+\frac{(c^2x^2-1)\,(240\,c^8dx^6+392\,c^6ex^6+120\,c^6dx^4+196}{3675\,c^8x^8}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x^8,x)
```

```
[Out] c^7*(a/c^2*(-1/7/c^5*d/x^7-1/5*e/c^5/x^5)+b/c^2*(-1/7*arcsec(c*x)/c^5*d/x^7
-1/5*arcsec(c*x)*e/c^5/x^5+1/3675*(c^2*x^2-1)*(240*c^8*d*x^6+392*c^6*e*x^6+
120*c^6*d*x^4+196*c^4*e*x^4+90*c^4*d*x^2+147*c^2*e*x^2+75*c^2*d)/((c^2*x^2-
1)/c^2/x^2)^(1/2)/c^8/x^8))
```

Maxima [A] time = 0.990804, size = 232, normalized size = 1.18

$$-\frac{1}{245}\,bd\left(\frac{5\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{7}{2}}-21\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}}+35\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-35\,c^8\sqrt{-\frac{1}{c^2x^2}+1}}{c}+\frac{35\,\operatorname{arcsec}(cx)}{x^7}\right)+\frac{1}{75}\,be\left(\frac{3\,c}{\ }\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^8,x, algorithm="maxima")
```

```
[Out] -1/245*b*d*((5*c^8*(-1/(c^2*x^2) + 1)^(7/2) - 21*c^8*(-1/(c^2*x^2) + 1)^(5/
2) + 35*c^8*(-1/(c^2*x^2) + 1)^(3/2) - 35*c^8*sqrt(-1/(c^2*x^2) + 1))/c + 3
5*arcsec(c*x)/x^7) + 1/75*b*e*((3*c^6*(-1/(c^2*x^2) + 1)^(5/2) - 10*c^6*(-1
/(c^2*x^2) + 1)^(3/2) + 15*c^6*sqrt(-1/(c^2*x^2) + 1))/c - 15*arcsec(c*x)/x
^5) - 1/5*a*e/x^5 - 1/7*a*d/x^7
```

Fricas [A] time = 2.05828, size = 273, normalized size = 1.39

$$-\frac{735\,aex^2+525\,ad+105\,(7\,bex^2+5\,bd)\operatorname{arcsec}(cx)-\left(8\,(30\,bc^6d+49\,bc^4e)x^6+4\,(30\,bc^4d+49\,bc^2e)x^4+3\,(30\,bc^2\right.}{3675\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^8,x, algorithm="fricas")
```

```
[Out] -1/3675*(735*a*e*x^2 + 525*a*d + 105*(7*b*e*x^2 + 5*b*d)*arcsec(c*x) - (8*(
30*b*c^6*d + 49*b*c^4*e)*x^6 + 4*(30*b*c^4*d + 49*b*c^2*e)*x^4 + 3*(30*b*c^
2*d + 49*b*e)*x^2 + 75*b*d)*sqrt(c^2*x^2 - 1))/x^7
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\operatorname{asec}(cx))\left(d+ex^2\right)}{x^8}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x**8,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x**8, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)(b \operatorname{arcsec}(cx) + a)}{x^8} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^8,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x^8, x)
```

3.76 $\int x^5 \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=196

$$\frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{5/2}\left(4c^2d+9e\right)}{120c^7\sqrt{c^2x^2}}-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(8c^2d+9e\right)}{72c^7\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2}}{}$$

```
[Out] -(b*(4*c^2*d + 3*e)*x*Sqrt[-1 + c^2*x^2])/(24*c^7*Sqrt[c^2*x^2]) - (b*(8*c^
2*d + 9*e)*x*(-1 + c^2*x^2)^(3/2))/(72*c^7*Sqrt[c^2*x^2]) - (b*(4*c^2*d + 9
*e)*x*(-1 + c^2*x^2)^(5/2))/(120*c^7*Sqrt[c^2*x^2]) - (b*e*x*(-1 + c^2*x^2)
^(7/2))/(56*c^7*Sqrt[c^2*x^2]) + (d*x^6*(a + b*ArcSec[c*x]))/6 + (e*x^8*(a
+ b*ArcSec[c*x]))/8
```

Rubi [A] time = 0.146823, antiderivative size = 196, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {14, 5238, 12, 446, 77}

$$\frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{5/2}\left(4c^2d+9e\right)}{120c^7\sqrt{c^2x^2}}-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(8c^2d+9e\right)}{72c^7\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2}}{}$$

Antiderivative was successfully verified.

```
[In] Int[x^5*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(4*c^2*d + 3*e)*x*Sqrt[-1 + c^2*x^2])/(24*c^7*Sqrt[c^2*x^2]) - (b*(8*c^
2*d + 9*e)*x*(-1 + c^2*x^2)^(3/2))/(72*c^7*Sqrt[c^2*x^2]) - (b*(4*c^2*d + 9
*e)*x*(-1 + c^2*x^2)^(5/2))/(120*c^7*Sqrt[c^2*x^2]) - (b*e*x*(-1 + c^2*x^2)
^(7/2))/(56*c^7*Sqrt[c^2*x^2]) + (d*x^6*(a + b*ArcSec[c*x]))/6 + (e*x^8*(a
+ b*ArcSec[c*x]))/8
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
```

```
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 77

```
Int[((a_.) + (b_.)*(x_))*((c_) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_))^(p_
.), x_Symbol] :> Int[ExpandIntegrand[(a + b*x)*(c + d*x)^n*(e + f*x)^p, x],
 x] /; FreeQ[{a, b, c, d, e, f, n}, x] && NeQ[b*c - a*d, 0] && ((ILtQ[n, 0]
 && ILtQ[p, 0]) || EqQ[p, 1] || (IGtQ[p, 0] && ( !IntegerQ[n] || LeQ[9*p +
5*(n + 2), 0] || GeQ[n + p + 1, 0] || (GeQ[n + p + 2, 0] && RationalQ[a, b,
 c, d, e, f]))))
```

Rubi steps

$$\int x^5\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx = \frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^5(4d+3ex^2)}{24\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$=\frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^5(4d+3ex^2)}{\sqrt{-1+c^2x^2}}dx}{24\sqrt{c^2x^2}}$$

$$=\frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\,\mathrm{Subst}\left(\int\frac{x^2(4d+3ex)}{\sqrt{-1+c^2x}}dx,x,x\right.}{48\sqrt{c^2x^2}}$$

$$=\frac{1}{6}dx^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}ex^8\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\,\mathrm{Subst}\left(\int\left(\frac{4c^2d+3e}{c^6\sqrt{-1+c^2x}}+\frac{(8c^2\right.\right.}{}$$

$$=-\frac{b\left(4c^2d+3e\right)x\sqrt{-1+c^2x^2}}{24c^7\sqrt{c^2x^2}}-\frac{b\left(8c^2d+9e\right)x\left(-1+c^2x^2\right)^{3/2}}{72c^7\sqrt{c^2x^2}}-\frac{b\left(4c^2d+9e\right)x\left(-1\right.}{120c^7\sqrt{c^2}}$$

Mathematica [A] time = 0.224431, size = 118, normalized size = 0.6

$$\frac{1}{24}ax^6\left(4d+3ex^2\right)-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(c^6\left(84dx^4+45ex^6\right)+2c^4\left(56dx^2+27ex^4\right)+8c^2\left(28d+9ex^2\right)+144e\right)}{2520c^7}+\frac{1}{24}bx^6\sec^{-1}($$

Antiderivative was successfully verified.

```
[In] Integrate[x^5*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^6*(4*d + 3*e*x^2))/24 - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(144*e + 8*c^2*(28*
d + 9*e*x^2) + 2*c^4*(56*d*x^2 + 27*e*x^4) + c^6*(84*d*x^4 + 45*e*x^6)))/(2
520*c^7) + (b*x^6*(4*d + 3*e*x^2)*ArcSec[c*x])/24
```

Maple [A] time = 0.181, size = 152, normalized size = 0.8

$$\frac{1}{c^6}\left(\frac{a}{c^2}\left(\frac{ec^8x^8}{8}+\frac{c^8x^6d}{6}\right)+\frac{b}{c^2}\left(\frac{\mathrm{arcsec}\,(cx)\,ec^8x^8}{8}+\frac{\mathrm{arcsec}\,(cx)\,c^8x^6d}{6}-\frac{\left(c^2x^2-1\right)\left(45\,c^6ex^6+84\,c^6dx^4+54\,c^4ex^4+112\,c\right.}{2520\,cx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^6*(a/c^2*(1/8*e*c^8*x^8+1/6*c^8*x^6*d)+b/c^2*(1/8*arcsec(c*x)*e*c^8*x^8
+1/6*arcsec(c*x)*c^8*x^6*d-1/2520*(c^2*x^2-1)*(45*c^6*e*x^6+84*c^6*d*x^4+54
*c^4*e*x^4+112*c^4*d*x^2+72*c^2*e*x^2+224*c^2*d+144*e)/((c^2*x^2-1)/c^2/x^2
)^(1/2)/c/x))
```

Maxima [A] time = 0.962829, size = 250, normalized size = 1.28

$$\frac{1}{8}aex^8 + \frac{1}{6}adx^6 + \frac{1}{90}\left(15\,x^6\,\text{arcsec}\,(cx) - \frac{3\,c^4x^5\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}} + 10\,c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 15\,x\sqrt{-\frac{1}{c^2x^2}+1}}{c^5}\right)bd + \frac{1}{280}\left(35\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/8*a*e*x^8 + 1/6*a*d*x^6 + 1/90*(15*x^6*arcsec(c*x) - (3*c^4*x^5*(-1/(c^2*
x^2) + 1)^(5/2) + 10*c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 15*x*sqrt(-1/(c^2*x
^2) + 1))/c^5)*b*d + 1/280*(35*x^8*arcsec(c*x) - (5*c^6*x^7*(-1/(c^2*x^2) +
 1)^(7/2) + 21*c^4*x^5*(-1/(c^2*x^2) + 1)^(5/2) + 35*c^2*x^3*(-1/(c^2*x^2)
+ 1)^(3/2) + 35*x*sqrt(-1/(c^2*x^2) + 1))/c^7)*b*e
```

Fricas [A] time = 2.41076, size = 304, normalized size = 1.55

$$\frac{315\,ac^8ex^8 + 420\,ac^8dx^6 + 105\left(3\,bc^8ex^8 + 4\,bc^8dx^6\right)\text{arcsec}\,(cx) - \left(45\,bc^6ex^6 + 6\left(14\,bc^6d + 9\,bc^4e\right)x^4 + 224\,bc^2d + 8\left(\right.\right.}{2520\,c^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/2520*(315*a*c^8*e*x^8 + 420*a*c^8*d*x^6 + 105*(3*b*c^8*e*x^8 + 4*b*c^8*d*
x^6)*arcsec(c*x) - (45*b*c^6*e*x^6 + 6*(14*b*c^6*d + 9*b*c^4*e)*x^4 + 224*b
*c^2*d + 8*(14*b*c^4*d + 9*b*c^2*e)*x^2 + 144*b*e)*sqrt(c^2*x^2 - 1))/c^8
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^5\left(a + b\,\text{asec}\,(cx)\right)\left(d + ex^2\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**5*(a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\left(ex^2 + d\right)\left(b\,\text{arcsec}\,(cx) + a\right)x^5\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*x^5, x)
```

3.77 $\int x^3 \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=153

$$\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(3c^2d+4e\right)}{36c^5\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\left(3c^2d+2e\right)}{12c^5\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2\right.}{30c^5\sqrt{}}$$

```
[Out] -(b*(3*c^2*d + 2*e)*x*Sqrt[-1 + c^2*x^2])/(12*c^5*Sqrt[c^2*x^2]) - (b*(3*c^
2*d + 4*e)*x*(-1 + c^2*x^2)^(3/2))/(36*c^5*Sqrt[c^2*x^2]) - (b*e*x*(-1 + c^
2*x^2)^(5/2))/(30*c^5*Sqrt[c^2*x^2]) + (d*x^4*(a + b*ArcSec[c*x]))/4 + (e*x
^6*(a + b*ArcSec[c*x]))/6
```

Rubi [A] time = 0.121989, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {14, 5238, 12, 446, 77}

$$\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(3c^2d+4e\right)}{36c^5\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\left(3c^2d+2e\right)}{12c^5\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2\right.}{30c^5\sqrt{}}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(3*c^2*d + 2*e)*x*Sqrt[-1 + c^2*x^2])/(12*c^5*Sqrt[c^2*x^2]) - (b*(3*c^
2*d + 4*e)*x*(-1 + c^2*x^2)^(3/2))/(36*c^5*Sqrt[c^2*x^2]) - (b*e*x*(-1 + c^
2*x^2)^(5/2))/(30*c^5*Sqrt[c^2*x^2]) + (d*x^4*(a + b*ArcSec[c*x]))/4 + (e*x
^6*(a + b*ArcSec[c*x]))/6
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 77

```
Int[((a_.) + (b_.)*(x_))*((c_) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_))^(p_
.), x_Symbol] :> Int[ExpandIntegrand[(a + b*x)*(c + d*x)^n*(e + f*x)^p, x],
 x] /; FreeQ[{a, b, c, d, e, f, n}, x] && NeQ[b*c - a*d, 0] && ((ILtQ[n, 0]
 && ILtQ[p, 0]) || EqQ[p, 1] || (IGtQ[p, 0] && ( !IntegerQ[n] || LeQ[9*p +
5*(n + 2), 0] || GeQ[n + p + 1, 0] || (GeQ[n + p + 2, 0] && RationalQ[a, b,
 c, d, e, f]))))
```

Rubi steps

$$\int x^3\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^3\left(3d+2ex^2\right)}{12\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$=\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int\frac{x^3\left(3d+2ex^2\right)}{\sqrt{-1+c^2x^2}}dx}{12\sqrt{c^2x^2}}$$

$$=\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\,\text{Subst}\left(\int\frac{x(3d+2ex)}{\sqrt{-1+c^2x}}dx,x,x^2\right.}{24\sqrt{c^2x^2}}$$

$$=\frac{1}{4}dx^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{6}ex^6\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\,\text{Subst}\left(\int\left(\frac{3c^2d+2e}{c^4\sqrt{-1+c^2x}}+\frac{(3c^2}{}\right.\right.}{24}$$

$$=-\frac{b\left(3c^2d+2e\right)x\sqrt{-1+c^2x^2}}{12c^5\sqrt{c^2x^2}}-\frac{b\left(3c^2d+4e\right)x\left(-1+c^2x^2\right)^{3/2}}{36c^5\sqrt{c^2x^2}}-\frac{bex\left(-1+c^2x^2\right)^{5/2}}{30c^5\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.253271, size = 98, normalized size = 0.64

$$\frac{1}{180}x\left(15ax^3\left(3d+2ex^2\right)-\frac{b\sqrt{1-\frac{1}{c^2x^2}}\left(3c^4\left(5dx^2+2ex^4\right)+c^2\left(30d+8ex^2\right)+16e\right)}{c^5}+15bx^3\sec^{-1}(cx)\left(3d+2ex^2\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^3*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (x*(15*a*x^3*(3*d + 2*e*x^2) - (b*Sqrt[1 - 1/(c^2*x^2)]*(16*e + c^2*(30*d +
 8*e*x^2) + 3*c^4*(5*d*x^2 + 2*e*x^4)))/c^5 + 15*b*x^3*(3*d + 2*e*x^2)*ArcS
ec[c*x]))/180
```

Maple [A] time = 0.171, size = 134, normalized size = 0.9

$$\frac{1}{c^4}\left(\frac{a}{c^2}\left(\frac{ec^6x^6}{6}+\frac{x^4c^6d}{4}\right)+\frac{b}{c^2}\left(\frac{\text{arcsec}\,(cx)\,ec^6x^6}{6}+\frac{\text{arcsec}\,(cx)\,c^6x^4d}{4}-\frac{\left(c^2x^2-1\right)\left(6\,c^4ex^4+15\,c^4dx^2+8\,c^2ex^2+30\,c^2d+\right.}{180\,cx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^4*(a/c^2*(1/6*e*c^6*x^6+1/4*x^4*c^6*d)+b/c^2*(1/6*arcsec(c*x)*e*c^6*x^6
+1/4*arcsec(c*x)*c^6*x^4*d-1/180*(c^2*x^2-1)*(6*c^4*e*x^4+15*c^4*d*x^2+8*c^
```

```
2*e*x^2+30*c^2*d+16*e)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.968066, size = 194, normalized size = 1.27

$$\frac{1}{6}aex^6 + \frac{1}{4}adx^4 + \frac{1}{12}\left(3x^4\,\mathrm{arcsec}\,(cx) - \frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 3x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)bd + \frac{1}{90}\left(15x^6\,\mathrm{arcsec}\,(cx) - \frac{3c^4x^5\left(-\frac{1}{c^2x}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/6*a*e*x^6 + 1/4*a*d*x^4 + 1/12*(3*x^4*arcsec(c*x) - (c^2*x^3*(-1/(c^2*x^2
) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*b*d + 1/90*(15*x^6*arcsec(c
*x) - (3*c^4*x^5*(-1/(c^2*x^2) + 1)^(5/2) + 10*c^2*x^3*(-1/(c^2*x^2) + 1)^(
3/2) + 15*x*sqrt(-1/(c^2*x^2) + 1))/c^5)*b*e
```

Fricas [A] time = 2.18156, size = 247, normalized size = 1.61

$$\frac{30\,ac^6ex^6 + 45\,ac^6dx^4 + 15\left(2\,bc^6ex^6 + 3\,bc^6dx^4\right)\mathrm{arcsec}\,(cx) - \left(6\,bc^4ex^4 + 30\,bc^2d + \left(15\,bc^4d + 8\,bc^2e\right)x^2 + 16\,be\right)\sqrt{c^2}}{180\,c^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/180*(30*a*c^6*e*x^6 + 45*a*c^6*d*x^4 + 15*(2*b*c^6*e*x^6 + 3*b*c^6*d*x^4)
*arcsec(c*x) - (6*b*c^4*e*x^4 + 30*b*c^2*d + (15*b*c^4*d + 8*b*c^2*e)*x^2 +
 16*b*e)*sqrt(c^2*x^2 - 1))/c^6
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3\left(a + b\,\mathrm{asec}\,(cx)\right)\left(d + ex^2\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**3*(a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)(b\,\mathrm{arcsec}\,(cx) + a)x^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*x^3, x)
```

3.78 $\int x\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=138

$$\frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e}-\frac{bcd^2x\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{4e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\left(2c^2d+e\right)}{4c^3\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2-1\right)^{3/2}}{12c^3\sqrt{c^2x^2}}$$

```
[Out] -(b*(2*c^2*d + e)*x*Sqrt[-1 + c^2*x^2])/(4*c^3*Sqrt[c^2*x^2]) - (b*e*x*(-1
+ c^2*x^2)^(3/2))/(12*c^3*Sqrt[c^2*x^2]) + ((d + e*x^2)^2*(a + b*ArcSec[c*x
]))/(4*e) - (b*c*d^2*x*ArcTan[Sqrt[-1 + c^2*x^2]])/(4*e*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.0926902, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.294, Rules used = {5236, 446, 88, 63, 205}

$$\frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e}-\frac{bcd^2x\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{4e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\left(2c^2d+e\right)}{4c^3\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2-1\right)^{3/2}}{12c^3\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[x*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(2*c^2*d + e)*x*Sqrt[-1 + c^2*x^2])/(4*c^3*Sqrt[c^2*x^2]) - (b*e*x*(-1
+ c^2*x^2)^(3/2))/(12*c^3*Sqrt[c^2*x^2]) + ((d + e*x^2)^2*(a + b*ArcSec[c*x
]))/(4*e) - (b*c*d^2*x*ArcTan[Sqrt[-1 + c^2*x^2]])/(4*e*Sqrt[c^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 88

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x
_))^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n*(e + f*
x)^p, x], x] /; FreeQ[{a, b, c, d, e, f, p}, x] && IntegersQ[m, n] && (Inte
gerQ[p] || (GtQ[m, 0] && GeQ[n, -1]))
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rubi steps

$$\int x\left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx = \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{(bcx)\int\frac{\left(d+ex^2\right)^2}{x\sqrt{-1+c^2x^2}}dx}{4e\sqrt{c^2x^2}}$$

$$= \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{(bcx)\,\mathrm{Subst}\left(\int\frac{(d+ex)^2}{x\sqrt{-1+c^2x}}dx,x,x^2\right)}{8e\sqrt{c^2x^2}}$$

$$= \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e} - \frac{(bcx)\,\mathrm{Subst}\left(\int\left(\frac{e\left(2c^2d+e\right)}{c^2\sqrt{-1+c^2x}}+\frac{d^2}{x\sqrt{-1+c^2x}}+\frac{e^2\sqrt{-1+c^2x}}{c^2}\right.\right.}{8e\sqrt{c^2x^2}}$$

$$= -\frac{b\left(2c^2d+e\right)x\sqrt{-1+c^2x^2}}{4c^3\sqrt{c^2x^2}} - \frac{bex\left(-1+c^2x^2\right)^{3/2}}{12c^3\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e}$$

$$= -\frac{b\left(2c^2d+e\right)x\sqrt{-1+c^2x^2}}{4c^3\sqrt{c^2x^2}} - \frac{bex\left(-1+c^2x^2\right)^{3/2}}{12c^3\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e}$$

$$= -\frac{b\left(2c^2d+e\right)x\sqrt{-1+c^2x^2}}{4c^3\sqrt{c^2x^2}} - \frac{bex\left(-1+c^2x^2\right)^{3/2}}{12c^3\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{4e}$$

Mathematica [A] time = 0.0985451, size = 79, normalized size = 0.57

$$\frac{x\left(3ac^3x\left(2d+ex^2\right)-b\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(6d+ex^2\right)+2e\right)+3bc^3x\sec^{-1}(cx)\left(2d+ex^2\right)\right)}{12c^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (x*(3*a*c^3*x*(2*d + e*x^2) - b*Sqrt[1 - 1/(c^2*x^2)]*(2*e + c^2*(6*d + e*x
^2)) + 3*b*c^3*x*(2*d + e*x^2)*ArcSec[c*x]))/(12*c^3)
```

Maple [A] time = 0.171, size = 115, normalized size = 0.8

$$\frac{1}{c^2}\left(\frac{a}{c^2}\left(\frac{ec^4x^4}{4}+\frac{x^2c^4d}{2}\right)+\frac{b}{c^2}\left(\frac{\mathrm{arcsec}\,(cx)\,ec^4x^4}{4}+\frac{\mathrm{arcsec}\,(cx)\,dc^4x^2}{2}-\frac{\left(c^2x^2-1\right)\left(c^2ex^2+6\,c^2d+2\,e\right)}{12\,cx}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^2*(a/c^2*(1/4*e*c^4*x^4+1/2*x^2*c^4*d)+b/c^2*(1/4*arcsec(c*x)*e*c^4*x^4
+1/2*arcsec(c*x)*d*c^4*x^2-1/12*(c^2*x^2-1)*(c^2*e*x^2+6*c^2*d+2*e)/((c^2*x
^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.979498, size = 135, normalized size = 0.98

$$\frac{1}{4}aex^4 + \frac{1}{2}adx^2 + \frac{1}{2}\left(x^2\operatorname{arcsec}(cx) - \frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)bd + \frac{1}{12}\left(3x^4\operatorname{arcsec}(cx) - \frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 3x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)be$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/4*a*e*x^4 + 1/2*a*d*x^2 + 1/2*(x^2*arcsec(c*x) - x*sqrt(-1/(c^2*x^2) + 1)
/c)*b*d + 1/12*(3*x^4*arcsec(c*x) - (c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 3*x
*sqrt(-1/(c^2*x^2) + 1))/c^3)*b*e
```

Fricas [A] time = 2.04995, size = 192, normalized size = 1.39

$$\frac{3\,ac^4ex^4 + 6\,ac^4dx^2 + 3\left(bc^4ex^4 + 2\,bc^4dx^2\right)\operatorname{arcsec}(cx) - \left(bc^2ex^2 + 6\,bc^2d + 2\,be\right)\sqrt{c^2x^2-1}}{12\,c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/12*(3*a*c^4*e*x^4 + 6*a*c^4*d*x^2 + 3*(b*c^4*e*x^4 + 2*b*c^4*d*x^2)*arcse
c(c*x) - (b*c^2*e*x^2 + 6*b*c^2*d + 2*b*e)*sqrt(c^2*x^2 - 1))/c^4
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\left(a + b\operatorname{asec}(cx)\right)\left(d + ex^2\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x*(a + b*asec(c*x))*(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)\left(b\operatorname{arcsec}(cx) + a\right)x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*x, x)
```

3.79 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x}\,dx$

Optimal. Leaf size=124

$$-\frac{1}{2}ibd\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-d\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right)-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}}{2c}-\frac{1}{2}ibd\csc^{-1}(cx$$

```
[Out] -(b*e*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) - (I/2)*b*d*ArcCsc[c*x]^2 + (e*x^2*(a
+ b*ArcSec[c*x]))/2 + b*d*ArcCsc[c*x]*Log[1 - E^((2*I)*ArcCsc[c*x])] - b*d*
ArcCsc[c*x]*Log[x^(-1)] - d*(a + b*ArcSec[c*x])*Log[x^(-1)] - (I/2)*b*d*Pol
yLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rubi [A] time = 0.283554, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 11, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.579, Rules used = {5240, 14, 4732, 6742, 264, 2326, 4625, 3717, 2190, 2279, 2391}

$$-\frac{1}{2}ibd\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-d\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right)-\frac{bex\sqrt{1-\frac{1}{c^2x^2}}}{2c}-\frac{1}{2}ibd\csc^{-1}(cx$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] -(b*e*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c) - (I/2)*b*d*ArcCsc[c*x]^2 + (e*x^2*(a
+ b*ArcSec[c*x]))/2 + b*d*ArcCsc[c*x]*Log[1 - E^((2*I)*ArcCsc[c*x])] - b*d*
ArcCsc[c*x]*Log[x^(-1)] - d*(a + b*ArcSec[c*x])*Log[x^(-1)] - (I/2)*b*d*Pol
yLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] &&  !LinearQ[u, x] &&  !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 4732

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_
)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dist
[a + b*ArcCos[c*x], u, x] + Dist[b*c, Int[SimplifyIntegrand[u/Sqrt[1 - c^2*
x^2], x], x], x]] /; FreeQ[{a, b, c, d, e, f, m}, x] && NeQ[c^2*d + e, 0] &
& IntegerQ[p] && (GtQ[p, 0] || (IGtQ[(m - 1)/2, 0] && LeQ[m + p, 0]))
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 2326

```
Int[((a_.) + Log[(c_.)*(x_)^(n_.)]*(b_.))/Sqrt[(d_) + (e_.)*(x_)^2], x_Symb
ol] :> Simp[(ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]*(a + b*Log[c*x^n]))/Rt[-e, 2], x
] - Dist[(b*n)/Rt[-e, 2], Int[ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]/x, x], x] /; Fr
eeQ[{a, b, c, d, e, n}, x] && GtQ[d, 0] && NegQ[e]
```

Rule 4625

```
Int[((a_.) + ArcSin[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> Subst[Int[(
a + b*x)^n/Tan[x], x], x, ArcSin[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0]
```

Rule 3717

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + Pi*(k_.) + (f_.)*(x_)], x_Symbol
] :> Simp[(I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^
m*E^(2*I*k*Pi)*E^(2*I*(e + f*x)))/(1 + E^(2*I*k*Pi)*E^(2*I*(e + f*x))), x],
 x] /; FreeQ[{c, d, e, f}, x] && IntegerQ[4*k] && IGtQ[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x}\,dx = -\text{Subst}\left(\int \frac{(e+dx^2)\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{x^3}\,dx, x, \frac{1}{x}\right)$$

$$= \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - d\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{b\,\text{Subst}\left(\int \frac{-\frac{e}{2x^2}+d\log(x)}{\sqrt{1-\frac{x^2}{c^2}}}\,dx,\right.}{c}$$

$$= \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - d\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{b\,\text{Subst}\left(\int\left(-\frac{e}{2x^2\sqrt{1-\frac{x^2}{c^2}}} + \right.\right.}{c}$$

$$= \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - d\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{(bd)\,\text{Subst}\left(\int \frac{\log(x)}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x,\right.}{c}$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - bd\csc^{-1}(cx)\log\left(\frac{1}{x}\right) - d\left(a+b\sec^{-1}(c\right.$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - bd\csc^{-1}(cx)\log\left(\frac{1}{x}\right) - d\left(a+b\sec^{-1}(c\right.$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{2}ibd\csc^{-1}(cx)^2 + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) - bd\csc^{-1}(cx)\log\left(\frac{1}{x}\right)$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{2}ibd\csc^{-1}(cx)^2 + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) + bd\csc^{-1}(cx)\log\left(1-\right.$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{2}ibd\csc^{-1}(cx)^2 + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) + bd\csc^{-1}(cx)\log\left(1-\right.$$

$$= -\frac{be\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{2}ibd\csc^{-1}(cx)^2 + \frac{1}{2}ex^2\left(a+b\sec^{-1}(cx)\right) + bd\csc^{-1}(cx)\log\left(1-\right.$$

Mathematica [A] time = 0.121672, size = 104, normalized size = 0.84

$$\frac{ibcd\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right) + 2acd\log(x) + acex^2 - bex\sqrt{1-\frac{1}{c^2x^2}} + bc\sec^{-1}(cx)\left(ex^2 - 2d\log\left(1+e^{2i\sec^{-1}(cx)}\right)\right) + ib}{2c}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] (-(b*e*Sqrt[1 - 1/(c^2*x^2)]*x) + a*c*e*x^2 + I*b*c*d*ArcSec[c*x]^2 + b*c*A
rcSec[c*x]*(e*x^2 - 2*d*Log[1 + E^((2*I)*ArcSec[c*x])]) + 2*a*c*d*Log[x] +
I*b*c*d*PolyLog[2, -E^((2*I)*ArcSec[c*x])])/(2*c)
```

Maple [A] time = 0.531, size = 142, normalized size = 1.2

$$\frac{ax^2e}{2} + ad\ln(cx) + \frac{i}{2}b(\text{arcsec}(cx))^2 d + \frac{b\text{arcsec}(cx)x^2e}{2} - \frac{bxe}{2c}\sqrt{\frac{c^2x^2-1}{c^2x^2}} - \frac{\frac{i}{2}be}{c^2} - bd\text{arcsec}(cx)\ln\left(1+\left(\frac{1}{cx}+i\sqrt{1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x,x)
```

```
[Out] 1/2*a*x^2*e+a*d*ln(c*x)+1/2*I*b*arcsec(c*x)^2*d+1/2*b*arcsec(c*x)*x^2*e-1/2
*b/c*((c^2*x^2-1)/c^2/x^2)^(1/2)*x*e-1/2*I*b/c^2*e-b*d*arcsec(c*x)*ln(1+(1/
c/x+I*(1-1/c^2/x^2)^(1/2))^2)+1/2*I*b*d*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(
1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{2}\,aex^2 + ad\log(x) - \frac{-2i\,bc^2ex^2\log(c) - 2i\,bc^2d\log(-cx+1)\log(x) - 2i\,bc^2d\log(x)^2 - 2i\,bc^2d\mathrm{Li}_2(cx) - 2i\,bc^2d\mathrm{Li}_2(-cx}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x,x, algorithm="maxima")
```

```
[Out] 1/2*a*e*x^2 + a*d*log(x) - 1/4*(-2*I*b*c^2*e*x^2*log(c) - 2*I*b*c^2*d*log(-
c*x + 1)*log(x) - 2*I*b*c^2*d*log(x)^2 - 2*I*b*c^2*d*dilog(c*x) - 2*I*b*c^2
*d*dilog(-c*x) + I*(b*e*(log(c*x + 1)/c^2 + log(c*x - 1)/c^2) + 8*b*d*integ
rate(1/2*log(x)/(c^2*x^3 - x), x))*c^2 + 4*c^2*integrate(1/2*(b*e*x^2 + 2*b
*d*log(x))*sqrt(c*x + 1)*sqrt(c*x - 1)/(c^2*x^3 - x), x) - I*b*e*log(c*x -
1) - 2*(b*c^2*e*x^2 + 2*b*c^2*d*log(x))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))
 + (I*b*c^2*e*x^2 + 2*I*b*c^2*d*log(x))*log(c^2*x^2) + (-2*I*b*c^2*d*log(x)
 - I*b*e)*log(c*x + 1) + (-2*I*b*c^2*e*x^2 - 4*I*b*c^2*d*log(c))*log(x))/c^
2
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{aex^2 + ad + \left(bex^2 + bd\right)\mathrm{arcsec}\left(cx\right)}{x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))/x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\,\mathrm{asec}\,(cx))\left(d + ex^2\right)}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x, x)
```

<u>Giac</u> [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)\left(b\,\mathrm{arcsec}\left(cx\right)+a\right)}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x, x)
```

3.80 $\int \frac{(d+ex^2)(a+b\sec^{-1}(cx))}{x^3}\,dx$

Optimal. Leaf size=137

$$-\frac{1}{2}ibe\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2}-e\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x}-\frac{1}{4}bc^2d\csc^{-1}(cx)-\frac{1}{2}i$$

```
[Out] (b*c*d*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*c^2*d*ArcCsc[c*x])/4 - (I/2)*b*e*A
rcCsc[c*x]^2 - (d*(a + b*ArcSec[c*x]))/(2*x^2) + b*e*ArcCsc[c*x]*Log[1 - E^
((2*I)*ArcCsc[c*x])] - b*e*ArcCsc[c*x]*Log[x^(-1)] - e*(a + b*ArcSec[c*x])*
Log[x^(-1)] - (I/2)*b*e*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rubi [A] time = 0.291375, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 13, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.684, Rules used = {5240, 14, 4732, 12, 6742, 321, 216, 2326, 4625, 3717, 2190, 2279, 2391}

$$-\frac{1}{2}ibe\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2}-e\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x}-\frac{1}{4}bc^2d\csc^{-1}(cx)-\frac{1}{2}i$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] (b*c*d*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*c^2*d*ArcCsc[c*x])/4 - (I/2)*b*e*A
rcCsc[c*x]^2 - (d*(a + b*ArcSec[c*x]))/(2*x^2) + b*e*ArcCsc[c*x]*Log[1 - E^
((2*I)*ArcCsc[c*x])] - b*e*ArcCsc[c*x]*Log[x^(-1)] - e*(a + b*ArcSec[c*x])*
Log[x^(-1)] - (I/2)*b*e*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] && !LinearQ[u, x] && !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 4732

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_
)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dist
[a + b*ArcCos[c*x], u, x] + Dist[b*c, Int[SimplifyIntegrand[u/Sqrt[1 - c^2*
x^2], x], x], x]] /; FreeQ[{a, b, c, d, e, f, m}, x] && NeQ[c^2*d + e, 0] &
& IntegerQ[p] && (GtQ[p, 0] || (IGtQ[(m - 1)/2, 0] && LeQ[m + p, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 2326

```
Int[((a_.) + Log[(c_.)*(x_)^(n_.)]*(b_.))/Sqrt[(d_) + (e_.)*(x_)^2], x_Symb
ol] :> Simp[(ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]*(a + b*Log[c*x^n]))/Rt[-e, 2], x
] - Dist[(b*n)/Rt[-e, 2], Int[ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]/x, x], x] /; Fr
eeQ[{a, b, c, d, e, n}, x] && GtQ[d, 0] && NegQ[e]
```

Rule 4625

```
Int[((a_.) + ArcSin[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> Subst[Int[(
a + b*x)^n/Tan[x], x], x, ArcSin[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0]
```

Rule 3717

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + Pi*(k_.) + (f_.)*(x_)], x_Symbol
] :> Simp[(I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^
m*E^(2*I*k*Pi)*E^(2*I*(e + f*x)))/(1 + E^(2*I*k*Pi)*E^(2*I*(e + f*x))), x],
 x] /; FreeQ[{c, d, e, f}, x] && IntegerQ[4*k] && IGtQ[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{(d+ex^2)\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx = -\text{Subst}\left(\int \frac{(e+dx^2)\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{x}\,dx, x, \frac{1}{x}\right)$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - e\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{b\,\text{Subst}\left(\int \frac{dx^2+2e\log(x)}{2\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{c}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - e\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{b\,\text{Subst}\left(\int \frac{dx^2+2e\log(x)}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2c}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - e\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{b\,\text{Subst}\left(\int \left(\frac{dx^2}{\sqrt{1-\frac{x^2}{c^2}}} + \frac{2e\log(x)}{\sqrt{1-\frac{x^2}{c^2}}}\right) d\ldots}{2c}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - e\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right) - \frac{(bd)\,\text{Subst}\left(\int \frac{x^2}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{2c} - \ldots$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - be\csc^{-1}(cx)\log\left(\frac{1}{x}\right) - e\left(a+b\sec^{-1}(cx)\right)\log\left(\ldots\right.$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2d\csc^{-1}(cx) - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - be\csc^{-1}(cx)\log\left(\frac{1}{x}\right) - e\left(a+\ldots\right.$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2d\csc^{-1}(cx) - \frac{1}{2}ibe\csc^{-1}(cx)^2 - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} - be\csc^{-1}(c\ldots$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2d\csc^{-1}(cx) - \frac{1}{2}ibe\csc^{-1}(cx)^2 - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} + be\csc^{-1}(c\ldots$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2d\csc^{-1}(cx) - \frac{1}{2}ibe\csc^{-1}(cx)^2 - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} + be\csc^{-1}(c\ldots$$

$$= \frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{1}{4}bc^2d\csc^{-1}(cx) - \frac{1}{2}ibe\csc^{-1}(cx)^2 - \frac{d\left(a+b\sec^{-1}(cx)\right)}{2x^2} + be\csc^{-1}(c\ldots$$

Mathematica [A] time = 0.441772, size = 136, normalized size = 0.99

$$\frac{1}{4}\left(2ibe\left(\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+\sec^{-1}(cx)\left(\sec^{-1}(cx)+2i\log\left(1+e^{2i\sec^{-1}(cx)}\right)\right)\right)-\frac{2ad}{x^2}+4ae\log(x)+\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}\left(\ldots\right.}{\ldots}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((d + e*x^2)*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] ((-2*a*d)/x^2 - (2*b*d*ArcSec[c*x])/x^2 + (b*c*d*Sqrt[1 - 1/(c^2*x^2)]*(1 +
 (c^2*x^2*ArcTanh[Sqrt[1 - c^2*x^2]])/Sqrt[1 - c^2*x^2]))/x + 4*a*e*Log[x]
+ (2*I)*b*e*(ArcSec[c*x]*(ArcSec[c*x] + (2*I)*Log[1 + E^((2*I)*ArcSec[c*x])
]) + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/4
```

Maple [A] time = 0.386, size = 145, normalized size = 1.1

$$-\frac{ad}{2\,x^{2}}+ae\ln\left(cx\right)+\frac{i}{2}b\left(\mathrm{arcsec}\left(cx\right)\right)^{2}e+\frac{bcd}{4\,x}\sqrt{\frac{c^{2}x^{2}-1}{c^{2}x^{2}}}+\frac{c^{2}bd\mathrm{arcsec}\left(cx\right)}{4}-\frac{b\mathrm{arcsec}\left(cx\right)d}{2\,x^{2}}-be\mathrm{arcsec}\left(cx\right)\ln\left(1+\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)*(a+b*arcsec(c*x))/x^3,x)
```

```
[Out] -1/2*a*d/x^2+a*e*ln(c*x)+1/2*I*b*arcsec(c*x)^2*e+1/4*c*b*d/x*((c^2*x^2-1)/c
^2/x^2)^(1/2)+1/4*c^2*b*d*arcsec(c*x)-1/2*b*arcsec(c*x)*d/x^2-b*e*arcsec(c*
x)*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)+1/2*I*b*e*polylog(2,-(1/c/x+I*(1-1
/c^2/x^2)^(1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\left(c^{2}\int\frac{\sqrt{cx+1}\sqrt{cx-1}\log\left(x\right)}{c^{4}x^{3}-c^{2}x}\,dx-\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)\log\left(x\right)\right)be-\frac{1}{4}\,bd\left(\frac{\frac{c^{4}x\sqrt{-\frac{1}{c^{2}x^{2}}+1}}{c^{2}x^{2}\left(\frac{1}{c^{2}x^{2}}-1\right)-1}-c^{3}\arctan\left(cx\sqrt{-\frac{1}{c^{2}x^{2}}\right.}{c}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^3,x, algorithm="maxima")
```

```
[Out] -(c^2*integrate(sqrt(c*x + 1)*sqrt(c*x - 1)*log(x)/(c^4*x^3 - c^2*x), x) -
arctan(sqrt(c*x + 1)*sqrt(c*x - 1))*log(x))*b*e - 1/4*b*d*((c^4*x*sqrt(-1/(
c^2*x^2) + 1)/(c^2*x^2*(1/(c^2*x^2) - 1) - 1) - c^3*arctan(c*x*sqrt(-1/(c^2
*x^2) + 1)))/c + 2*arcsec(c*x)/x^2) + a*e*log(x) - 1/2*a*d/x^2
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{aex^{2}+ad+\left(bex^{2}+bd\right)\mathrm{arcsec}\left(cx\right)}{x^{3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^3,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))/x^3, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(a+b\,\mathrm{asec}\left(cx\right)\right)\left(d+ex^{2}\right)}{x^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)*(a+b*asec(c*x))/x**3,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)/x**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex^2 + d)(b \operatorname{arcsec}(cx) + a)}{x^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)*(a+b*arcsec(c*x))/x^3,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)/x^3, x)
```

3.81 $\int x^2\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=252

$$\frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{2}{5}dex^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}e^2x^7\left(a+b\sec^{-1}(cx)\right)-\frac{bx^2\sqrt{c^2x^2-1}\left(280c^4d^2+252c^2de+75\right.}{1680c^5\sqrt{c^2x^2}}$$

```
[Out] -(b*(280*c^4*d^2 + 252*c^2*d*e + 75*e^2)*x^2*Sqrt[-1 + c^2*x^2])/(1680*c^5*
Sqrt[c^2*x^2]) - (b*e*(84*c^2*d + 25*e)*x^4*Sqrt[-1 + c^2*x^2])/(840*c^3*Sq
rt[c^2*x^2]) - (b*e^2*x^6*Sqrt[-1 + c^2*x^2])/(42*c*Sqrt[c^2*x^2]) + (d^2*x
^3*(a + b*ArcSec[c*x]))/3 + (2*d*e*x^5*(a + b*ArcSec[c*x]))/5 + (e^2*x^7*(a
 + b*ArcSec[c*x]))/7 - (b*(280*c^4*d^2 + 252*c^2*d*e + 75*e^2)*x*ArcTanh[(c
*x)/Sqrt[-1 + c^2*x^2]])/(1680*c^6*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.235731, antiderivative size = 252, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 8, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.381, Rules used = {270, 5238, 12, 1267, 459, 321, 217, 206}

$$\frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{2}{5}dex^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}e^2x^7\left(a+b\sec^{-1}(cx)\right)-\frac{bx^2\sqrt{c^2x^2-1}\left(280c^4d^2+252c^2de+75\right.}{1680c^5\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(280*c^4*d^2 + 252*c^2*d*e + 75*e^2)*x^2*Sqrt[-1 + c^2*x^2])/(1680*c^5*
Sqrt[c^2*x^2]) - (b*e*(84*c^2*d + 25*e)*x^4*Sqrt[-1 + c^2*x^2])/(840*c^3*Sq
rt[c^2*x^2]) - (b*e^2*x^6*Sqrt[-1 + c^2*x^2])/(42*c*Sqrt[c^2*x^2]) + (d^2*x
^3*(a + b*ArcSec[c*x]))/3 + (2*d*e*x^5*(a + b*ArcSec[c*x]))/5 + (e^2*x^7*(a
 + b*ArcSec[c*x]))/7 - (b*(280*c^4*d^2 + 252*c^2*d*e + 75*e^2)*x*ArcTanh[(c
*x)/Sqrt[-1 + c^2*x^2]])/(1680*c^6*Sqrt[c^2*x^2])
```

Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1267

```
Int[((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (
c_.)*(x_)^4)^(p_.), x_Symbol] :> Simp[(c^p*(f*x)^(m + 4*p - 1)*(d + e*x^2)^
(q + 1))/(e*f^(4*p - 1)*(m + 4*p + 2*q + 1)), x] + Dist[1/(e*(m + 4*p + 2*q
 + 1)), Int[(f*x)^m*(d + e*x^2)^q*ExpandToSum[e*(m + 4*p + 2*q + 1)*((a + b
*x^2 + c*x^4)^p - c^p*x^(4*p)) - d*c^p*(m + 4*p - 1)*x^(4*p - 2), x], x], x
] /; FreeQ[{a, b, c, d, e, f, m, q}, x] && NeQ[b^2 - 4*a*c, 0] && IGtQ[p, 0
] &&  !IntegerQ[q] && NeQ[m + 4*p + 2*q + 1, 0]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^2\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)dx = \frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{2}{5}dex^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}e^2x^7\left(a+b\sec^{-1}(cx)\right)-$$

$$= \frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{2}{5}dex^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}e^2x^7\left(a+b\sec^{-1}(cx)\right)-$$

$$= -\frac{be^2x^6\sqrt{-1+c^2x^2}}{42c\sqrt{c^2x^2}}+\frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{2}{5}dex^5\left(a+b\sec^{-1}(cx)\right)+\frac{1}{7}e^2$$

$$= -\frac{be\left(84c^2d+25e\right)x^4\sqrt{-1+c^2x^2}}{840c^3\sqrt{c^2x^2}}-\frac{be^2x^6\sqrt{-1+c^2x^2}}{42c\sqrt{c^2x^2}}+\frac{1}{3}d^2x^3\left(a+b\sec^{-1}(cx)\right.$$

$$= -\frac{b\left(280c^4d^2+252c^2de+75e^2\right)x^2\sqrt{-1+c^2x^2}}{1680c^5\sqrt{c^2x^2}}-\frac{be\left(84c^2d+25e\right)x^4\sqrt{-1+c^2x}}{840c^3\sqrt{c^2x^2}}$$

$$= -\frac{b\left(280c^4d^2+252c^2de+75e^2\right)x^2\sqrt{-1+c^2x^2}}{1680c^5\sqrt{c^2x^2}}-\frac{be\left(84c^2d+25e\right)x^4\sqrt{-1+c^2x}}{840c^3\sqrt{c^2x^2}}$$

$$= -\frac{b\left(280c^4d^2+252c^2de+75e^2\right)x^2\sqrt{-1+c^2x^2}}{1680c^5\sqrt{c^2x^2}}-\frac{be\left(84c^2d+25e\right)x^4\sqrt{-1+c^2x}}{840c^3\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.355263, size = 186, normalized size = 0.74

$$\frac{c^2x^2\left(16ac^5x\left(35d^2+42dex^2+15e^2x^4\right)-b\sqrt{1-\frac{1}{c^2x^2}}\left(8c^4\left(35d^2+21dex^2+5e^2x^4\right)+2c^2e\left(126d+25ex^2\right)+75e^2\right)\right)-b}{1680c^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (c^2*x^2*(16*a*c^5*x*(35*d^2 + 42*d*e*x^2 + 15*e^2*x^4) - b*Sqrt[1 - 1/(c^2
*x^2)]*(75*e^2 + 2*c^2*e*(126*d + 25*e*x^2) + 8*c^4*(35*d^2 + 21*d*e*x^2 +
5*e^2*x^4))) + 16*b*c^7*x^3*(35*d^2 + 42*d*e*x^2 + 15*e^2*x^4)*ArcSec[c*x]
- b*(280*c^4*d^2 + 252*c^2*d*e + 75*e^2)*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x]
)/(1680*c^7)
```

Maple [B] time = 0.167, size = 494, normalized size = 2.

$$\frac{ae^2x^7}{7}+\frac{2\,aedx^5}{5}+\frac{ax^3d^2}{3}+\frac{b\mathrm{arcsec}\,(cx)\,e^2x^7}{7}+\frac{2\,b\mathrm{arcsec}\,(cx)\,edx^5}{5}+\frac{b\mathrm{arcsec}\,(cx)\,x^3d^2}{3}-\frac{bx^6e^2}{42\,c}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bx^4e^2}{168\,c^3}\frac{}{\sqrt{}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/7*a*e^2*x^7+2/5*a*e*d*x^5+1/3*a*x^3*d^2+1/7*b*arcsec(c*x)*e^2*x^7+2/5*b*a
rcsec(c*x)*e*d*x^5+1/3*b*arcsec(c*x)*x^3*d^2-1/42/c*b/((c^2*x^2-1)/c^2/x^2)
^(1/2)*x^6*e^2-1/168/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^4*e^2-1/10/c*b/((c
^2*x^2-1)/c^2/x^2)^(1/2)*x^4*e*d-1/20/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2
*e*d-1/6/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*d^2*x^2+1/6/c^3*b/((c^2*x^2-1)/c^2
/x^2)^(1/2)*d^2-1/6/c^4*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d
```

```
^2*ln(c*x+(c^2*x^2-1)^(1/2))-5/336/c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2*e^
2+3/20/c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e*d-3/20/c^6*b*(c^2*x^2-1)^(1/2)/(
(c^2*x^2-1)/c^2/x^2)^(1/2)/x*e*d*ln(c*x+(c^2*x^2-1)^(1/2))+5/112/c^7*b/((c^
2*x^2-1)/c^2/x^2)^(1/2)*e^2-5/112/c^8*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/
x^2)^(1/2)/x*e^2*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 1.02231, size = 547, normalized size = 2.17

$$\frac{1}{7}ae^2x^7 + \frac{2}{5}adex^5 + \frac{1}{3}ad^2x^3 + \frac{1}{12}\left(4x^3\operatorname{arcsec}(cx) - \frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2} + \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2} - \frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)bd^2 + \frac{1}{40}\left(16x^5 \mathrm{a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/7*a*e^2*x^7 + 2/5*a*d*e*x^5 + 1/3*a*d^2*x^3 + 1/12*(4*x^3*arcsec(c*x) - (
2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x
^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^2)/c)*b*d^2 + 1/40*(1
6*x^5*arcsec(c*x) + (2*(3*(-1/(c^2*x^2) + 1)^(3/2) - 5*sqrt(-1/(c^2*x^2) +
1))/(c^4*(1/(c^2*x^2) - 1)^2 + 2*c^4*(1/(c^2*x^2) - 1) + c^4) - 3*log(sqrt(
-1/(c^2*x^2) + 1) + 1)/c^4 + 3*log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^4)/c)*b*d*
e + 1/672*(96*x^7*arcsec(c*x) - (2*(15*(-1/(c^2*x^2) + 1)^(5/2) - 40*(-1/(c
^2*x^2) + 1)^(3/2) + 33*sqrt(-1/(c^2*x^2) + 1))/(c^6*(1/(c^2*x^2) - 1)^3 +
3*c^6*(1/(c^2*x^2) - 1)^2 + 3*c^6*(1/(c^2*x^2) - 1) + c^6) + 15*log(sqrt(-1
/(c^2*x^2) + 1) + 1)/c^6 - 15*log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^6)/c)*b*e^2
```

Fricas [A] time = 4.6337, size = 641, normalized size = 2.54

$$\frac{240\,ac^7e^2x^7 + 672\,ac^7dex^5 + 560\,ac^7d^2x^3 + 16\left(15\,bc^7e^2x^7 + 42\,bc^7dex^5 + 35\,bc^7d^2x^3 - 35\,bc^7d^2 - 42\,bc^7de - 15\,bc^7e^2\right)\mathrm{ar}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/1680*(240*a*c^7*e^2*x^7 + 672*a*c^7*d*e*x^5 + 560*a*c^7*d^2*x^3 + 16*(15*
b*c^7*e^2*x^7 + 42*b*c^7*d*e*x^5 + 35*b*c^7*d^2*x^3 - 35*b*c^7*d^2 - 42*b*c
^7*d*e - 15*b*c^7*e^2)*arcsec(c*x) + 32*(35*b*c^7*d^2 + 42*b*c^7*d*e + 15*b
*c^7*e^2)*arctan(-c*x + sqrt(c^2*x^2 - 1)) + (280*b*c^4*d^2 + 252*b*c^2*d*e
 + 75*b*e^2)*log(-c*x + sqrt(c^2*x^2 - 1)) - (40*b*c^5*e^2*x^5 + 2*(84*b*c^
5*d*e + 25*b*c^3*e^2)*x^3 + (280*b*c^5*d^2 + 252*b*c^3*d*e + 75*b*c*e^2)*x)
*sqrt(c^2*x^2 - 1))/c^7
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2\left(a + b\operatorname{asec}(cx)\right)\left(d + ex^2\right)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(e*x**2+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x))*(d + e*x**2)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^2 (b \operatorname{arcsec}(cx) + a)x^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)*x^2, x)
```

3.82 $\int \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=191

$$d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}dex^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}e^2x^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(120c^4d^2+40c^2de+9e^2\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{120c^4\sqrt{c^2x^2}}$$

```
[Out] -(b*e*(40*c^2*d + 9*e)*x^2*Sqrt[-1 + c^2*x^2])/(120*c^3*Sqrt[c^2*x^2]) - (b
*e^2*x^4*Sqrt[-1 + c^2*x^2])/(20*c*Sqrt[c^2*x^2]) + d^2*x*(a + b*ArcSec[c*x
]) + (2*d*e*x^3*(a + b*ArcSec[c*x]))/3 + (e^2*x^5*(a + b*ArcSec[c*x]))/5 -
(b*(120*c^4*d^2 + 40*c^2*d*e + 9*e^2)*x*ArcTanh[(c*x)/Sqrt[-1 + c^2*x^2]])/
(120*c^4*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.114684, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.389, Rules used = {194, 5228, 12, 1159, 388, 217, 206}

$$d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}dex^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}e^2x^5\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(120c^4d^2+40c^2de+9e^2\right)\tanh^{-1}\left(\frac{cx}{\sqrt{c^2x^2-1}}\right)}{120c^4\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*e*(40*c^2*d + 9*e)*x^2*Sqrt[-1 + c^2*x^2])/(120*c^3*Sqrt[c^2*x^2]) - (b
*e^2*x^4*Sqrt[-1 + c^2*x^2])/(20*c*Sqrt[c^2*x^2]) + d^2*x*(a + b*ArcSec[c*x
]) + (2*d*e*x^3*(a + b*ArcSec[c*x]))/3 + (e^2*x^5*(a + b*ArcSec[c*x]))/5 -
(b*(120*c^4*d^2 + 40*c^2*d*e + 9*e^2)*x*ArcTanh[(c*x)/Sqrt[-1 + c^2*x^2]])/
(120*c^4*Sqrt[c^2*x^2])
```

Rule 194

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Int[ExpandIntegrand[(a + b*
x^n)^p, x], x] /; FreeQ[{a, b}, x] && IGtQ[n, 0] && IGtQ[p, 0]
```

Rule 5228

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_)^2)^(p_.), x_Symb
ol] :> With[{u = IntHide[(d + e*x^2)^p, x]}, Dist[a + b*ArcSec[c*x], u, x]
- Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegrand[u/(x*Sqrt[c^2*x^2 - 1])
, x], x], x]] /; FreeQ[{a, b, c, d, e}, x] && (IGtQ[p, 0] || ILtQ[p + 1/2,
0])
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1159

```
Int[((d_) + (e_.)*(x_)^2)^(q_)*((a_) + (b_.)*(x_)^2 + (c_.)*(x_)^4)^(p_.),
x_Symbol] :> Simp[(c^p*x^(4*p - 1)*(d + e*x^2)^(q + 1))/(e*(4*p + 2*q + 1))
, x] + Dist[1/(e*(4*p + 2*q + 1)), Int[(d + e*x^2)^q*ExpandToSum[e*(4*p + 2
*q + 1)*(a + b*x^2 + c*x^4)^p - d*c^p*(4*p - 1)*x^(4*p - 2) - e*c^p*(4*p +
2*q + 1)*x^(4*p), x], x], x] /; FreeQ[{a, b, c, d, e, q}, x] && NeQ[b^2 - 4
```

```
*a*c, 0] && NeQ[c*d^2 - b*d*e + a*e^2, 0] && IGtQ[p, 0] &&  !LtQ[q, -1]
```

Rule 388

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Si
mp[(d*x*(a + b*x^n)^(p + 1))/(b*(n*(p + 1) + 1)), x] - Dist[(a*d - b*c*(n*(
p + 1) + 1))/(b*(n*(p + 1) + 1)), Int[(a + b*x^n)^p, x], x] /; FreeQ[{a, b,
 c, d, n}, x] && NeQ[b*c - a*d, 0] && NeQ[n*(p + 1) + 1, 0]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right) dx = d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}dex^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}e^2x^5\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)}{}$$

$$= d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}dex^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}e^2x^5\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)}{}$$

$$= -\frac{be^2x^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}dex^3\left(a+b\sec^{-1}(cx)\right)+\frac{1}{5}e^2x^5\left(a\right.$$

$$= -\frac{be\left(40c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{be^2x^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}d$$

$$= -\frac{be\left(40c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{be^2x^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}d$$

$$= -\frac{be\left(40c^2d+9e\right)x^2\sqrt{-1+c^2x^2}}{120c^3\sqrt{c^2x^2}}-\frac{be^2x^4\sqrt{-1+c^2x^2}}{20c\sqrt{c^2x^2}}+d^2x\left(a+b\sec^{-1}(cx)\right)+\frac{2}{3}d$$

Mathematica [A] time = 0.22864, size = 153, normalized size = 0.8

$$\frac{c^2x\left(8ac^3\left(15d^2+10dex^2+3e^2x^4\right)-bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(40d+6ex^2\right)+9e\right)\right)-b\left(120c^4d^2+40c^2de+9e^2\right)\log\left(x\left(\sqrt{1-\right.\right.}{120c^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (c^2*x*(8*a*c^3*(15*d^2 + 10*d*e*x^2 + 3*e^2*x^4) - b*e*Sqrt[1 - 1/(c^2*x^2
)]*x*(9*e + c^2*(40*d + 6*e*x^2))) + 8*b*c^5*x*(15*d^2 + 10*d*e*x^2 + 3*e^2
*x^4)*ArcSec[c*x] - b*(120*c^4*d^2 + 40*c^2*d*e + 9*e^2)*Log[(1 + Sqrt[1 -
1/(c^2*x^2)])*x])/(120*c^5)
```

Maple [B] time = 0.168, size = 372, normalized size = 2.

$$\frac{ae^2x^5}{5}+\frac{2ax^3de}{3}+ad^2x+\frac{b\,\mathrm{arcsec}\,(cx)\,e^2x^5}{5}+\frac{2b\,\mathrm{arcsec}\,(cx)\,x^3de}{3}+b\,\mathrm{arcsec}\,(cx)\,xd^2-\frac{bd^2}{c^2x}\sqrt{c^2x^2-1}\ln\left(cx+\sqrt{c^2x^2-1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/5*a*e^2*x^5+2/3*a*x^3*d*e+a*d^2*x+1/5*b*arcsec(c*x)*e^2*x^5+2/3*b*arcsec(
c*x)*x^3*d*e+b*arcsec(c*x)*x*d^2-1/c^2*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2
/x^2)^(1/2)/x*d^2*ln(c*x+(c^2*x^2-1)^(1/2))-1/20/c*b/((c^2*x^2-1)/c^2/x^2)^
(1/2)*x^4*e^2-1/40/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x^2*e^2-1/3/c*b/((c^2*
x^2-1)/c^2/x^2)^(1/2)*e*d*x^2+1/3/c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e*d-1/3
/c^4*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e*d*ln(c*x+(c^2*x^2-
1)^(1/2))+3/40/c^5*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e^2-3/40/c^6*b*(c^2*x^2-1)
^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e^2*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.998801, size = 400, normalized size = 2.09

$$\frac{1}{5}\,ae^2x^5+\frac{2}{3}\,adex^3+\frac{1}{6}\left(4\,x^3\,\mathrm{arcsec}\,(cx)-\frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2}+\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2}-\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)bde+\frac{1}{80}\left(16\,x^5\,\mathrm{arcsec}\,(cx)+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/5*a*e^2*x^5 + 2/3*a*d*e*x^3 + 1/6*(4*x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^
2) + 1)/(c^2*(1/(c^2*x^2) - 1) + c^2) + log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2
 - log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^2)/c)*b*d*e + 1/80*(16*x^5*arcsec(c*x)
 + (2*(3*(-1/(c^2*x^2) + 1)^(3/2) - 5*sqrt(-1/(c^2*x^2) + 1))/(c^4*(1/(c^2*
x^2) - 1)^2 + 2*c^4*(1/(c^2*x^2) - 1) + c^4) - 3*log(sqrt(-1/(c^2*x^2) + 1)
 + 1)/c^4 + 3*log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^4)/c)*b*e^2 + a*d^2*x + 1/2
*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-sqrt(-1/(c^2*x
^2) + 1) + 1))*b*d^2/c
```

Fricas [A] time = 3.52936, size = 547, normalized size = 2.86

$$\frac{24\,ac^5e^2x^5+80\,ac^5dex^3+120\,ac^5d^2x+8\left(3\,bc^5e^2x^5+10\,bc^5dex^3+15\,bc^5d^2x-15\,bc^5d^2-10\,bc^5de-3\,bc^5e^2\right)\mathrm{arcsec}\,(cx)}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/120*(24*a*c^5*e^2*x^5 + 80*a*c^5*d*e*x^3 + 120*a*c^5*d^2*x + 8*(3*b*c^5*e
^2*x^5 + 10*b*c^5*d*e*x^3 + 15*b*c^5*d^2*x - 15*b*c^5*d^2 - 10*b*c^5*d*e -
```

```
3*b*c^5*e^2)*arcsec(c*x) + 16*(15*b*c^5*d^2 + 10*b*c^5*d*e + 3*b*c^5*e^2)*a
rctan(-c*x + sqrt(c^2*x^2 - 1)) + (120*b*c^4*d^2 + 40*b*c^2*d*e + 9*b*e^2)*
log(-c*x + sqrt(c^2*x^2 - 1)) - (6*b*c^3*e^2*x^3 + (40*b*c^3*d*e + 9*b*c*e^
2)*x)*sqrt(c^2*x^2 - 1))/c^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + b\operatorname{asec}(cx))\left(d + ex^2\right)^2 dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^2 (b\operatorname{arcsec}(cx) + a)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a), x)
```

3.83 $\int \frac{(d+ex^2)^2(a+b\sec^{-1}(cx))}{x^2}\,dx$

Optimal. Leaf size=162

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}e^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2\sqrt{c^2x^2-1}}{\sqrt{c^2x^2}}-\frac{bex\left(12c^2d+e\right)\tanh^{-1}\left(\frac{c}{\sqrt{c^2}}\right.}{6c^2\sqrt{c^2x^2}}$$

```
[Out] (b*c*d^2*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*x^2] - (b*e^2*x^2*Sqrt[-1 + c^2*x^2])
/(6*c*Sqrt[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/x + 2*d*e*x*(a + b*ArcSec[
c*x]) + (e^2*x^3*(a + b*ArcSec[c*x]))/3 - (b*e*(12*c^2*d + e)*x*ArcTanh[(c*
x)/Sqrt[-1 + c^2*x^2]])/(6*c^2*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.127189, antiderivative size = 162, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {270, 5238, 12, 1265, 388, 217, 206}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}e^2x^3\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2\sqrt{c^2x^2-1}}{\sqrt{c^2x^2}}-\frac{bex\left(12c^2d+e\right)\tanh^{-1}\left(\frac{c}{\sqrt{c^2}}\right.}{6c^2\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^2,x]
```

```
[Out] (b*c*d^2*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*x^2] - (b*e^2*x^2*Sqrt[-1 + c^2*x^2])
/(6*c*Sqrt[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/x + 2*d*e*x*(a + b*ArcSec[
c*x]) + (e^2*x^3*(a + b*ArcSec[c*x]))/3 - (b*e*(12*c^2*d + e)*x*ArcTanh[(c*
x)/Sqrt[-1 + c^2*x^2]])/(6*c^2*Sqrt[c^2*x^2])
```

Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1265

```
Int[((f_.)*(x_))^(m_)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (c
_.)*(x_)^4)^(p_.), x_Symbol] :> With[{Qx = PolynomialQuotient[(a + b*x^2 +
c*x^4)^p, f*x, x], R = PolynomialRemainder[(a + b*x^2 + c*x^4)^p, f*x, x]},
```

```
Simp[(R*(f*x)^(m + 1)*(d + e*x^2)^(q + 1))/(d*f*(m + 1)), x] + Dist[1/(d*f
^2*(m + 1)), Int[(f*x)^(m + 2)*(d + e*x^2)^q*ExpandToSum[(d*f*(m + 1)*Qx)/x
 - e*R*(m + 2*q + 3), x], x], x]] /; FreeQ[{a, b, c, d, e, f, q}, x] && NeQ
[b^2 - 4*a*c, 0] && IGtQ[p, 0] && LtQ[m, -1]
```

Rule 388

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Si
mp[(d*x*(a + b*x^n)^(p + 1))/(b*(n*(p + 1) + 1)), x] - Dist[(a*d - b*c*(n*(
p + 1) + 1))/(b*(n*(p + 1) + 1)), Int[(a + b*x^n)^p, x], x] /; FreeQ[{a, b,
 c, d, n}, x] && NeQ[b*c - a*d, 0] && NeQ[n*(p + 1) + 1, 0]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx = -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}e^2x^3\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)}{}$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}e^2x^3\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)}{}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}e^2x^3\left(a+b\mathrm{s}\right.$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{be^2x^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(c\right.$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{be^2x^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(c\right.$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{\sqrt{c^2x^2}}-\frac{be^2x^2\sqrt{-1+c^2x^2}}{6c\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{x}+2dex\left(a+b\sec^{-1}(c\right.$$

Mathematica [A] time = 0.194875, size = 136, normalized size = 0.84

$$\frac{c^2\left(2ac\left(-3d^2+6dex^2+e^2x^4\right)+bx\sqrt{1-\frac{1}{c^2x^2}}\left(6c^2d^2-e^2x^2\right)\right)+2bc^3\sec^{-1}(cx)\left(-3d^2+6dex^2+e^2x^4\right)-bex\left(12c^2d+e\right.}{6c^3x}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^2,x]
```

```
[Out] (c^2*(b*Sqrt[1 - 1/(c^2*x^2)]*x*(6*c^2*d^2 - e^2*x^2) + 2*a*c*(-3*d^2 + 6*d
*e*x^2 + e^2*x^4)) + 2*b*c^3*(-3*d^2 + 6*d*e*x^2 + e^2*x^4)*ArcSec[c*x] - b
```

```
*e*(12*c^2*d + e)*x*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x])/(6*c^3*x)
```

Maple [A] time = 0.174, size = 286, normalized size = 1.8

$$\frac{ax^3e^2}{3}+2\,aedx-\frac{ad^2}{x}+\frac{b\mathrm{arcsec}\,(cx)\,x^3e^2}{3}+2\,b\mathrm{arcsec}\,(cx)\,edx-\frac{b\mathrm{arcsec}\,(cx)\,d^2}{x}+cbd^2\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-\frac{bd^2}{cx^2}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}-2\frac{b\sqrt{c^2}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x^2,x)
```

```
[Out] 1/3*a*x^3*e^2+2*a*e*d*x-a*d^2/x+1/3*b*arcsec(c*x)*x^3*e^2+2*b*arcsec(c*x)*e
*d*x-b*arcsec(c*x)*d^2/x+c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*d^2-b/c/x^2/((c^2*
x^2-1)/c^2/x^2)^(1/2)*d^2-2*b/c^2*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(
1/2)/x*e*d*ln(c*x+(c^2*x^2-1)^(1/2))-1/6*b/c/((c^2*x^2-1)/c^2/x^2)^(1/2)*e^
2*x^2+1/6*b/c^3/((c^2*x^2-1)/c^2/x^2)^(1/2)*e^2-1/6*b/c^4*(c^2*x^2-1)^(1/2)
/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e^2*ln(c*x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.993497, size = 267, normalized size = 1.65

$$\frac{1}{3}\,ae^2x^3+\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\mathrm{arcsec}\,(cx)}{x}\right)bd^2+\frac{1}{12}\left(4\,x^3\,\mathrm{arcsec}\,(cx)-\frac{\frac{2\sqrt{-\frac{1}{c^2x^2}+1}}{c^2\left(\frac{1}{c^2x^2}-1\right)+c^2}+\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}+1\right)}{c^2}-\frac{\log\left(\sqrt{-\frac{1}{c^2x^2}+1}-1\right)}{c^2}}{c}\right)be$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^2,x, algorithm="maxima")
```

```
[Out] 1/3*a*e^2*x^3 + (c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b*d^2 + 1/12*(4*
x^3*arcsec(c*x) - (2*sqrt(-1/(c^2*x^2) + 1)/(c^2*(1/(c^2*x^2) - 1) + c^2) +
 log(sqrt(-1/(c^2*x^2) + 1) + 1)/c^2 - log(sqrt(-1/(c^2*x^2) + 1) - 1)/c^2)
/c)*b*e^2 + 2*a*d*e*x + (2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1
) + log(-sqrt(-1/(c^2*x^2) + 1) + 1))*b*d*e/c - a*d^2/x
```

Fricas [A] time = 2.57997, size = 502, normalized size = 3.1

$$\frac{2\,ac^3e^2x^4+6\,bc^4d^2x+12\,ac^3dex^2-6\,ac^3d^2-4\left(3\,bc^3d^2-6\,bc^3de-bc^3e^2\right)x\arctan\left(-cx+\sqrt{c^2x^2-1}\right)+\left(12\,bc^2de+be^2\right)}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*a*c^3*e^2*x^4 + 6*b*c^4*d^2*x + 12*a*c^3*d*e*x^2 - 6*a*c^3*d^2 - 4*(
3*b*c^3*d^2 - 6*b*c^3*d*e - b*c^3*e^2)*x*arctan(-c*x + sqrt(c^2*x^2 - 1)) +
 (12*b*c^2*d*e + b*e^2)*x*log(-c*x + sqrt(c^2*x^2 - 1)) + 2*(b*c^3*e^2*x^4
+ 6*b*c^3*d*e*x^2 - 3*b*c^3*d^2 + (3*b*c^3*d^2 - 6*b*c^3*d*e - b*c^3*e^2)*x
```

```
)*arcsec(c*x) + (6*b*c^3*d^2 - b*c*e^2*x^2)*sqrt(c^2*x^2 - 1))/(c^3*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b \operatorname{asec}(cx)) \left(d + ex^2\right)^2}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x**2,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^2 (b \operatorname{arcsec}(cx) + a)}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^2,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x^2, x)
```

3.84 $\int \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$

Optimal. Leaf size=158

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{x}+e^2x\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2\sqrt{c^2x^2-1}}{9x^2\sqrt{c^2x^2}}+\frac{2bcd\sqrt{c^2x^2-1}\left(c^2d+9e\right)}{9\sqrt{c^2x^2}}-\frac{be^2}{}$$

```
[Out] (2*b*c*d*(c^2*d + 9*e)*Sqrt[-1 + c^2*x^2])/(9*Sqrt[c^2*x^2]) + (b*c*d^2*Sqr
t[-1 + c^2*x^2])/(9*x^2*Sqrt[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/(3*x^3)
- (2*d*e*(a + b*ArcSec[c*x]))/x + e^2*x*(a + b*ArcSec[c*x]) - (b*e^2*x*ArcT
anh[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[c^2*x^2]
```

Rubi [A] time = 0.131202, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {270, 5238, 12, 1265, 451, 217, 206}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{x}+e^2x\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2\sqrt{c^2x^2-1}}{9x^2\sqrt{c^2x^2}}+\frac{2bcd\sqrt{c^2x^2-1}\left(c^2d+9e\right)}{9\sqrt{c^2x^2}}-\frac{be^2}{}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^4,x]
```


```
[Out] (2*b*c*d*(c^2*d + 9*e)*Sqrt[-1 + c^2*x^2])/(9*Sqrt[c^2*x^2]) + (b*c*d^2*Sqr
t[-1 + c^2*x^2])/(9*x^2*Sqrt[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/(3*x^3)
- (2*d*e*(a + b*ArcSec[c*x]))/x + e^2*x*(a + b*ArcSec[c*x]) - (b*e^2*x*ArcT
anh[(c*x)/Sqrt[-1 + c^2*x^2]])/Sqrt[c^2*x^2]
```


Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1265

```
Int[((f_.)*(x_))^(m_)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (c
_.)*(x_)^4)^(p_.), x_Symbol] :> With[{Qx = PolynomialQuotient[(a + b*x^2 +
c*x^4)^p, f*x, x], R = PolynomialRemainder[(a + b*x^2 + c*x^4)^p, f*x, x]},
```

```
Simp[(R*(f*x)^(m + 1)*(d + e*x^2)^(q + 1))/(d*f*(m + 1)), x] + Dist[1/(d*f
^2*(m + 1)), Int[(f*x)^(m + 2)*(d + e*x^2)^q*ExpandToSum[(d*f*(m + 1)*Qx)/x
 - e*R*(m + 2*q + 3), x], x], x]] /; FreeQ[{a, b, c, d, e, f, q}, x] && NeQ
[b^2 - 4*a*c, 0] && IGtQ[p, 0] && LtQ[m, -1]
```

Rule 451

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[d/e^n, Int[(e*x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c
, d, e, m, n, p}, x] && NeQ[b*c - a*d, 0] && EqQ[m + n*(p + 1) + 1, 0] && (
IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (LtQ[n, 0] && Gt
Q[m + n, -1]))
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx = -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{x}+e^2x\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int \ldots}{\ldots}$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{x}+e^2x\left(a+b\sec^{-1}(cx)\right)-\frac{(bcx)\int \ldots}{\ldots}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{x}+e^2x\left(a+b\sec^{-1}\ldots\right.$$

$$= \frac{2bcd\left(c^2d+9e\right)\sqrt{-1+c^2x^2}}{9\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+\ldots\right.}{\ldots}$$

$$= \frac{2bcd\left(c^2d+9e\right)\sqrt{-1+c^2x^2}}{9\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+\ldots\right.}{\ldots}$$

$$= \frac{2bcd\left(c^2d+9e\right)\sqrt{-1+c^2x^2}}{9\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{-1+c^2x^2}}{9x^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{2de\left(a+\ldots\right.}{\ldots}$$

Mathematica [A] time = 0.213241, size = 127, normalized size = 0.8

$$\frac{c\left(bcdx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2dx^2+d+18ex^2\right)-3a\left(d^2+6dex^2-3e^2x^4\right)\right)-9be^2x^3\log\left(x\left(\sqrt{1-\frac{1}{c^2x^2}}+1\right)\right)-3bc\sec^{-1}(cx)\left(d\ldots\right.}{9cx^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] (c*(b*c*d*Sqrt[1 - 1/(c^2*x^2)]*x*(d + 2*c^2*d*x^2 + 18*e*x^2) - 3*a*(d^2 +
 6*d*e*x^2 - 3*e^2*x^4)) - 3*b*c*(d^2 + 6*d*e*x^2 - 3*e^2*x^4)*ArcSec[c*x]
- 9*b*e^2*x^3*Log[(1 + Sqrt[1 - 1/(c^2*x^2)])*x])/(9*c*x^3)
```

Maple [A] time = 0.179, size = 255, normalized size = 1.6

$$axe^2 - 2\frac{aed}{x} - \frac{ad^2}{3x^3} + b\operatorname{arcsec}(cx)xe^2 - 2\frac{b\operatorname{arcsec}(cx)ed}{x} - \frac{b\operatorname{arcsec}(cx)d^2}{3x^3} + \frac{2bc^3d^2}{9}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} - \frac{cbd^2}{9x^2}\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}} + 2bcde$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x^4,x)
```

```
[Out] a*x*e^2-2*a*e*d/x-1/3*a*d^2/x^3+b*arcsec(c*x)*x*e^2-2*b*arcsec(c*x)*e*d/x-1
/3*b*arcsec(c*x)*d^2/x^3+2/9*c^3*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*d^2-1/9*c*b/
x^2/((c^2*x^2-1)/c^2/x^2)^(1/2)*d^2+2*c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)*e*d-2
/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x^2*e*d-1/9/c*b/((c^2*x^2-1)/c^2/x^2)^(1/2
)/x^4*d^2-1/c^2*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*e^2*ln(c*
x+(c^2*x^2-1)^(1/2))
```

Maxima [A] time = 0.972808, size = 215, normalized size = 1.36

$$2\left(c\sqrt{-\frac{1}{c^2x^2}+1} - \frac{\operatorname{arcsec}(cx)}{x}\right)bde + ae^2x - \frac{1}{9}bd^2\left(\frac{c^4\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} - 3c^4\sqrt{-\frac{1}{c^2x^2}+1}}{c} + \frac{3\operatorname{arcsec}(cx)}{x^3}\right) + \frac{(2cx\operatorname{arcsec}(cx}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^4,x, algorithm="maxima")
```

```
[Out] 2*(c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b*d*e + a*e^2*x - 1/9*b*d^2*((
c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c + 3*arcsec(c
*x)/x^3) + 1/2*(2*c*x*arcsec(c*x) - log(sqrt(-1/(c^2*x^2) + 1) + 1) + log(-
sqrt(-1/(c^2*x^2) + 1) + 1))*b*e^2/c - 2*a*d*e/x - 1/3*a*d^2/x^3
```

Fricas [A] time = 2.22743, size = 501, normalized size = 3.17

$$\frac{9ace^2x^4 + 9be^2x^3\log\left(-cx + \sqrt{c^2x^2-1}\right) - 18acdex^2 - 6\left(bcd^2 + 6bcde - 3bce^2\right)x^3\arctan\left(-cx + \sqrt{c^2x^2-1}\right) - 3acd^2 +}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^4,x, algorithm="fricas")
```

```
[Out] 1/9*(9*a*c*e^2*x^4 + 9*b*e^2*x^3*log(-c*x + sqrt(c^2*x^2 - 1)) - 18*a*c*d*e
*x^2 - 6*(b*c*d^2 + 6*b*c*d*e - 3*b*c*e^2)*x^3*arctan(-c*x + sqrt(c^2*x^2 -
 1)) - 3*a*c*d^2 + 2*(b*c^4*d^2 + 9*b*c^2*d*e)*x^3 + 3*(3*b*c*e^2*x^4 - 6*b
*c*d*e*x^2 - b*c*d^2 + (b*c*d^2 + 6*b*c*d*e - 3*b*c*e^2)*x^3)*arcsec(c*x) +
 (b*c*d^2 + 2*(b*c^3*d^2 + 9*b*c*d*e)*x^2)*sqrt(c^2*x^2 - 1))/(c*x^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\,\mathrm{asec}\,(cx))\left(d + ex^2\right)^2}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x**4,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x**4, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^2 (b\,\mathrm{arcsec}\,(cx) + a)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^4,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x^4, x)
```

3.85 $\int \frac{(d+ex^2)^2(a+b\sec^{-1}(cx))}{x^6}\,dx$

Optimal. Leaf size=183

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{x}+\frac{bc\sqrt{c^2x^2-1}\left(24c^4d^2+100c^2de+225e^2\right)}{225\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{}}{25x^4}$$

```
[Out] (b*c*(24*c^4*d^2 + 100*c^2*d*e + 225*e^2)*Sqrt[-1 + c^2*x^2])/(225*Sqrt[c^2
*x^2]) + (b*c*d^2*Sqrt[-1 + c^2*x^2])/(25*x^4*Sqrt[c^2*x^2]) + (2*b*c*d*(6*
c^2*d + 25*e)*Sqrt[-1 + c^2*x^2])/(225*x^2*Sqrt[c^2*x^2]) - (d^2*(a + b*Arc
Sec[c*x]))/(5*x^5) - (2*d*e*(a + b*ArcSec[c*x]))/(3*x^3) - (e^2*(a + b*ArcS
ec[c*x]))/x
```

Rubi [A] time = 0.157466, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 6, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.286, Rules used = {270, 5238, 12, 1265, 453, 264}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{x}+\frac{bc\sqrt{c^2x^2-1}\left(24c^4d^2+100c^2de+225e^2\right)}{225\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{}}{25x^4}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^6,x]
```


```
[Out] (b*c*(24*c^4*d^2 + 100*c^2*d*e + 225*e^2)*Sqrt[-1 + c^2*x^2])/(225*Sqrt[c^2
*x^2]) + (b*c*d^2*Sqrt[-1 + c^2*x^2])/(25*x^4*Sqrt[c^2*x^2]) + (2*b*c*d*(6*
c^2*d + 25*e)*Sqrt[-1 + c^2*x^2])/(225*x^2*Sqrt[c^2*x^2]) - (d^2*(a + b*Arc
Sec[c*x]))/(5*x^5) - (2*d*e*(a + b*ArcSec[c*x]))/(3*x^3) - (e^2*(a + b*ArcS
ec[c*x]))/x
```


Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1265

```
Int[((f_.)*(x_))^(m_)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (c
_.)*(x_)^4)^(p_.), x_Symbol] :> With[{Qx = PolynomialQuotient[(a + b*x^2 +
```

```
c*x^4)^p, f*x, x], R = PolynomialRemainder[(a + b*x^2 + c*x^4)^p, f*x, x]},
 Simp[(R*(f*x)^(m + 1)*(d + e*x^2)^(q + 1))/(d*f*(m + 1)), x] + Dist[1/(d*f
^2*(m + 1)), Int[(f*x)^(m + 2)*(d + e*x^2)^q*ExpandToSum[(d*f*(m + 1)*Qx)/x
 - e*R*(m + 2*q + 3), x], x], x]] /; FreeQ[{a, b, c, d, e, f, q}, x] && NeQ
[b^2 - 4*a*c, 0] && IGtQ[p, 0] && LtQ[m, -1]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx = -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{x}-\frac{(bcx)\int\frac{-3}{}}{}$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{x}-\frac{(bcx)\int\frac{-3}{}}{1}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{3x^3}-\frac{e^2\left(a+b\sec^{-1}\right.}{x}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}+\frac{2bcd\left(6c^2d+25e\right)\sqrt{-1+c^2x^2}}{225x^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{2de\left(a\right.}{}$$

$$= \frac{bc\left(225e^2+4c^2d\left(6c^2d+25e\right)\right)\sqrt{-1+c^2x^2}}{225\sqrt{c^2x^2}}+\frac{bcd^2\sqrt{-1+c^2x^2}}{25x^4\sqrt{c^2x^2}}+\frac{2bcd\left(6c^2d+2\right.}{225x^2}$$

Mathematica [A] time = 0.211026, size = 127, normalized size = 0.69

$$\frac{-15a\left(3d^2+10dex^2+15e^2x^4\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3d^2\left(8c^4x^4+4c^2x^2+3\right)+50dex^2\left(2c^2x^2+1\right)+225e^2x^4\right)-15b\sec^{-1}(}{225x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^6,x]
```

```
[Out] (-15*a*(3*d^2 + 10*d*e*x^2 + 15*e^2*x^4) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(225
*e^2*x^4 + 50*d*e*x^2*(1 + 2*c^2*x^2) + 3*d^2*(3 + 4*c^2*x^2 + 8*c^4*x^4))
- 15*b*(3*d^2 + 10*d*e*x^2 + 15*e^2*x^4)*ArcSec[c*x])/(225*x^5)
```

Maple [A] time = 0.177, size = 191, normalized size = 1.

$$c^5\left(\frac{a}{c^4}\left(-\frac{e^2}{cx}-\frac{d^2}{5\,cx^5}-\frac{2\,de}{3\,cx^3}\right)+\frac{b}{c^4}\left(-\frac{\mathrm{arcsec}\,(cx)\,e^2}{cx}-\frac{\mathrm{arcsec}\,(cx)\,d^2}{5\,cx^5}-\frac{2\,\mathrm{arcsec}\,(cx)\,ed}{3\,cx^3}+\frac{(c^2x^2-1)\,(24\,c^8d^2x^4+100\,c^6d\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x^6,x)
```

```
[Out] c^5*(a/c^4*(-e^2/c/x-1/5*d^2/c/x^5-2/3/c*e*d/x^3)+b/c^4*(-arcsec(c*x)*e^2/c
/x-1/5*arcsec(c*x)*d^2/c/x^5-2/3*arcsec(c*x)/c*e*d/x^3+1/225*(c^2*x^2-1)*(2
4*c^8*d^2*x^4+100*c^6*d*e*x^4+12*c^6*d^2*x^2+225*c^4*e^2*x^4+50*c^4*d*e*x^2
+9*c^4*d^2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^6/x^6))
```

Maxima [A] time = 0.973861, size = 244, normalized size = 1.33

$$\left(c\sqrt{-\frac{1}{c^2x^2}+1}-\frac{\mathrm{arcsec}\,(cx)}{x}\right)be^2+\frac{1}{75}\,bd^2\left(\frac{3\,c^6\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}}-10\,c^6\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}+15\,c^6\sqrt{-\frac{1}{c^2x^2}+1}}{c}-\frac{15\,\mathrm{arcsec}\,(cx)}{x^5}\right)-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^6,x, algorithm="maxima")
```

```
[Out] (c*sqrt(-1/(c^2*x^2) + 1) - arcsec(c*x)/x)*b*e^2 + 1/75*b*d^2*((3*c^6*(-1/(
c^2*x^2) + 1)^(5/2) - 10*c^6*(-1/(c^2*x^2) + 1)^(3/2) + 15*c^6*sqrt(-1/(c^2
*x^2) + 1))/c - 15*arcsec(c*x)/x^5) - 2/9*b*d*e*((c^4*(-1/(c^2*x^2) + 1)^(3
/2) - 3*c^4*sqrt(-1/(c^2*x^2) + 1))/c + 3*arcsec(c*x)/x^3) - a*e^2/x - 2/3*
a*d*e/x^3 - 1/5*a*d^2/x^5
```

Fricas [A] time = 1.67044, size = 302, normalized size = 1.65

$$-\frac{225\,ae^2x^4+150\,adex^2+45\,ad^2+15\,(15\,be^2x^4+10\,bdex^2+3\,bd^2)\,\mathrm{arcsec}\,(cx)-((24\,bc^4d^2+100\,bc^2de+225\,be^2)x^4+9}{225\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^6,x, algorithm="fricas")
```

```
[Out] -1/225*(225*a*e^2*x^4 + 150*a*d*e*x^2 + 45*a*d^2 + 15*(15*b*e^2*x^4 + 10*b*
d*e*x^2 + 3*b*d^2)*arcsec(c*x) - ((24*b*c^4*d^2 + 100*b*c^2*d*e + 225*b*e^2
)*x^4 + 9*b*d^2 + 2*(6*b*c^2*d^2 + 25*b*d*e)*x^2)*sqrt(c^2*x^2 - 1))/x^5
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(a+b\,\mathrm{asec}\,(cx))\,(d+ex^2)^2}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x**6,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x**6, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)^2 (b \operatorname{arcsec}(cx)+a)}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^6,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x^6, x)
```

3.86 $\int \frac{(d+ex^2)^2(a+b\sec^{-1}(cx))}{x^8}\,dx$

Optimal. Leaf size=241

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}+\frac{2bc^3\sqrt{c^2x^2-1}\left(360c^4d^2+1176c^2de+1225e^2\right)}{11025\sqrt{c^2x^2}}+\cdots$$

```
[Out] (2*b*c^3*(360*c^4*d^2 + 1176*c^2*d*e + 1225*e^2)*Sqrt[-1 + c^2*x^2])/(11025
*Sqrt[c^2*x^2]) + (b*c*d^2*Sqrt[-1 + c^2*x^2])/(49*x^6*Sqrt[c^2*x^2]) + (2*
b*c*d*(15*c^2*d + 49*e)*Sqrt[-1 + c^2*x^2])/(1225*x^4*Sqrt[c^2*x^2]) + (b*c
*(360*c^4*d^2 + 1176*c^2*d*e + 1225*e^2)*Sqrt[-1 + c^2*x^2])/(11025*x^2*Sqr
t[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/(7*x^7) - (2*d*e*(a + b*ArcSec[c*x]
))/(5*x^5) - (e^2*(a + b*ArcSec[c*x]))/(3*x^3)
```

Rubi [A] time = 0.193305, antiderivative size = 241, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {270, 5238, 12, 1265, 453, 271, 264}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{7x^7}-\frac{2de\left(a+b\sec^{-1}(cx)\right)}{5x^5}-\frac{e^2\left(a+b\sec^{-1}(cx)\right)}{3x^3}+\frac{2bc^3\sqrt{c^2x^2-1}\left(360c^4d^2+1176c^2de+1225e^2\right)}{11025\sqrt{c^2x^2}}+\cdots$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^8,x]
```


```
[Out] (2*b*c^3*(360*c^4*d^2 + 1176*c^2*d*e + 1225*e^2)*Sqrt[-1 + c^2*x^2])/(11025
*Sqrt[c^2*x^2]) + (b*c*d^2*Sqrt[-1 + c^2*x^2])/(49*x^6*Sqrt[c^2*x^2]) + (2*
b*c*d*(15*c^2*d + 49*e)*Sqrt[-1 + c^2*x^2])/(1225*x^4*Sqrt[c^2*x^2]) + (b*c
*(360*c^4*d^2 + 1176*c^2*d*e + 1225*e^2)*Sqrt[-1 + c^2*x^2])/(11025*x^2*Sqr
t[c^2*x^2]) - (d^2*(a + b*ArcSec[c*x]))/(7*x^7) - (2*d*e*(a + b*ArcSec[c*x]
))/(5*x^5) - (e^2*(a + b*ArcSec[c*x]))/(3*x^3)
```


Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] && !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] && !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1265

```
Int[((f_.)*(x_))^(m_)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (c
_.)*(x_)^4)^(p_.), x_Symbol] :> With[{Qx = PolynomialQuotient[(a + b*x^2 +
c*x^4)^p, f*x, x], R = PolynomialRemainder[(a + b*x^2 + c*x^4)^p, f*x, x]},
 Simp[(R*(f*x)^(m + 1)*(d + e*x^2)^(q + 1))/(d*f*(m + 1)), x] + Dist[1/(d*f
^2*(m + 1)), Int[(f*x)^(m + 2)*(d + e*x^2)^q*ExpandToSum[(d*f*(m + 1)*Qx)/x
 - e*R*(m + 2*q + 3), x], x], x]] /; FreeQ[{a, b, c, d, e, f, q}, x] && NeQ
[b^2 - 4*a*c, 0] && IGtQ[p, 0] && LtQ[m, -1]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rubi steps

$$\int \frac{(d+ex^2)^2 (a+b\sec^{-1}(cx))}{x^8}\,dx = -\frac{d^2(a+b\sec^{-1}(cx))}{7x^7} - \frac{2de(a+b\sec^{-1}(cx))}{5x^5} - \frac{e^2(a+b\sec^{-1}(cx))}{3x^3} - \frac{(bcx)\int \frac{-1}{}}{}$$

$$= -\frac{d^2(a+b\sec^{-1}(cx))}{7x^7} - \frac{2de(a+b\sec^{-1}(cx))}{5x^5} - \frac{e^2(a+b\sec^{-1}(cx))}{3x^3} - \frac{(bcx)\int \frac{-1}{}}{1}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}} - \frac{d^2(a+b\sec^{-1}(cx))}{7x^7} - \frac{2de(a+b\sec^{-1}(cx))}{5x^5} - \frac{e^2(a+b\sec^{-1}}{3x^3}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}} + \frac{2bcd(15c^2d+49e)\sqrt{-1+c^2x^2}}{1225x^4\sqrt{c^2x^2}} - \frac{d^2(a+b\sec^{-1}(cx))}{7x^7} - \frac{2de(}{}$$

$$= \frac{bcd^2\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}} + \frac{2bcd(15c^2d+49e)\sqrt{-1+c^2x^2}}{1225x^4\sqrt{c^2x^2}} + \frac{bc(1225e^2+24c^2d(15c^2d}{11025x^2\sqrt{c}}$$

$$= \frac{2bc^3(1225e^2+24c^2d(15c^2d+49e))\sqrt{-1+c^2x^2}}{11025\sqrt{c^2x^2}} + \frac{bcd^2\sqrt{-1+c^2x^2}}{49x^6\sqrt{c^2x^2}} + \frac{2bcd(15c}{1}$$

Mathematica [A] time = 0.229148, size = 153, normalized size = 0.63

$$\frac{-105a(15d^2+42dex^2+35e^2x^4)+bcx\sqrt{1-\frac{1}{c^2x^2}}(45d^2(16c^6x^6+8c^4x^4+6c^2x^2+5)+294dex^2(8c^4x^4+4c^2x^2+3)+}{11025x^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^8,x]
```

```
[Out] (-105*a*(15*d^2 + 42*d*e*x^2 + 35*e^2*x^4) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(1
225*e^2*x^4*(1 + 2*c^2*x^2) + 294*d*e*x^2*(3 + 4*c^2*x^2 + 8*c^4*x^4) + 45*
d^2*(5 + 6*c^2*x^2 + 8*c^4*x^4 + 16*c^6*x^6)) - 105*b*(15*d^2 + 42*d*e*x^2
+ 35*e^2*x^4)*ArcSec[c*x])/(11025*x^7)
```

Maple [A] time = 0.175, size = 223, normalized size = 0.9

$$c^7\left(\frac{a}{c^4}\left(-\frac{d^2}{7c^3x^7}-\frac{2de}{5c^3x^5}-\frac{e^2}{3c^3x^3}\right)+\frac{b}{c^4}\left(-\frac{\operatorname{arcsec}(cx)\,d^2}{7c^3x^7}-\frac{2\operatorname{arcsec}(cx)\,ed}{5c^3x^5}-\frac{\operatorname{arcsec}(cx)\,e^2}{3c^3x^3}+\frac{\left(c^2x^2-1\right)\left(720\,c^{10}d^2x^6+\cdots\right.}{\cdots}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x^8,x)
```

```
[Out] c^7*(a/c^4*(-1/7*d^2/c^3/x^7-2/5/c^3*e*d/x^5-1/3*e^2/c^3/x^3)+b/c^4*(-1/7*a
rcsec(c*x)*d^2/c^3/x^7-2/5*arcsec(c*x)/c^3*e*d/x^5-1/3*arcsec(c*x)*e^2/c^3/
x^3+1/11025*(c^2*x^2-1)*(720*c^10*d^2*x^6+2352*c^8*d*e*x^6+360*c^8*d^2*x^4+
2450*c^6*e^2*x^6+1176*c^6*d*e*x^4+270*c^6*d^2*x^2+1225*c^4*e^2*x^4+882*c^4*
d*e*x^2+225*c^4*d^2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c^8/x^8))
```

Maxima [A] time = 1.0006, size = 325, normalized size = 1.35

$$-\frac{1}{245}\,bd^2\left(\frac{5\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{7}{2}}-21\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{5}{2}}+35\,c^8\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}-35\,c^8\sqrt{-\frac{1}{c^2x^2}+1}}{c}+\frac{35\operatorname{arcsec}(cx)}{x^7}\right)+\frac{2}{75}\,bde\left(\frac{3\,c^6\cdots}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^8,x, algorithm="maxima")
```

```
[Out] -1/245*b*d^2*((5*c^8*(-1/(c^2*x^2) + 1)^(7/2) - 21*c^8*(-1/(c^2*x^2) + 1)^(
5/2) + 35*c^8*(-1/(c^2*x^2) + 1)^(3/2) - 35*c^8*sqrt(-1/(c^2*x^2) + 1))/c +
 35*arcsec(c*x)/x^7) + 2/75*b*d*e*((3*c^6*(-1/(c^2*x^2) + 1)^(5/2) - 10*c^6
*(-1/(c^2*x^2) + 1)^(3/2) + 15*c^6*sqrt(-1/(c^2*x^2) + 1))/c - 15*arcsec(c*
x)/x^5) - 1/9*b*e^2*((c^4*(-1/(c^2*x^2) + 1)^(3/2) - 3*c^4*sqrt(-1/(c^2*x^2
) + 1))/c + 3*arcsec(c*x)/x^3) - 1/3*a*e^2/x^3 - 2/5*a*d*e/x^5 - 1/7*a*d^2/
x^7
```

Fricas [A] time = 1.6581, size = 401, normalized size = 1.66

$$-\frac{3675\,ae^2x^4+4410\,adex^2+1575\,ad^2+105\left(35\,be^2x^4+42\,bdex^2+15\,bd^2\right)\operatorname{arcsec}(cx)-\left(2\left(360\,bc^6d^2+1176\,bc^4de+12\cdots\right.\right.}{11025\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^8,x, algorithm="fricas")
```

```
[Out] -1/11025*(3675*a*e^2*x^4 + 4410*a*d*e*x^2 + 1575*a*d^2 + 105*(35*b*e^2*x^4
+ 42*b*d*e*x^2 + 15*b*d^2)*arcsec(c*x) - (2*(360*b*c^6*d^2 + 1176*b*c^4*d*e
 + 1225*b*c^2*e^2)*x^6 + (360*b*c^4*d^2 + 1176*b*c^2*d*e + 1225*b*e^2)*x^4
+ 225*b*d^2 + 18*(15*b*c^2*d^2 + 49*b*d*e)*x^2)*sqrt(c^2*x^2 - 1))/x^7
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\operatorname{asec}(cx)) \left(d + ex^2\right)^2}{x^8}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x**8,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x**8, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^2 (b\operatorname{arcsec}(cx) + a)}{x^8}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^8,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x^8, x)
```

3.87 $\int x^3 \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=242

$$\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(6c^4d^2+16c^2de+9e^2\right)}{72c^7\sqrt{c^2x^2}}-$$

```
[Out] -(b*(6*c^4*d^2 + 8*c^2*d*e + 3*e^2)*x*Sqrt[-1 + c^2*x^2])/(24*c^7*Sqrt[c^2*
x^2]) - (b*(6*c^4*d^2 + 16*c^2*d*e + 9*e^2)*x*(-1 + c^2*x^2)^(3/2))/(72*c^7
*Sqrt[c^2*x^2]) - (b*e*(8*c^2*d + 9*e)*x*(-1 + c^2*x^2)^(5/2))/(120*c^7*Sqr
t[c^2*x^2]) - (b*e^2*x*(-1 + c^2*x^2)^(7/2))/(56*c^7*Sqrt[c^2*x^2]) + (d^2*
x^4*(a + b*ArcSec[c*x]))/4 + (d*e*x^6*(a + b*ArcSec[c*x]))/3 + (e^2*x^8*(a
+ b*ArcSec[c*x]))/8
```

Rubi [A] time = 0.223569, antiderivative size = 242, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 6, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.286, Rules used = {266, 43, 5238, 12, 1251, 771}

$$\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-\frac{bx\left(c^2x^2-1\right)^{3/2}\left(6c^4d^2+16c^2de+9e^2\right)}{72c^7\sqrt{c^2x^2}}-$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(6*c^4*d^2 + 8*c^2*d*e + 3*e^2)*x*Sqrt[-1 + c^2*x^2])/(24*c^7*Sqrt[c^2*
x^2]) - (b*(6*c^4*d^2 + 16*c^2*d*e + 9*e^2)*x*(-1 + c^2*x^2)^(3/2))/(72*c^7
*Sqrt[c^2*x^2]) - (b*e*(8*c^2*d + 9*e)*x*(-1 + c^2*x^2)^(5/2))/(120*c^7*Sqr
t[c^2*x^2]) - (b*e^2*x*(-1 + c^2*x^2)^(7/2))/(56*c^7*Sqrt[c^2*x^2]) + (d^2*
x^4*(a + b*ArcSec[c*x]))/4 + (d*e*x^6*(a + b*ArcSec[c*x]))/3 + (e^2*x^8*(a
+ b*ArcSec[c*x]))/8
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1251

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (c_.)*(x_
)^4)^(p_.), x_Symbol] :> Dist[1/2, Subst[Int[x^((m - 1)/2)*(d + e*x)^q*(a +
 b*x + c*x^2)^p, x], x, x^2], x] /; FreeQ[{a, b, c, d, e, p, q}, x] && Inte
gerQ[(m - 1)/2]
```

Rule 771

```
Int[((d_.) + (e_.)*(x_))^(m_.)*((f_.) + (g_.)*(x_))*((a_.) + (b_.)*(x_) + (
c_.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(d + e*x)^m*(f + g*x)*
(a + b*x + c*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f, g, m}, x] && NeQ[b^
2 - 4*a*c, 0] && IntegerQ[p] && (GtQ[p, 0] || (EqQ[a, 0] && IntegerQ[m]))
```

Rubi steps

$$\int x^3\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)dx=\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-$$

$$=\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-$$

$$=\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-$$

$$=\frac{1}{4}d^2x^4\left(a+b\sec^{-1}(cx)\right)+\frac{1}{3}dex^6\left(a+b\sec^{-1}(cx)\right)+\frac{1}{8}e^2x^8\left(a+b\sec^{-1}(cx)\right)-$$

$$=-\frac{b\left(6c^4d^2+8c^2de+3e^2\right)x\sqrt{-1+c^2x^2}}{24c^7\sqrt{c^2x^2}}-\frac{b\left(6c^4d^2+16c^2de+9e^2\right)x\left(-1+c^2x^2\right.}{72c^7\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.274735, size = 162, normalized size = 0.67

$$\frac{1}{24}ax^4\left(6d^2+8dex^2+3e^2x^4\right)-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(3c^6\left(70d^2x^2+56dex^4+15e^2x^6\right)+c^4\left(420d^2+224dex^2+54e^2x^4\right)+8c^2e\right.}{2520c^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^3*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (a*x^4*(6*d^2 + 8*d*e*x^2 + 3*e^2*x^4))/24 - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(14
4*e^2 + 8*c^2*e*(56*d + 9*e*x^2) + c^4*(420*d^2 + 224*d*e*x^2 + 54*e^2*x^4)
 + 3*c^6*(70*d^2*x^2 + 56*d*e*x^4 + 15*e^2*x^6)))/(2520*c^7) + (b*x^4*(6*d^
2 + 8*d*e*x^2 + 3*e^2*x^4)*ArcSec[c*x])/24
```

Maple [A] time = 0.171, size = 214, normalized size = 0.9

$$\frac{1}{c^4}\left(\frac{a}{c^4}\left(\frac{e^2c^8x^8}{8}+\frac{c^8edx^6}{3}+\frac{x^4c^8d^2}{4}\right)+\frac{b}{c^4}\left(\frac{\operatorname{arcsec}(cx)\,e^2c^8x^8}{8}+\frac{\operatorname{arcsec}(cx)\,c^8edx^6}{3}+\frac{\operatorname{arcsec}(cx)\,c^8x^4d^2}{4}-\frac{(c^2x^2-1)\,(45$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^4*(a/c^4*(1/8*e^2*c^8*x^8+1/3*c^8*e*d*x^6+1/4*x^4*c^8*d^2)+b/c^4*(1/8*a
rcsec(c*x)*e^2*c^8*x^8+1/3*arcsec(c*x)*c^8*e*d*x^6+1/4*arcsec(c*x)*c^8*x^4*
d^2-1/2520*(c^2*x^2-1)*(45*c^6*e^2*x^6+168*c^6*d*e*x^4+210*c^6*d^2*x^2+54*c
^4*e^2*x^4+224*c^4*d*e*x^2+420*c^4*d^2+72*c^2*e^2*x^2+448*c^2*d*e+144*e^2)/
((c^2*x^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.98607, size = 346, normalized size = 1.43

$$\frac{1}{8}\,ae^2x^8+\frac{1}{3}\,adex^6+\frac{1}{4}\,ad^2x^4+\frac{1}{12}\left(3\,x^4\operatorname{arcsec}(cx)-\frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}}+3\,x\sqrt{-\frac{1}{c^2x^2}+1}}{c^3}\right)bd^2+\frac{1}{45}\left(15\,x^6\operatorname{arcsec}(cx)-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/8*a*e^2*x^8 + 1/3*a*d*e*x^6 + 1/4*a*d^2*x^4 + 1/12*(3*x^4*arcsec(c*x) - (
c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*b*d^2 +
 1/45*(15*x^6*arcsec(c*x) - (3*c^4*x^5*(-1/(c^2*x^2) + 1)^(5/2) + 10*c^2*x^
3*(-1/(c^2*x^2) + 1)^(3/2) + 15*x*sqrt(-1/(c^2*x^2) + 1))/c^5)*b*d*e + 1/28
0*(35*x^8*arcsec(c*x) - (5*c^6*x^7*(-1/(c^2*x^2) + 1)^(7/2) + 21*c^4*x^5*(-
1/(c^2*x^2) + 1)^(5/2) + 35*c^2*x^3*(-1/(c^2*x^2) + 1)^(3/2) + 35*x*sqrt(-1
/(c^2*x^2) + 1))/c^7)*b*e^2
```

Fricas [A] time = 2.18912, size = 431, normalized size = 1.78

$$\frac{315\,ac^8e^2x^8+840\,ac^8dex^6+630\,ac^8d^2x^4+105\left(3\,bc^8e^2x^8+8\,bc^8dex^6+6\,bc^8d^2x^4\right)\operatorname{arcsec}(cx)-\left(45\,bc^6e^2x^6+420\,bc^4d^2\right.}{2520\,c^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/2520*(315*a*c^8*e^2*x^8 + 840*a*c^8*d*e*x^6 + 630*a*c^8*d^2*x^4 + 105*(3*
b*c^8*e^2*x^8 + 8*b*c^8*d*e*x^6 + 6*b*c^8*d^2*x^4)*arcsec(c*x) - (45*b*c^6*
e^2*x^6 + 420*b*c^4*d^2 + 448*b*c^2*d*e + 6*(28*b*c^6*d*e + 9*b*c^4*e^2)*x^
4 + 144*b*e^2 + 2*(105*b*c^6*d^2 + 112*b*c^4*d*e + 36*b*c^2*e^2)*x^2)*sqrt(
c^2*x^2 - 1))/c^8
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3 (a + b \operatorname{asec}(cx)) \left(d + ex^2\right)^2 dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(e*x**2+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x**3*(a + b*asec(c*x))*(d + e*x**2)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^2 (b \operatorname{arcsec}(cx) + a) x^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)*x^3, x)
```

3.88 $\int x\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=195

$$\frac{\left(d+ex^2\right)^3\left(a+b\sec^{-1}(cx)\right)}{6e}-\frac{bx\sqrt{c^2x^2-1}\left(3c^4d^2+3c^2de+e^2\right)}{6c^5\sqrt{c^2x^2}}-\frac{bcd^3x\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{6e\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2-1\right)^{3/2}\left(3c^2d+2\right.}{18c^5\sqrt{c^2x^2}}$$

```
[Out] -(b*(3*c^4*d^2 + 3*c^2*d*e + e^2)*x*Sqrt[-1 + c^2*x^2])/(6*c^5*Sqrt[c^2*x^2
]) - (b*e*(3*c^2*d + 2*e)*x*(-1 + c^2*x^2)^(3/2))/(18*c^5*Sqrt[c^2*x^2]) -
(b*e^2*x*(-1 + c^2*x^2)^(5/2))/(30*c^5*Sqrt[c^2*x^2]) + ((d + e*x^2)^3*(a +
 b*ArcSec[c*x]))/(6*e) - (b*c*d^3*x*ArcTan[Sqrt[-1 + c^2*x^2]])/(6*e*Sqrt[c
^2*x^2])
```

Rubi [A] time = 0.148404, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {5236, 446, 88, 63, 205}

$$\frac{\left(d+ex^2\right)^3\left(a+b\sec^{-1}(cx)\right)}{6e}-\frac{bx\sqrt{c^2x^2-1}\left(3c^4d^2+3c^2de+e^2\right)}{6c^5\sqrt{c^2x^2}}-\frac{bcd^3x\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{6e\sqrt{c^2x^2}}-\frac{bex\left(c^2x^2-1\right)^{3/2}\left(3c^2d+2\right.}{18c^5\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[x*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(3*c^4*d^2 + 3*c^2*d*e + e^2)*x*Sqrt[-1 + c^2*x^2])/(6*c^5*Sqrt[c^2*x^2
]) - (b*e*(3*c^2*d + 2*e)*x*(-1 + c^2*x^2)^(3/2))/(18*c^5*Sqrt[c^2*x^2]) -
(b*e^2*x*(-1 + c^2*x^2)^(5/2))/(30*c^5*Sqrt[c^2*x^2]) + ((d + e*x^2)^3*(a +
 b*ArcSec[c*x]))/(6*e) - (b*c*d^3*x*ArcTan[Sqrt[-1 + c^2*x^2]])/(6*e*Sqrt[c
^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 88

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x
_))^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n*(e + f*
x)^p, x], x] /; FreeQ[{a, b, c, d, e, f, p}, x] && IntegersQ[m, n] && (Inte
gerQ[p] || (GtQ[m, 0] && GeQ[n, -1]))
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
```

```
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rubi steps

$$\int x\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)dx=\frac{\left(d+ex^2\right)^3\left(a+b\sec^{-1}(cx)\right)}{6e}-\frac{(bcx)\int\frac{\left(d+ex^2\right)^3}{x\sqrt{-1+c^2x^2}}dx}{6e\sqrt{c^2x^2}}$$

$$=\frac{\left(d+ex^2\right)^3\left(a+b\sec^{-1}(cx)\right)}{6e}-\frac{(bcx)\,\text{Subst}\left(\int\frac{(d+ex)^3}{x\sqrt{-1+c^2x}}dx,x,x^2\right)}{12e\sqrt{c^2x^2}}$$

$$=\frac{\left(d+ex^2\right)^3\left(a+b\sec^{-1}(cx)\right)}{6e}-\frac{(bcx)\,\text{Subst}\left(\int\left(\frac{e\left(3c^4d^2+3c^2de+e^2\right)}{c^4\sqrt{-1+c^2x}}+\frac{d^3}{x\sqrt{-1+c^2x}}+\frac{e^2(}{}\right.\right.}{12e\sqrt{c^2x^2}}$$

$$=-\frac{b\left(3c^4d^2+3c^2de+e^2\right)x\sqrt{-1+c^2x^2}}{6c^5\sqrt{c^2x^2}}-\frac{be\left(3c^2d+2e\right)x\left(-1+c^2x^2\right)^{3/2}}{18c^5\sqrt{c^2x^2}}-\frac{be^2x(}{3}$$

$$=-\frac{b\left(3c^4d^2+3c^2de+e^2\right)x\sqrt{-1+c^2x^2}}{6c^5\sqrt{c^2x^2}}-\frac{be\left(3c^2d+2e\right)x\left(-1+c^2x^2\right)^{3/2}}{18c^5\sqrt{c^2x^2}}-\frac{be^2x(}{3}$$

$$=-\frac{b\left(3c^4d^2+3c^2de+e^2\right)x\sqrt{-1+c^2x^2}}{6c^5\sqrt{c^2x^2}}-\frac{be\left(3c^2d+2e\right)x\left(-1+c^2x^2\right)^{3/2}}{18c^5\sqrt{c^2x^2}}-\frac{be^2x(}{3}$$

Mathematica [A] time = 0.28626, size = 125, normalized size = 0.64

$$\frac{1}{90}x\left(15ax\left(3d^2+3dex^2+e^2x^4\right)-\frac{b\sqrt{1-\frac{1}{c^2x^2}}\left(3c^4\left(15d^2+5dex^2+e^2x^4\right)+2c^2e\left(15d+2ex^2\right)+8e^2\right)}{c^5}+15bx\sec^{-1}(cx)\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] (x*(15*a*x*(3*d^2 + 3*d*e*x^2 + e^2*x^4) - (b*Sqrt[1 - 1/(c^2*x^2)]*(8*e^2
+ 2*c^2*e*(15*d + 2*e*x^2) + 3*c^4*(15*d^2 + 5*d*e*x^2 + e^2*x^4)))/c^5 + 1
5*b*x*(3*d^2 + 3*d*e*x^2 + e^2*x^4)*ArcSec[c*x]))/90
```

Maple [A] time = 0.166, size = 182, normalized size = 0.9

$$\frac{1}{c^2}\left(\frac{a}{c^4}\left(\frac{e^2c^6x^6}{6}+\frac{c^6x^4de}{2}+\frac{x^2c^6d^2}{2}\right)+\frac{b}{c^4}\left(\frac{\text{arcsec}(cx)\,e^2c^6x^6}{6}+\frac{\text{arcsec}(cx)\,c^6x^4de}{2}+\frac{\text{arcsec}(cx)\,c^6x^2d^2}{2}-\frac{\left(c^2x^2-1\right)(}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] 1/c^2*(a/c^4*(1/6*e^2*c^6*x^6+1/2*c^6*x^4*d*e+1/2*x^2*c^6*d^2)+b/c^4*(1/6*a
rcsec(c*x)*e^2*c^6*x^6+1/2*arcsec(c*x)*c^6*x^4*d*e+1/2*arcsec(c*x)*c^6*x^2*
d^2-1/90*(c^2*x^2-1)*(3*c^4*e^2*x^4+15*c^4*d*e*x^2+45*c^4*d^2+4*c^2*e^2*x^2
+30*c^2*d*e+8*e^2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/c/x))
```

Maxima [A] time = 0.973759, size = 259, normalized size = 1.33

$$\frac{1}{6}ae^2x^6 + \frac{1}{2}adex^4 + \frac{1}{2}ad^2x^2 + \frac{1}{2}\left(x^2\operatorname{arcsec}(cx) - \frac{x\sqrt{-\frac{1}{c^2x^2}+1}}{c}\right)bd^2 + \frac{1}{6}\left(3x^4\operatorname{arcsec}(cx) - \frac{c^2x^3\left(-\frac{1}{c^2x^2}+1\right)^{\frac{3}{2}} + 3x\sqrt{-\frac{}{c}}}{c^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] 1/6*a*e^2*x^6 + 1/2*a*d*e*x^4 + 1/2*a*d^2*x^2 + 1/2*(x^2*arcsec(c*x) - x*sq
rt(-1/(c^2*x^2) + 1)/c)*b*d^2 + 1/6*(3*x^4*arcsec(c*x) - (c^2*x^3*(-1/(c^2*
x^2) + 1)^(3/2) + 3*x*sqrt(-1/(c^2*x^2) + 1))/c^3)*b*d*e + 1/90*(15*x^6*arc
sec(c*x) - (3*c^4*x^5*(-1/(c^2*x^2) + 1)^(5/2) + 10*c^2*x^3*(-1/(c^2*x^2) +
 1)^(3/2) + 15*x*sqrt(-1/(c^2*x^2) + 1))/c^5)*b*e^2
```

Fricas [A] time = 1.93358, size = 336, normalized size = 1.72

$$\frac{15\,ac^6e^2x^6 + 45\,ac^6dex^4 + 45\,ac^6d^2x^2 + 15\left(bc^6e^2x^6 + 3\,bc^6dex^4 + 3\,bc^6d^2x^2\right)\operatorname{arcsec}(cx) - \left(3\,bc^4e^2x^4 + 45\,bc^4d^2 + 30\,bc^2\right.}{90\,c^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] 1/90*(15*a*c^6*e^2*x^6 + 45*a*c^6*d*e*x^4 + 45*a*c^6*d^2*x^2 + 15*(b*c^6*e^
2*x^6 + 3*b*c^6*d*e*x^4 + 3*b*c^6*d^2*x^2)*arcsec(c*x) - (3*b*c^4*e^2*x^4 +
 45*b*c^4*d^2 + 30*b*c^2*d*e + 8*b*e^2 + (15*b*c^4*d*e + 4*b*c^2*e^2)*x^2)*
sqrt(c^2*x^2 - 1))/c^6
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\,(a + b\operatorname{asec}(cx))\left(d + ex^2\right)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x**2+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Integral(x*(a + b*asec(c*x))*(d + e*x**2)**2, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^2 (b \operatorname{arcsec}(cx) + a)x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)*x, x)
```

3.89 $\int \frac{(d+ex^2)^2 (a+b\sec^{-1}(cx))}{x} \, dx$

Optimal. Leaf size=186

$$-\frac{1}{2} i b d^2 \text{PolyLog}\left(2, e^{2 i \csc^{-1}(cx)}\right) - d^2 \log\left(\frac{1}{x}\right) \left(a + b\sec^{-1}(cx)\right) + d e x^2 \left(a + b\sec^{-1}(cx)\right) + \frac{1}{4} e^2 x^4 \left(a + b\sec^{-1}(cx)\right) - \frac{bex\sqrt{}}{}$$

```
[Out] -(b*e*(6*c^2*d + e)*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*e^2*Sqrt[1 - 1/(c
^2*x^2)]*x^3)/(12*c) - (I/2)*b*d^2*ArcCsc[c*x]^2 + d*e*x^2*(a + b*ArcSec[c*
x]) + (e^2*x^4*(a + b*ArcSec[c*x]))/4 + b*d^2*ArcCsc[c*x]*Log[1 - E^((2*I)*
ArcCsc[c*x])] - b*d^2*ArcCsc[c*x]*Log[x^(-1)] - d^2*(a + b*ArcSec[c*x])*Log
[x^(-1)] - (I/2)*b*d^2*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rubi [A] time = 0.411894, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 13, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.619, Rules used = {5240, 266, 43, 4732, 6742, 453, 264, 2326, 4625, 3717, 2190, 2279, 2391}

$$-\frac{1}{2} i b d^2 \text{PolyLog}\left(2, e^{2 i \csc^{-1}(cx)}\right) - d^2 \log\left(\frac{1}{x}\right) \left(a + b\sec^{-1}(cx)\right) + d e x^2 \left(a + b\sec^{-1}(cx)\right) + \frac{1}{4} e^2 x^4 \left(a + b\sec^{-1}(cx)\right) - \frac{bex\sqrt{}}{}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x,x]
```


```
[Out] -(b*e*(6*c^2*d + e)*Sqrt[1 - 1/(c^2*x^2)]*x)/(6*c^3) - (b*e^2*Sqrt[1 - 1/(c
^2*x^2)]*x^3)/(12*c) - (I/2)*b*d^2*ArcCsc[c*x]^2 + d*e*x^2*(a + b*ArcSec[c*
x]) + (e^2*x^4*(a + b*ArcSec[c*x]))/4 + b*d^2*ArcCsc[c*x]*Log[1 - E^((2*I)*
ArcCsc[c*x])] - b*d^2*ArcCsc[c*x]*Log[x^(-1)] - d^2*(a + b*ArcSec[c*x])*Log
[x^(-1)] - (I/2)*b*d^2*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```


Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 4732

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_
)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dist
```

```
[a + b*ArcCos[c*x], u, x] + Dist[b*c, Int[SimplifyIntegrand[u/Sqrt[1 - c^2*
x^2], x], x], x]] /; FreeQ[{a, b, c, d, e, f, m}, x] && NeQ[c^2*d + e, 0] &
& IntegerQ[p] && (GtQ[p, 0] || (IGtQ[(m - 1)/2, 0] && LeQ[m + p, 0]))
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 453

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*e*(m + 1)),
 x] + Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(a*e^n*(m + 1)), Int[(e*
x)^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c
 - a*d, 0] && (IntegerQ[n] || GtQ[e, 0]) && ((GtQ[n, 0] && LtQ[m, -1]) || (
LtQ[n, 0] && GtQ[m + n, -1])) &&  !ILtQ[p, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 2326

```
Int[((a_.) + Log[(c_.)*(x_)^(n_.)]*(b_.))/Sqrt[(d_) + (e_.)*(x_)^2], x_Symb
ol] :> Simp[(ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]*(a + b*Log[c*x^n]))/Rt[-e, 2], x
] - Dist[(b*n)/Rt[-e, 2], Int[ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]/x, x], x] /; Fr
eeQ[{a, b, c, d, e, n}, x] && GtQ[d, 0] && NegQ[e]
```

Rule 4625

```
Int[((a_.) + ArcSin[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> Subst[Int[(
a + b*x)^n/Tan[x], x], x, ArcSin[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0]
```

Rule 3717

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + Pi*(k_.) + (f_.)*(x_)], x_Symbol
] :> Simp[(I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^
m*E^(2*I*k*Pi)*E^(2*I*(e + f*x)))/(1 + E^(2*I*k*Pi)*E^(2*I*(e + f*x))), x],
 x] /; FreeQ[{c, d, e, f}, x] && IntegerQ[4*k] && IGtQ[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^2\left(a+b\sec^{-1}(cx)\right)}{x}\,dx = -\text{Subst}\left(\int \frac{\left(e+dx^2\right)^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{x^5}\,dx,x,\frac{1}{x}\right)$$

$$= dex^2\left(a+b\sec^{-1}(cx)\right)+\frac{1}{4}e^2x^4\left(a+b\sec^{-1}(cx)\right)-d^2\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)-\frac{b\,\mathrm{S}\ldots}{\ldots}$$

$$= dex^2\left(a+b\sec^{-1}(cx)\right)+\frac{1}{4}e^2x^4\left(a+b\sec^{-1}(cx)\right)-d^2\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)-\frac{b\,\mathrm{S}\ldots}{\ldots}$$

$$= dex^2\left(a+b\sec^{-1}(cx)\right)+\frac{1}{4}e^2x^4\left(a+b\sec^{-1}(cx)\right)-d^2\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)-\frac{\left(b\ldots\right.}{\ldots}$$

$$= -\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}+dex^2\left(a+b\sec^{-1}(cx)\right)+\frac{1}{4}e^2x^4\left(a+b\sec^{-1}(cx)\right)-bd^2\csc^{-1}(cx)\ldots$$

$$= -\frac{be\left(6c^2d+e\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}+dex^2\left(a+b\sec^{-1}(cx)\right)+\frac{1}{4}e^2x^4\left(a+b\ldots\right.$$

$$= -\frac{be\left(6c^2d+e\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}-\frac{1}{2}ibd^2\csc^{-1}(cx)^2+dex^2\left(a+b\sec^{-1}\ldots\right.$$

$$= -\frac{be\left(6c^2d+e\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}-\frac{1}{2}ibd^2\csc^{-1}(cx)^2+dex^2\left(a+b\sec^{-1}\ldots\right.$$

$$= -\frac{be\left(6c^2d+e\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}-\frac{1}{2}ibd^2\csc^{-1}(cx)^2+dex^2\left(a+b\sec^{-1}\ldots\right.$$

$$= -\frac{be\left(6c^2d+e\right)\sqrt{1-\frac{1}{c^2x^2}}x}{6c^3}-\frac{be^2\sqrt{1-\frac{1}{c^2x^2}}x^3}{12c}-\frac{1}{2}ibd^2\csc^{-1}(cx)^2+dex^2\left(a+b\sec^{-1}\ldots\right.$$

Mathematica [A] time = 0.333324, size = 160, normalized size = 0.86

$$\frac{1}{2}ibd^2\left(\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+\sec^{-1}(cx)\left(\sec^{-1}(cx)+2i\log\left(1+e^{2i\sec^{-1}(cx)}\right)\right)\right)+ad^2\log(x)+adex^2+\frac{1}{4}ae^2x^4+\frac{bde\ldots}{\ldots}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] a*d*e*x^2 + (a*e^2*x^4)/4 - (b*e^2*Sqrt[1 - 1/(c^2*x^2)]*x*(2 + c^2*x^2))/(
12*c^3) + (b*e^2*x^4*ArcSec[c*x])/4 + (b*d*e*x*(-Sqrt[1 - 1/(c^2*x^2)] + c*
x*ArcSec[c*x]))/c + a*d^2*Log[x] + (I/2)*b*d^2*(ArcSec[c*x]*(ArcSec[c*x] +
(2*I)*Log[1 + E^((2*I)*ArcSec[c*x])]) + PolyLog[2, -E^((2*I)*ArcSec[c*x])])
```

Maple [A] time = 0.714, size = 242, normalized size = 1.3

$$\frac{ax^4e^2}{4}+ax^2de+ad^2\ln(cx)+\frac{i}{2}bd^2(\operatorname{arcsec}(cx))^2+\frac{b\operatorname{arcsec}(cx)\,x^4e^2}{4}+b\operatorname{arcsec}(cx)\,x^2de-\frac{bx^3e^2}{12c}\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{bxde}{c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x,x)
```

```
[Out] 1/4*a*x^4*e^2+a*x^2*d*e+a*d^2*ln(c*x)+1/2*I*b*d^2*arcsec(c*x)^2+1/4*b*arcse
c(c*x)*x^4*e^2+b*arcsec(c*x)*x^2*d*e-1/12*b/c*((c^2*x^2-1)/c^2/x^2)^(1/2)*x
^3*e^2-b/c*((c^2*x^2-1)/c^2/x^2)^(1/2)*x*d*e-I*b/c^2*d*e-1/6*b/c^3*((c^2*x^
2-1)/c^2/x^2)^(1/2)*x*e^2-1/6*I*b/c^4*e^2-b*d^2*arcsec(c*x)*ln(1+(1/c/x+I*(
1-1/c^2/x^2)^(1/2))^2)+1/2*I*b*d^2*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))
^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{4}ae^2x^4+adex^2+ad^2\log(x)-\frac{-2i\,bc^4e^2x^4\log(c)-4i\,bc^4d^2\log(-cx+1)\log(x)-4i\,bc^4d^2\log(x)^2-4i\,bc^4d^2\mathrm{Li}_2(cx)}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x,x, algorithm="maxima")
```

```
[Out] 1/4*a*e^2*x^4 + a*d*e*x^2 + a*d^2*log(x) - 1/8*(-2*I*b*c^4*e^2*x^4*log(c) -
 4*I*b*c^4*d^2*log(-c*x + 1)*log(x) - 4*I*b*c^4*d^2*log(x)^2 - 4*I*b*c^4*d^
2*dilog(c*x) - 4*I*b*c^4*d^2*dilog(-c*x) + I*(b*e^2*(x^2/c^2 + log(c*x + 1)
/c^4 + log(c*x - 1)/c^4) + 4*b*d*e*(log(c*x + 1)/c^2 + log(c*x - 1)/c^2) +
32*b*d^2*integrate(1/4*log(x)/(c^2*x^3 - x), x))*c^4 + 8*c^4*integrate(1/4*
(b*e^2*x^4 + 4*b*d*e*x^2 + 4*b*d^2*log(x))*sqrt(c*x + 1)*sqrt(c*x - 1)/(c^2
*x^3 - x), x) + (-8*I*b*c^4*d*e*log(c) - I*b*c^2*e^2)*x^2 - 2*(b*c^4*e^2*x^
4 + 4*b*c^4*d*e*x^2 + 4*b*c^4*d^2*log(x))*arctan(sqrt(c*x + 1)*sqrt(c*x - 1
)) + (I*b*c^4*e^2*x^4 + 4*I*b*c^4*d*e*x^2 + 4*I*b*c^4*d^2*log(x))*log(c^2*x
^2) + (-4*I*b*c^4*d^2*log(x) - 4*I*b*c^2*d*e - I*b*e^2)*log(c*x + 1) + (-4*
I*b*c^2*d*e - I*b*e^2)*log(c*x - 1) + (-2*I*b*c^4*e^2*x^4 - 8*I*b*c^4*d*e*x
^2 - 8*I*b*c^4*d^2*log(c))*log(x))/c^4
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{ae^2x^4+2\,adex^2+ad^2+\left(be^2x^4+2\,bdex^2+bd^2\right)\operatorname{arcsec}(cx)}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x,x, algorithm="fricas")
```

```
[Out] integral((a*e^2*x^4 + 2*a*d*e*x^2 + a*d^2 + (b*e^2*x^4 + 2*b*d*e*x^2 + b*d^
2)*arcsec(c*x))/x, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b \operatorname{asec}(cx)) (d + ex^2)^2}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex^2 + d)^2 (b \operatorname{arcsec}(cx) + a)}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x, x)
```

3.90 $\int \frac{(d+ex^2)^2(a+b\sec^{-1}(cx))}{x^3}\,dx$

Optimal. Leaf size=189

$$-ibde\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2}-2de\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2}{}$$

```
[Out] (b*c*d^2*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*e^2*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*
c) - (b*c^2*d^2*ArcCsc[c*x])/4 - I*b*d*e*ArcCsc[c*x]^2 - (d^2*(a + b*ArcSec
[c*x]))/(2*x^2) + (e^2*x^2*(a + b*ArcSec[c*x]))/2 + 2*b*d*e*ArcCsc[c*x]*Log
[1 - E^((2*I)*ArcCsc[c*x])] - 2*b*d*e*ArcCsc[c*x]*Log[x^(-1)] - 2*d*e*(a +
b*ArcSec[c*x])*Log[x^(-1)] - I*b*d*e*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rubi [A] time = 0.417349, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 14, number of rules used = 15, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.714, Rules used = {5240, 266, 43, 4732, 12, 6742, 264, 321, 216, 2326, 4625, 3717, 2190, 2279, 2391}

$$-ibde\text{PolyLog}\left(2,e^{2i\csc^{-1}(cx)}\right)-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2}-2de\log\left(\frac{1}{x}\right)\left(a+b\sec^{-1}(cx)\right)+\frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right)+\frac{bcd^2}{}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] (b*c*d^2*Sqrt[1 - 1/(c^2*x^2)])/(4*x) - (b*e^2*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*
c) - (b*c^2*d^2*ArcCsc[c*x])/4 - I*b*d*e*ArcCsc[c*x]^2 - (d^2*(a + b*ArcSec
[c*x]))/(2*x^2) + (e^2*x^2*(a + b*ArcSec[c*x]))/2 + 2*b*d*e*ArcCsc[c*x]*Log
[1 - E^((2*I)*ArcCsc[c*x])] - 2*b*d*e*ArcCsc[c*x]*Log[x^(-1)] - 2*d*e*(a +
b*ArcSec[c*x])*Log[x^(-1)] - I*b*d*e*PolyLog[2, E^((2*I)*ArcCsc[c*x])]
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 4732

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_
)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dist
```

```
[a + b*ArcCos[c*x], u, x] + Dist[b*c, Int[SimplifyIntegrand[u/Sqrt[1 - c^2*
x^2], x], x], x]] /; FreeQ[{a, b, c, d, e, f, m}, x] && NeQ[c^2*d + e, 0] &
& IntegerQ[p] && (GtQ[p, 0] || (IGtQ[(m - 1)/2, 0] && LeQ[m + p, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 321

```
Int[((c_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(c^(
n - 1)*(c*x)^(m - n + 1)*(a + b*x^n)^(p + 1))/(b*(m + n*p + 1)), x] - Dist[
(a*c^n*(m - n + 1))/(b*(m + n*p + 1)), Int[(c*x)^(m - n)*(a + b*x^n)^p, x],
 x] /; FreeQ[{a, b, c, p}, x] && IGtQ[n, 0] && GtQ[m, n - 1] && NeQ[m + n*p
 + 1, 0] && IntBinomialQ[a, b, c, n, m, p, x]
```

Rule 216

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Simp[ArcSin[(Rt[-b, 2]*x)/Sqr
t[a]]/Rt[-b, 2], x] /; FreeQ[{a, b}, x] && GtQ[a, 0] && NegQ[b]
```

Rule 2326

```
Int[((a_.) + Log[(c_.)*(x_)^(n_.)]*(b_.))/Sqrt[(d_) + (e_.)*(x_)^2], x_Symb
ol] :> Simp[(ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]*(a + b*Log[c*x^n]))/Rt[-e, 2], x
] - Dist[(b*n)/Rt[-e, 2], Int[ArcSin[(Rt[-e, 2]*x)/Sqrt[d]]/x, x], x] /; Fr
eeQ[{a, b, c, d, e, n}, x] && GtQ[d, 0] && NegQ[e]
```

Rule 4625

```
Int[((a_.) + ArcSin[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> Subst[Int[(
a + b*x)^n/Tan[x], x], x, ArcSin[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0]
```

Rule 3717

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + Pi*(k_.) + (f_.)*(x_)], x_Symbol
] :> Simp[(I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^
m*E^(2*I*k*Pi)*E^(2*I*(e + f*x)))/(1 + E^(2*I*k*Pi)*E^(2*I*(e + f*x))), x],
 x] /; FreeQ[{c, d, e, f}, x] && IntegerQ[4*k] && IGtQ[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
```

```
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{(d+ex^2)^2 \left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx = -\text{Subst}\left(\int \frac{(e+dx^2)^2 \left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{x^3}\,dx, x, \frac{1}{x}\right)$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right) - 2de\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right) - 2de\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right) - 2de\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right) - 2de\left(a+b\sec^{-1}(cx)\right)\log\left(\frac{1}{x}\right)$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2x^2\left(a+b\sec^{-1}(cx)\right)$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{4}bc^2d^2\csc^{-1}(cx) - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{2x^2} + \frac{1}{2}e^2$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{4}bc^2d^2\csc^{-1}(cx) - ibde\csc^{-1}(cx)^2 - \frac{d^2(a+b}{2}$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{4}bc^2d^2\csc^{-1}(cx) - ibde\csc^{-1}(cx)^2 - \frac{d^2(a+b}{2}$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{4}bc^2d^2\csc^{-1}(cx) - ibde\csc^{-1}(cx)^2 - \frac{d^2(a+b}{2}$$

$$= \frac{bcd^2\sqrt{1-\frac{1}{c^2x^2}}}{4x} - \frac{be^2\sqrt{1-\frac{1}{c^2x^2}}\,x}{2c} - \frac{1}{4}bc^2d^2\csc^{-1}(cx) - ibde\csc^{-1}(cx)^2 - \frac{d^2(a+b}{2}$$

Mathematica [A] time = 0.63805, size = 187, normalized size = 0.99

$$\frac{1}{4}\left(4ibde\left(\text{PolyLog}\left(2,-e^{2i\sec^{-1}(cx)}\right)+\sec^{-1}(cx)\left(\sec^{-1}(cx)+2i\log\left(1+e^{2i\sec^{-1}(cx)}\right)\right)\right)-\frac{2ad^2}{x^2}+8ade\log(x)+2ae^2x^2+-\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((d + e*x^2)^2*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] ((-2*a*d^2)/x^2 + 2*a*e^2*x^2 - (2*b*d^2*ArcSec[c*x])/x^2 + (2*b*e^2*x*(-Sq
rt[1 - 1/(c^2*x^2)] + c*x*ArcSec[c*x]))/c + (b*c*d^2*Sqrt[1 - 1/(c^2*x^2)]*
(1 + (c^2*x^2*ArcTanh[Sqrt[1 - c^2*x^2]])/Sqrt[1 - c^2*x^2]))/x + 8*a*d*e*L
og[x] + (4*I)*b*d*e*(ArcSec[c*x]*(ArcSec[c*x] + (2*I)*Log[1 + E^((2*I)*ArcS
ec[c*x])]) + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/4
```

Maple [A] time = 0.608, size = 218, normalized size = 1.2

$$\frac{ax^2e^2}{2}-\frac{ad^2}{2x^2}+2aed\ln(cx)+ibed(\text{arcsec}(cx))^2+\frac{cbd^2}{4x}\sqrt{\frac{c^2x^2-1}{c^2x^2}}+\frac{c^2bd^2\text{arcsec}(cx)}{4}-\frac{b\,\text{arcsec}(cx)\,d^2}{2x^2}+\frac{b\,\text{arcsec}(cx)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^2*(a+b*arcsec(c*x))/x^3,x)
```

```
[Out] 1/2*a*x^2*e^2-1/2*a*d^2/x^2+2*a*e*d*ln(c*x)+I*b*e*d*arcsec(c*x)^2+1/4*c*b*d
^2/x*((c^2*x^2-1)/c^2/x^2)^(1/2)+1/4*c^2*b*d^2*arcsec(c*x)-1/2*b*arcsec(c*x
)*d^2/x^2+1/2*b*arcsec(c*x)*x^2*e^2-1/2/c*b*((c^2*x^2-1)/c^2/x^2)^(1/2)*x*e
^2-1/2*I/c^2*b*e^2-2*b*e*d*arcsec(c*x)*ln(1+(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2
)+I*b*e*d*polylog(2,-(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{2}ae^2x^2-\frac{1}{4}bd^2\left(\frac{\frac{c^4x\sqrt{-\frac{1}{c^2x^2}+1}}{c^2x^2\left(\frac{1}{c^2x^2}-1\right)-1}-c^3\arctan\left(cx\sqrt{-\frac{1}{c^2x^2}+1}\right)}{c}+\frac{2\,\text{arcsec}(cx)}{x^2}\right)+2\,ade\log(x)-\frac{ad^2}{2x^2}-\frac{-2i\,bc^2e^2x^2\log(c)-}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^3,x, algorithm="maxima")
```

```
[Out] 1/2*a*e^2*x^2 - 1/4*b*d^2*((c^4*x*sqrt(-1/(c^2*x^2) + 1)/(c^2*x^2*(1/(c^2*x
^2) - 1) - 1) - c^3*arctan(c*x*sqrt(-1/(c^2*x^2) + 1)))/c + 2*arcsec(c*x)/x
^2) + 2*a*d*e*log(x) - 1/2*a*d^2/x^2 - 1/4*(-2*I*b*c^2*e^2*x^2*log(c) - 4*I
*b*c^2*d*e*log(-c*x + 1)*log(x) - 4*I*b*c^2*d*e*log(x)^2 - 4*I*b*c^2*d*e*di
log(c*x) - 4*I*b*c^2*d*e*dilog(-c*x) - I*b*e^2*log(c*x - 1) + I*(b*e^2*(log
(c*x + 1)/c^2 + log(c*x - 1)/c^2) + 16*b*d*e*integrate(1/2*log(x)/(c^2*x^3
- x), x))*c^2 + 4*c^2*integrate(1/2*(b*e^2*x^2 + 4*b*d*e*log(x))*sqrt(c*x +
```

```
 1)*sqrt(c*x - 1)/(c^2*x^3 - x), x) - 2*(b*c^2*e^2*x^2 + 4*b*c^2*d*e*log(x)
)*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) + (I*b*c^2*e^2*x^2 + 4*I*b*c^2*d*e*lo
g(x))*log(c^2*x^2) + (-4*I*b*c^2*d*e*log(x) - I*b*e^2)*log(c*x + 1) + (-2*I
*b*c^2*e^2*x^2 - 8*I*b*c^2*d*e*log(c))*log(x))/c^2
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{ae^2x^4 + 2\,adex^2 + ad^2 + \left(be^2x^4 + 2\,bdex^2 + bd^2\right)\operatorname{arcsec}(cx)}{x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^3,x, algorithm="fricas")
```

```
[Out] integral((a*e^2*x^4 + 2*a*d*e*x^2 + a*d^2 + (b*e^2*x^4 + 2*b*d*e*x^2 + b*d^
2)*arcsec(c*x))/x^3, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + b\operatorname{asec}(cx))\left(d + ex^2\right)^2}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**2*(a+b*asec(c*x))/x**3,x)
```

```
[Out] Integral((a + b*asec(c*x))*(d + e*x**2)**2/x**3, x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^2(b\operatorname{arcsec}(cx) + a)}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^2*(a+b*arcsec(c*x))/x^3,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)/x^3, x)
```

3.91 $\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$

Optimal. Leaf size=546

$$\frac{ib\sqrt{-d}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}-\frac{ib\sqrt{-d}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}+\frac{ib\sqrt{-d}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^{3/2}}-\frac{ib\sqrt{-d}\text{P}}{}$$

```
[Out] (x*(a + b*ArcSec[c*x]))/e - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(c*e) + (Sqr
t[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
 Sqrt[c^2*d + e])])/(2*e^(3/2)) - (Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 + (c*
Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e^(3/2)) + (Sq
rt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
+ Sqrt[c^2*d + e])])/(2*e^(3/2)) - (Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^(3/2)) + ((
I/2)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e]))])/e^(3/2) - ((I/2)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^(3/2) + ((I/2)*b*Sqrt[-d]*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/e^(3/2
) - ((I/2)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
Sqrt[c^2*d + e])])/e^(3/2)
```

Rubi [A] time = 1.2943, antiderivative size = 546, normalized size of antiderivative = 1., number of steps used = 25, number of rules used = 12, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.571, Rules used = {5240, 4734, 4628, 266, 63, 208, 4668, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\sqrt{-d}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}-\frac{ib\sqrt{-d}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}+\frac{ib\sqrt{-d}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^{3/2}}-\frac{ib\sqrt{-d}\text{P}}{}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] (x*(a + b*ArcSec[c*x]))/e - (b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(c*e) + (Sqr
t[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
 Sqrt[c^2*d + e])])/(2*e^(3/2)) - (Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 + (c*
Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e^(3/2)) + (Sq
rt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
+ Sqrt[c^2*d + e])])/(2*e^(3/2)) - (Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^(3/2)) + ((
I/2)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e]))])/e^(3/2) - ((I/2)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^(3/2) + ((I/2)*b*Sqrt[-d]*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/e^(3/2
) - ((I/2)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
Sqrt[c^2*d + e])])/e^(3/2)
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4628

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_.)*(x_))^(m_.), x_Symbol]
:> Simp[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(d*(m + 1)), x] + Dist[(b*c*n
)/(d*(m + 1)), Int[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1))/Sqrt[1 - c^2
*x^2], x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
```

```
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x^2\left(e+dx^2\right)}\,dx,x,\frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{ex^2}-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e\left(e+dx^2\right)}\right)dx,x,\frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x^2}\,dx,x,\frac{1}{x}\right)}{e}+\frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx,x,\frac{1}{x}\right)}{e}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{b\,\text{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x^2}{c^2}}}\,dx,x,\frac{1}{x}\right)}{ce}+\frac{d\,\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)}+\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right.\right.}{e}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx,x,\frac{1}{x}\right)}{2e^{3/2}}+\frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}+\sqrt{-d}x}\,dx,x,\frac{1}{x}\right)}{2e^{3/2}}+$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{d\,\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos(x)}\,dx,x,\sec^{-1}(cx)\right)}{2e^{3/2}}-\frac{d\,\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}+\sqrt{-d}\cos(x)}\,d\right.}{2e^{3/2}}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce}+\frac{(id)\,\text{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}-\frac{\sqrt{c^2d+e}}{c}-\sqrt{-d}e^{ix}}\,dx,x,\sec^{-1}(cx)\right.}{2e^{3/2}}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce}+\frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce}+\frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce}+\frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^{3/2}}$$

Mathematica [A] time = 1.36247, size = 1023, normalized size = 1.87

$$\frac{ax}{e}-\frac{a\sqrt{d}\tan^{-1}\left(\frac{\sqrt{e}x}{\sqrt{d}}\right)}{e^{3/2}}+b\left(\frac{cx\sec^{-1}(cx)+\log\left(\cos\left(\frac{1}{2}\sec^{-1}(cx)\right)-\sin\left(\frac{1}{2}\sec^{-1}(cx)\right)\right)-\log\left(\cos\left(\frac{1}{2}\sec^{-1}(cx)\right)+\sin\right.}{ce}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] (a*x)/e - (a*Sqrt[d]*ArcTan[(Sqrt[e]*x)/Sqrt[d]])/e^(3/2) + b*((c*x*ArcSec[
c*x] + Log[Cos[ArcSec[c*x]/2] - Sin[ArcSec[c*x]/2]] - Log[Cos[ArcSec[c*x]/2
] + Sin[ArcSec[c*x]/2]])/(c*e) - (Sqrt[d]*(8*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c
*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqr
t[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^
(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d
])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*S
qrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*Ar
cSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/S
qrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d
])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 2*PolyLog[2, (I*(-
Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 2*PolyLog[2, (
(-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + PolyLog[
2, -E^((2*I)*ArcSec[c*x])]))/(4*e^(3/2)) + (Sqrt[d]*(8*ArcSin[Sqrt[1 - (I*S
qrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec
[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + Sqrt[
c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 - (I*Sqrt
[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*Arc
Sec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*
d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 - (I*Sqrt[e])
/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c
*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 2*P
olyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] -
2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]
 + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(4*e^(3/2)))
```

Maple [C] time = 1.723, size = 374, normalized size = 0.7

$$\frac{ax}{e}-\frac{ad}{e}\arctan\left(ex\frac{1}{\sqrt{de}}\right)\frac{1}{\sqrt{de}}+\frac{bx\mathrm{arcsec}\left(cx\right)}{e}+\frac{\frac{i}{8}cbd}{e^2}\sum_{\_R1=\mathrm{RootOf}\left(c^2d\_Z^4+\left(2c^2d+4e\right)\_Z^2+c^2d\right)}\frac{\_R1^2c^2d+c^2d+4e}{\_R1\left(\_R1^2c^2d+c^2d+2e\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d),x)
```

```
[Out] a*x/e-a*d/e/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))+b*arcsec(c*x)/e*x+1/8*I*c*b
/e^2*d*sum((_R1^2*c^2*d+c^2*d+4*e)/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*
x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^
2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+2*I/c*b/e*
arctan(1/c/x+I*(1-1/c^2/x^2)^(1/2))-1/8*I*c*b/e^2*d*sum((_R1^2*c^2*d+4*_R1^
2*e+c^2*d)/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/
c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=Root
```

```
Of(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^2 \operatorname{arcsec}(cx) + ax^2}{ex^2 + d}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)/(e*x^2 + d), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2 (a + b \operatorname{asec}(cx))}{d + ex^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d),x)
```

```
[Out] Integral(x**2*(a + b*asec(c*x))/(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^2}{ex^2 + d} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/(e*x^2 + d), x)
```

3.92 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$

Optimal. Leaf size=487

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{}}{}\right.}{2e}$$

```
[Out] ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/(2*e) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec
[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e) + ((a + b*ArcSec[c*x])*Log[1 -
(c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e) + ((a +
b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d
 + e])])/(2*e) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e - (
(I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
 e]))])/e - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - S
qrt[c^2*d + e])])/e - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/
(Sqrt[e] + Sqrt[c^2*d + e]))])/e - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e + ((I/2)*b*PolyLog[2, -E^((2*I)*
ArcSec[c*x])])/e
```

Rubi [A] time = 1.15161, antiderivative size = 487, normalized size of antiderivative = 1., number of steps used = 26, number of rules used = 9, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.474, Rules used = {5240, 4734, 4626, 3719, 2190, 2279, 2391, 4742, 4520}

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{}}{}\right.}{2e}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/(2*e) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec
[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e) + ((a + b*ArcSec[c*x])*Log[1 -
(c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e) + ((a +
b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d
 + e])])/(2*e) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e - (
(I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
 e]))])/e - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - S
qrt[c^2*d + e])])/e - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/
(Sqrt[e] + Sqrt[c^2*d + e]))])/e - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e + ((I/2)*b*PolyLog[2, -E^((2*I)*
ArcSec[c*x])])/e
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
```

```
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4626

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> -Subst[Int[
(a + b*x)^n/Cot[x], x], x, ArcCos[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0
]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rubi steps

$$\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x\left(e+dx^2\right)}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{ex} - \frac{dx\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e\left(e+dx^2\right)}\right) dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x}\,dx, x, \frac{1}{x}\right)}{e} + \frac{d\,\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{e}$$

$$= \frac{\text{Subst}\left(\int (a+bx)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{e} + \frac{d\,\text{Subst}\left(\int \left(-\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{\sqrt{-d}\left(a+b\cos^{-1}\right.}{2d\left(\sqrt{e}+\sqrt{-d}\right.}\right.\right.}{e}$$

$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be} - \frac{(2i)\,\text{Subst}\left(\int \frac{e^{2ix}(a+bx)}{1+e^{2ix}}\,dx, x, \sec^{-1}(cx)\right)}{e} - \frac{\sqrt{-d}\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right.}{\sqrt{e}-\sqrt{-d}x}\right.}{2e}$$

$$= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right)}{e} + \frac{b\,\text{Subst}\left(\int \log\left(1+e^{2ix}\right) d\right.}{e}$$

$$= -\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right)}{e} - \frac{(ib)\,\text{Subst}\left(\int \frac{\log(1+x)}{x}\,dx, x, e^{2i\sec^{-1}(cx)}\right)}{2e} - \frac{\left(i\sqrt{-d}\right.}{}$$

$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{(a}{}$$

$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{(a}{}$$

$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e} + \frac{(a}{}$$

Mathematica [A] time = 0.376304, size = 891, normalized size = 1.83

$$\frac{4ib\sin^{-1}\left(\frac{\sqrt{1-\frac{i\sqrt{e}}{c\sqrt{d}}}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(\sqrt{e}-ic\sqrt{d}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) + 4ib\sin^{-1}\left(\frac{\sqrt{\frac{i\sqrt{e}}{c\sqrt{d}}+1}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(i\sqrt{d}c+\sqrt{e}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) + b\sec^{-1}(cx)\,\mathrm{l}}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] ((4*I)*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*
Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] + (4*I)*b*ArcSin[Sq
rt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Ta
n[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] + b*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sq
rt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 2*b*ArcSin[Sqrt[1 + (I*Sqr
t[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*Arc
Sec[c*x]))/(c*Sqrt[d])] + b*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d +
 e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 2*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*S
qrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x])
)/(c*Sqrt[d])] + b*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*
```

```
ArcSec[c*x]))/(c*Sqrt[d])] - 2*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/S
qrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d
])] + b*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]
))/(c*Sqrt[d])] - 2*b*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log
[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 2*b*A
rcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] + a*Log[d + e*x^2] - I*b*PolyLog[
2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - I*b*Pol
yLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - I
*b*PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[
d])] - I*b*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*
Sqrt[d])] + I*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])])/(2*e)
```

Maple [C] time = 0.5, size = 453, normalized size = 0.9

$$\frac{a\ln\left(c^2ex^2+c^2d\right)}{2e}-\frac{\frac{i}{4}c^2bd}{e}\sum_{\_R1=\mathrm{RootOf}\left(c^2d\_Z^4+\left(2c^2d+4e\right)\_Z^2+c^2d\right)}\frac{\_R1^2+1}{\_R1^2c^2d+c^2d+2e}\left(i\operatorname{arcsec}(cx)\ln\left(\frac{1}{\_R1}\left(\_R1-\frac{1}{cx}-i\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d),x)
```

```
[Out] 1/2*a/e*ln(c^2*e*x^2+c^2*d)-1/4*I*c^2*b*d/e*sum((_R1^2+1)/(_R1^2*c^2*d+c^2*
d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-
1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2
+c^2*d))-b/e*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-b/e*arcsec(c
*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I*b/e*dilog(1+I*(1/c/x+I*(1-1/c^2
/x^2)^(1/2)))+I*b/e*dilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-1/4*I*b/e*sum(
(_R1^2*c^2*d+c^2*d+4*e)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/
x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1))
,_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$b\int\frac{x\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{ex^2+d}\,dx+\frac{a\log\left(ex^2+d\right)}{2e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] b*integrate(x*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e*x^2 + d), x) + 1/2*a*l
og(e*x^2 + d)/e
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{bx\operatorname{arcsec}(cx)+ax}{ex^2+d},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*x*arcsec(c*x) + a*x)/(e*x^2 + d), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\,(a + b\,\mathrm{asec}\,(cx))}{d + ex^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d),x)
```

```
[Out] Integral(x*(a + b*asec(c*x))/(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx) + a)x}{ex^2 + d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/(e*x^2 + d), x)
```

3.93 $\int \frac{a+b\sec^{-1}(cx)}{d+ex^2}\,dx$

Optimal. Leaf size=509

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2\sqrt{-d}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec\cdots}}{\sqrt{c^2d+\cdots}}\right.}{2\sqrt{-d}\sqrt{e}}$$

```
[Out] ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[
-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) +
 ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqr
t[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e])
+ ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*
d + e]))])/(Sqrt[-d]*Sqrt[e]) - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec
[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(Sqrt[-d]*Sqrt[e]) + ((I/2)*b*PolyLog
[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/(Sqrt[-
d]*Sqrt[e]) - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e])])/(Sqrt[-d]*Sqrt[e])
```

Rubi [A] time = 0.869031, antiderivative size = 509, normalized size of antiderivative = 1., number of steps used = 19, number of rules used = 7, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.389, Rules used = {5230, 4668, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2\sqrt{-d}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec\cdots}}{\sqrt{c^2d+\cdots}}\right.}{2\sqrt{-d}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x^2),x]
```

```
[Out] ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[
-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) +
 ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqr
t[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e]) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*Sqrt[-d]*Sqrt[e])
+ ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*
d + e]))])/(Sqrt[-d]*Sqrt[e]) - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec
[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(Sqrt[-d]*Sqrt[e]) + ((I/2)*b*PolyLog
[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/(Sqrt[-
d]*Sqrt[e]) - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e])])/(Sqrt[-d]*Sqrt[e])
```

Rule 5230

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*((d_.) + (e_.)*(x_)^2)^(p_.),
x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^(2*(p + 1))
, x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0] && IntegerQ[p]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
```

```
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{d+ex^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)$$
$$= -\text{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx, x, \frac{1}{x}\right)$$
$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2\sqrt{e}} - \frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}+\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2\sqrt{e}}$$
$$= \frac{\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{e}} + \frac{\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}+\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{e}}$$
$$= -\frac{i\,\text{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}-\frac{\sqrt{c^2d+e}}{c}-\sqrt{-d}e^{ix}}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{e}} - \frac{i\,\text{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}+\frac{\sqrt{c^2d+e}}{c}-\sqrt{-d}e^{ix}}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{e}} - \frac{i}{}$$
$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} + \frac{\left(a+b\sec^{-1}\right.}{}$$

$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} + \frac{\left(a+b\sec^{-1}\right.}{}$$
$$= \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2\sqrt{-d}\sqrt{e}} + \frac{\left(a+b\sec^{-1}\right.}{}$$

Mathematica [A] time = 0.326198, size = 871, normalized size = 1.71

$$\frac{2a\tan^{-1}\left(\frac{\sqrt{e}x}{\sqrt{d}}\right) - 4b\sin^{-1}\left(\frac{\sqrt{1-\frac{i\sqrt{e}}{c\sqrt{d}}}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(\sqrt{e}-ic\sqrt{d}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) + 4b\sin^{-1}\left(\frac{\sqrt{\frac{i\sqrt{e}}{c\sqrt{d}}+1}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(i\sqrt{d}c+\sqrt{e}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) -}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x^2),x]
```

```
[Out] (2*a*ArcTan[(Sqrt[e]*x)/Sqrt[d]] - 4*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[
d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c
^2*d + e]] + 4*b*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(
(I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - I*b*ArcSec[c
*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]
- (2*I)*b*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqr
t[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + I*b*ArcSec[c*x]*L
og[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (2
*I)*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e
] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + I*b*ArcSec[c*x]*Log[
1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*
b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + S
qrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - I*b*ArcSec[c*x]*Log[1 + (
I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*b*Arc
```

```
Sin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c
^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + b*PolyLog[2, (I*(Sqrt[e] - Sqr
t[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - b*PolyLog[2, (I*(-Sqrt[e] +
 Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - b*PolyLog[2, ((-I)*(Sqr
t[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + b*PolyLog[2, (I*(
Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/(2*Sqrt[d]*Sqrt
[e])
```

Maple [C] time = 0.961, size = 272, normalized size = 0.5

$$a\arctan\left(ex\frac{1}{\sqrt{de}}\right)\frac{1}{\sqrt{de}}+\frac{i}{2}cb\sum_{\_R1=\mathrm{RootOf}\left(c^2d\_Z^4+\left(2c^2d+4e\right)\_Z^2+c^2d\right)}\frac{\_R1}{\_R1^2c^2d+c^2d+2e}\left(i\operatorname{arcsec}(cx)\ln\left(\frac{1}{\_R1}\left(\_R1-\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x^2+d),x)
```

```
[Out] a/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))+1/2*I*c*b*sum(_R1/(_R1^2*c^2*d+c^2*d+
2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/
c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c
^2*d))-1/2*I*c*b*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1
/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R
1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{b\operatorname{arcsec}(cx)+a}{ex^2+d},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e*x^2 + d), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\operatorname{asec}(cx)}{d+ex^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d),x)
```

```
[Out] Integral((a + b*asec(c*x))/(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{ex^2 + d} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x^2 + d), x)
```

3.94 $\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)}\,dx$

Optimal. Leaf size=459

$$\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-}}{\sqrt{c}}\right.}{2d}$$

```
[Out] ((I/2)*(a + b*ArcSec[c*x])^2)/(b*d) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[
-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d) - ((a + b*ArcSec
[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])
/(2*d) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] + Sqrt[c^2*d + e])])/(2*d) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d) + ((I/2)*b*PolyLog[2,
-((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d + ((I/2)*
b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/d
 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2
*d + e]))])/d + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
 + Sqrt[c^2*d + e])])/d
```

Rubi [A] time = 0.895521, antiderivative size = 459, normalized size of antiderivative = 1., number of steps used = 19, number of rules used = 7, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {5240, 4734, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d}+\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-}}{\sqrt{c}}\right.}{2d}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x*(d + e*x^2)),x]
```

```
[Out] ((I/2)*(a + b*ArcSec[c*x])^2)/(b*d) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[
-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d) - ((a + b*ArcSec
[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])
/(2*d) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] + Sqrt[c^2*d + e])])/(2*d) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d) + ((I/2)*b*PolyLog[2,
-((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d + ((I/2)*
b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/d
 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2
*d + e]))])/d + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
 + Sqrt[c^2*d + e])])/d
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
```

```
e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$
\begin{aligned}
\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)}\,dx &= -\operatorname{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)\\
&= -\operatorname{Subst}\left(\int \left(-\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}-\sqrt{-d}x\right)}+\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx, x, \frac{1}{x}\right)\\
&= -\frac{\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2\sqrt{-d}}+\frac{\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}+\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2\sqrt{-d}}\\
&= \frac{\operatorname{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{-d}}-\frac{\operatorname{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}+\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{-d}}\\
&= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd}-\frac{i\operatorname{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}-\frac{\sqrt{c^2d+e}}{c}-\sqrt{-d}e^{ix}}\,dx, x, \sec^{-1}(cx)\right)}{2\sqrt{-d}}-\frac{i\operatorname{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}+\frac{\sqrt{c^2d+e}}{c}-\sqrt{-\ldots}}\ldots\right)}{2\sqrt{-\ldots}}\\
&= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\ldots}{\ldots}\right.}{2d}\\
&= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\ldots}{\ldots}\right.}{2d}\\
&= \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+\frac{c\ldots}{\ldots}\right.}{2d}
\end{aligned}
$$

<u>Mathematica</u> [A] time = 0.827598, size = 402, normalized size = 0.88

$$
\frac{ib\left(\operatorname{PolyLog}\left(2,-\frac{\left(-2\sqrt{e\left(c^2d+e\right)}+c^2d+2e\right)e^{2i\sec^{-1}(cx)}}{c^2d}\right)+\operatorname{PolyLog}\left(2,-\frac{\left(2\left(\sqrt{e\left(c^2d+e\right)}+e\right)+c^2d\right)e^{2i\sec^{-1}(cx)}}{c^2d}\right)-4\sin^{-1}\left(\sqrt{\frac{e}{c^2d}+1}\right)\tan\ldots\right.}{\ldots}
$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)),x]
```

```
[Out] (4*a*Log[x] - 2*a*Log[d + e*x^2] + I*b*(2*ArcSec[c*x]^2 - 4*ArcSin[Sqrt[1 +
 e/(c^2*d)]]*ArcTan[(c*e*Sqrt[1 - 1/(c^2*x^2)]*x)/Sqrt[e*(c^2*d + e)]] + (2
*I)*ArcSec[c*x]*Log[1 + ((c^2*d + 2*e - 2*Sqrt[e*(c^2*d + e)])*E^((2*I)*Arc
Sec[c*x]))/(c^2*d)] + (2*I)*ArcSin[Sqrt[1 + e/(c^2*d)]]*Log[1 + ((c^2*d + 2
*e - 2*Sqrt[e*(c^2*d + e)])*E^((2*I)*ArcSec[c*x]))/(c^2*d)] + (2*I)*ArcSec[
c*x]*Log[1 + ((c^2*d + 2*(e + Sqrt[e*(c^2*d + e)]))*E^((2*I)*ArcSec[c*x]))/
(c^2*d)] - (2*I)*ArcSin[Sqrt[1 + e/(c^2*d)]]*Log[1 + ((c^2*d + 2*(e + Sqrt[
e*(c^2*d + e)]))*E^((2*I)*ArcSec[c*x]))/(c^2*d)] + PolyLog[2, -(((c^2*d + 2
*e - 2*Sqrt[e*(c^2*d + e)])*E^((2*I)*ArcSec[c*x]))/(c^2*d))] + PolyLog[2, -
(((c^2*d + 2*(e + Sqrt[e*(c^2*d + e)]))*E^((2*I)*ArcSec[c*x]))/(c^2*d))]))/
(4*d)
```

Maple [C] time = 0.605, size = 2933, normalized size = 6.4

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d),x)
```

```
[Out] -1/2*I*b/c^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(
c^2*d+e))^(1/2)-2*e))/d^2*(e*(c^2*d+e))^(1/2)+b/c^2/d^2*ln(1-c^2*d*(1/c/x+I
*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e*
(c^2*d+e))^(1/2)-2*b/c^2/d^2*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c
^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*e-2*b/c^4/d^3*ln(1-c^2*d*(1/c/
x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*
e^2+3/4*I*b*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c
^2*d+e))^(1/2)-2*e))/(c^2*d+e)/d*(e*(c^2*d+e))^(1/2)-5/4*I*b*polylog(2,c^2*
d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/(c^2*
d+e)/d*e-I*b/c^2*arcsec(c*x)^2/d^2*(e*(c^2*d+e))^(1/2)+2*I*b/c^2*arcsec(c*x
)^2*e/d^2+1/2*b*c^2/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-
c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)-1/2*I*b*c^2*arcsec(c*x)^2/(c^
2*d+e)-1/4*I*b*c^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-
2*(e*(c^2*d+e))^(1/2)-2*e))/(c^2*d+e)-1/2*b/d*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/
x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)+I*b/d*arcsec(
c*x)^2+1/4*I*b*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e
*(c^2*d+e))^(1/2)-2*e))/d+1/2*I*b/d*sum((_R1^2*c^2*d+2*c^2*d+4*e)/(_R1^2*c^
2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dil
og((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4
*e)*_Z^2+c^2*d))-4*I*b/c^2*e^2*arcsec(c*x)^2/d^2/(c^2*d+e)-1/8*I*b*c^2*(e*(
c^2*d+e))^(1/2)/e/(c^2*d+e)*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2
/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))-2*I*b/c^4*e^3*arcsec(c*x)^2/d^3/(c^2*d
+e)+a/d*ln(c*x)+3/2*I*b/c^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2
/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/(c^2*d+e)/d^2*(e*(c^2*d+e))^(1/2)*e+I*
b/c^4*e^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2
*d+e))^(1/2)-2*e))/d^3/(c^2*d+e)*(e*(c^2*d+e))^(1/2)-2*b/c^4*e^2/d^3/(c^2*d
+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2
)-2*e))*arcsec(c*x)*(e*(c^2*d+e))^(1/2)+3*I*b/c^2*e*arcsec(c*x)^2/d^2/(c^2*
d+e)*(e*(c^2*d+e))^(1/2)+2*I*b/c^4*e^2*arcsec(c*x)^2/d^3/(c^2*d+e)*(e*(c^2*
d+e))^(1/2)+1/4*b*c^2*(e*(c^2*d+e))^(1/2)/e/(c^2*d+e)*arcsec(c*x)*ln(1-c^2*
d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))-1/4*b
*c^2/e/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c
^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e*(c^2*d+e))^(1/2)+4*b/c^2/(c^2*d+e)/d^2*
ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*
e))*arcsec(c*x)*e^2+2*b/c^4/d^3*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/
(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*e*(e*(c^2*d+e))^(1/2)+2*b/c
^4*e^3/d^3/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(
e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)-2*I*b/c^4*arcsec(c*x)^2*e/d^3*(e*(c^2*
d+e))^(1/2)+1/8*I*b*c^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c
^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/e/(c^2*d+e)*(e*(c^2*d+e))^(1/2)-2*I*b/c^2*
polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/
2)-2*e))/(c^2*d+e)/d^2*e^2-I*b/c^4*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(
1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*e/d^3*(e*(c^2*d+e))^(1/2)-I*b/c
^4*e^3*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+
e))^(1/2)-2*e))/d^3/(c^2*d+e)-3*b/c^2/(c^2*d+e)/d^2*ln(1-c^2*d*(1/c/x+I*(1-
1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e*(c^2
*d+e))^(1/2)*e-1/2*a/d*ln(c^2*e*x^2+c^2*d)+2*I*b/c^4*arcsec(c*x)^2*e^2/d^3-
5/2*I*b*arcsec(c*x)^2/(c^2*d+e)/d*e-1/4*I*b*(e*(c^2*d+e))^(1/2)/d/(c^2*d+e)
*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1
/2)-2*e))+I*b*(e*(c^2*d+e))^(1/2)/d/(c^2*d+e)*arcsec(c*x)^2+1/2*b*(e*(c^2*d
+e))^(1/2)/d/(c^2*d+e)*arcsec(c*x)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))
```

```
^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))-3/2*b/(c^2*d+e)/d*ln(1-c^2*d*(1/c/x+
I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e
*(c^2*d+e))^(1/2)+5/2*b*e/(c^2*d+e)/d*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/
2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)+I*b/c^2*polylog(2,c^2
*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*e/d^
2+I*b/c^4*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2
*d+e))^(1/2)-2*e))*e^2/d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{2}\,a\left(\frac{\log\left(ex^2+d\right)}{d}-\frac{2\,\log\left(x\right)}{d}\right)+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{ex^3+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] -1/2*a*(log(e*x^2 + d)/d - 2*log(x)/d) + b*integrate(arctan(sqrt(c*x + 1)*s
qrt(c*x - 1))/(e*x^3 + d*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{b\,\mathrm{arcsec}\left(cx\right)+a}{ex^3+dx},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e*x^3 + d*x), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\,\mathrm{asec}\left(cx\right)}{x\left(d+ex^2\right)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d),x)
```

```
[Out] Integral((a + b*asec(c*x))/(x*(d + e*x**2)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\mathrm{arcsec}\left(cx\right)+a}{\left(ex^2+d\right)x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)*x), x)
```

3.95 $\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)}\,dx$

Optimal. Leaf size=551

$$\frac{ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}}-\frac{ib\sqrt{e}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}}+\frac{ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2(-d)^{3/2}}-\frac{ib\sqrt{e}\text{PolyI}}{}$$

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/d - a/(d*x) - (b*ArcSec[c*x])/(d*x) + (Sqrt[e]*
(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[
c^2*d + e])])/(2*(-d)^(3/2)) - (Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) + (Sqr
t[e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) - (Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) +
 ((I/2)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sq
rt[c^2*d + e]))])/(-d)^(3/2) - ((I/2)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-d]*E^(I
*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(-d)^(3/2) + ((I/2)*b*Sqrt[e]*
PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/
(-d)^(3/2) - ((I/2)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sq
rt[e] + Sqrt[c^2*d + e])])/(-d)^(3/2)
```

Rubi [A] time = 1.09592, antiderivative size = 551, normalized size of antiderivative = 1., number of steps used = 24, number of rules used = 10, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.476, Rules used = {5240, 4734, 4620, 261, 4668, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}}-\frac{ib\sqrt{e}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}}+\frac{ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2(-d)^{3/2}}-\frac{ib\sqrt{e}\text{PolyI}}{}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)),x]
```


```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/d - a/(d*x) - (b*ArcSec[c*x])/(d*x) + (Sqrt[e]*
(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[
c^2*d + e])])/(2*(-d)^(3/2)) - (Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) + (Sqr
t[e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) - (Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*(-d)^(3/2)) +
 ((I/2)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sq
rt[c^2*d + e]))])/(-d)^(3/2) - ((I/2)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-d]*E^(I
*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(-d)^(3/2) + ((I/2)*b*Sqrt[e]*
PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/
(-d)^(3/2) - ((I/2)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sq
rt[e] + Sqrt[c^2*d + e])])/(-d)^(3/2)
```


Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4620

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.), x_Symbol] :> Simp[x*(a + b*Ar
cCos[c*x])^n, x] + Dist[b*c*n, Int[(x*(a + b*ArcCos[c*x])^(n - 1))/Sqrt[1 -
 c^2*x^2], x], x] /; FreeQ[{a, b, c}, x] && GtQ[n, 0]
```

Rule 261

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a + b*x^n)
^(p + 1)/(b*n*(p + 1)), x] /; FreeQ[{a, b, m, n, p}, x] && EqQ[m, n - 1] &&
 NeQ[p, -1]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)}\,dx = -\text{Subst}\left(\int \frac{x^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{d} - \frac{e\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)dx, x, \frac{1}{x}\right)}{d} + \frac{e\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d}$$

$$= -\frac{a}{dx} - \frac{b\,\text{Subst}\left(\int \cos^{-1}\left(\frac{x}{c}\right)dx, x, \frac{1}{x}\right)}{d} + \frac{e\,\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx, x, \frac{1}{x}\right)}{d}$$

$$= -\frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} - \frac{b\,\text{Subst}\left(\int \frac{x}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{cd} + \frac{\sqrt{e}\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2d} + \frac{\sqrt{e}\,\text{Su}}{}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d} - \frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} - \frac{\sqrt{e}\,\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2d} - \frac{\sqrt{e}\,\text{Subst}\left(\int\right.}{}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d} - \frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} + \frac{\left(i\sqrt{e}\right)\text{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}-\frac{\sqrt{c^2d+e}}{c}-\sqrt{-d}e^{ix}}\,dx, x, \sec^{-1}(cx)\right)}{2d} + \frac{\left(i\sqrt{e}\right)\text{S}}{}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d} - \frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}} - \frac{\sqrt{e}\left(a+b\,\text{se}\right.}{}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d} - \frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}} - \frac{\sqrt{e}\left(a+b\,\text{se}\right.}{}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d} - \frac{a}{dx} - \frac{b\sec^{-1}(cx)}{dx} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2(-d)^{3/2}} - \frac{\sqrt{e}\left(a+b\,\text{se}\right.}{}$$

Mathematica [A] time = 1.291, size = 997, normalized size = 1.81

$$-\frac{\sqrt{e}\tan^{-1}\left(\frac{\sqrt{e}x}{\sqrt{d}}\right)a}{d^{3/2}} - \frac{a}{dx} + b\left(\frac{c\sqrt{1-\frac{1}{c^2x^2}} - \frac{\sec^{-1}(cx)}{x}}{d} - \frac{\sqrt{e}\left(8\sin^{-1}\left(\frac{\sqrt{\frac{i\sqrt{e}}{c\sqrt{d}}+1}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(i\sqrt{d}c+\sqrt{e}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) - 2i\sec^{-1}\right.}{}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)),x]
```

```
[Out] -(a/(d*x)) - (a*Sqrt[e]*ArcTan[(Sqrt[e]*x)/Sqrt[d]])/d^(3/2) + b*((c*Sqrt[1
 - 1/(c^2*x^2)] - ArcSec[c*x]/x)/d - (Sqrt[e]*(8*ArcSin[Sqrt[1 + (I*Sqrt[e]
)/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])
/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e]
```

```
)*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sq
rt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/
(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(
I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d]
)]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sq
rt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 2*PolyLog[2, (
I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 2*PolyLog[
2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + Poly
Log[2, -E^((2*I)*ArcSec[c*x])]))/(4*d^(3/2)) + (Sqrt[e]*(8*ArcSin[Sqrt[1 -
(I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[Ar
cSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + S
qrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 - (I*
Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I
*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[
c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 - (I*Sqrt
[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcS
ec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] -
 2*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])
] - 2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[
d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(4*d^(3/2)))
```

Maple [C] time = 1.541, size = 331, normalized size = 0.6

$$-\frac{ae}{d}\arctan\left(ex\frac{1}{\sqrt{de}}\right)\frac{1}{\sqrt{de}}-\frac{a}{dx}+\frac{cb}{d}\sqrt{\frac{c^2x^2-1}{c^2x^2}}-\frac{b\,\mathrm{arcsec}\,(cx)}{dx}-\frac{\frac{i}{2}cbe}{d}\sum_{\_R1=\mathrm{RootOf}\left(c^2d\_Z^4+\left(2c^2d+4e\right)\_Z^2+c^2d\right)}\frac{\_R1}{\_R1^2c^2d+c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2/(e*x^2+d),x)
```

```
[Out] -a*e/d/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))-a/d/x+c*b/d*((c^2*x^2-1)/c^2/x^2
)^(1/2)-b*arcsec(c*x)/d/x-1/2*I*c*b*e/d*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*
arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1
-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+1
/2*I*c*b*e/d*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x
-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),
_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{b\,\mathrm{arcsec}\,(cx)+a}{ex^4+dx^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e*x^4 + d*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{asec}\,(cx)}{x^2\left(d + ex^2\right)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2/(e*x**2+d),x)
```

```
[Out] Integral((a + b*asec(c*x))/(x**2*(d + e*x**2)), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx) + a}{\left(ex^2 + d\right)x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)*x^2), x)
```

3.96 $\int \frac{x^5(a+b\sec^{-1}(cx))}{(d+ex^2)^2}\,dx$

Optimal. Leaf size=608

$$\frac{ibd\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,\frac{c\sqrt{}}{}\right.}{e^3}$$

```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c*e^2) + (d*(a + b*ArcSec[c*x]))/(2*e^2*(e
+ d/x^2)) + (x^2*(a + b*ArcSec[c*x]))/(2*e^2) + (b*d*ArcTan[Sqrt[c^2*d + e]
/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(5/2)*Sqrt[c^2*d + e]) - (d*(a
+ b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2
*d + e])])/e^3 - (d*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x
]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^3 - (d*(a + b*ArcSec[c*x])*Log[1 - (c*S
qrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 - (d*(a + b*Ar
cSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e
])])/e^3 + (2*d*(a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^3 + (
I*b*d*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e
]))])/e^3 + (I*b*d*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqr
t[c^2*d + e])])/e^3 + (I*b*d*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] + Sqrt[c^2*d + e]))])/e^3 + (I*b*d*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSe
c[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 - (I*b*d*PolyLog[2, -E^((2*I)*Ar
cSec[c*x])])/e^3
```

Rubi [A] time = 1.30586, antiderivative size = 608, normalized size of antiderivative = 1., number of steps used = 31, number of rules used = 14, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.667, Rules used = {5240, 4734, 4628, 264, 4626, 3719, 2190, 2279, 2391, 4730, 377, 205, 4742, 4520}

$$\frac{ibd\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{e^3}+\frac{ibd\text{PolyLog}\left(2,\frac{c\sqrt{}}{}\right.}{e^3}$$

Antiderivative was successfully verified.

```
[In] Int[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```


```
[Out] -(b*Sqrt[1 - 1/(c^2*x^2)]*x)/(2*c*e^2) + (d*(a + b*ArcSec[c*x]))/(2*e^2*(e
+ d/x^2)) + (x^2*(a + b*ArcSec[c*x]))/(2*e^2) + (b*d*ArcTan[Sqrt[c^2*d + e]
/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(5/2)*Sqrt[c^2*d + e]) - (d*(a
+ b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2
*d + e])])/e^3 - (d*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x
]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^3 - (d*(a + b*ArcSec[c*x])*Log[1 - (c*S
qrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 - (d*(a + b*Ar
cSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e
])])/e^3 + (2*d*(a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^3 + (
I*b*d*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e
]))])/e^3 + (I*b*d*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqr
t[c^2*d + e])])/e^3 + (I*b*d*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] + Sqrt[c^2*d + e]))])/e^3 + (I*b*d*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSe
c[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 - (I*b*d*PolyLog[2, -E^((2*I)*Ar
```

```
cSec[c*x])])/e^3
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4628

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_.)*(x_))^(m_.), x_Symbol]
:> Simp[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(d*(m + 1)), x] + Dist[(b*c*n
)/(d*(m + 1)), Int[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1))/Sqrt[1 - c^2
*x^2], x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 4626

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> -Subst[Int[
(a + b*x)^n/Cot[x], x], x, ArcCos[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0
]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rule 4730

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*(x_)*((d_) + (e_.)*(x_)^2)^(p_.), x_
Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcCos[c*x]))/(2*e*(p + 1)), x]
 + Dist[(b*c)/(2*e*(p + 1)), Int[(d + e*x^2)^(p + 1)/Sqrt[1 - c^2*x^2], x],
 x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[c^2*d + e, 0] && NeQ[p, -1]
```

Rule 377

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)/((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Su
bst[Int[1/(c - (b*c - a*d)*x^n), x], x, x/(a + b*x^n)^(1/n)] /; FreeQ[{a, b
, c, d}, x] && NeQ[b*c - a*d, 0] && EqQ[n*p + 1, 0] && IntegerQ[n]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rubi steps

$$\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x^3\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e^2x^3} - \frac{2d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e^3x} + \frac{d^2x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e^2\left(e+dx^2\right)^2} + \frac{2d^2x\left(a+\right.}{e^3\left(\right.}\right.\right.$$

$$= \frac{(2d)\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x}\,dx, x, \frac{1}{x}\right)}{e^3} - \frac{\left(2d^2\right)\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{e^3} - \text{Subst}\left(\int\right.$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} - \frac{(2d)\,\text{Subst}\left(\int(a+bx)\tan(x)\,dx, x, \sec^{-1}(cx\right.}{e^3}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} - \frac{id\left(a+b\sec^{-1}(cx)\right)^2}{be^3} - \frac{(-d}{}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} - \frac{id\left(a+b\sec^{-1}(cx)\right)^2}{be^3} + \frac{bd\,\mathrm{t}}{}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} + \frac{bd\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} + \frac{2}{}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} + \frac{bd\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} - \frac{a}{}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} + \frac{bd\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} - \frac{a}{}$$

$$= -\frac{b\sqrt{1-\frac{1}{c^2x^2}}x}{2ce^2} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{2e^2} + \frac{bd\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} - \frac{a}{}$$

Mathematica [B] time = 3.90373, size = 1255, normalized size = 2.06

$$-\frac{\frac{2ad^2}{ex^2+d} + 4a\log\left(ex^2+d\right)d - 2aex^2 + b\left(-2e\sec^{-1}(cx)x^2 + \frac{2e\sqrt{1-\frac{1}{c^2x^2}}x}{c} + \frac{d^{3/2}\sec^{-1}(cx)}{\sqrt{d}-i\sqrt{ex}} + \frac{d^{3/2}\sec^{-1}(cx)}{i\sqrt{ex}+\sqrt{d}} + 2d\sin^{-1}\left(\frac{1}{cx}\right) + 16\right.\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] -(-2*a*e*x^2 + (2*a*d^2)/(d + e*x^2) + 4*a*d*Log[d + e*x^2] + b*((2*e*Sqrt[
1 - 1/(c^2*x^2)]*x)/c - 2*e*x^2*ArcSec[c*x] + (d^(3/2)*ArcSec[c*x])/(Sqrt[d
] - I*Sqrt[e]*x) + (d^(3/2)*ArcSec[c*x])/(Sqrt[d] + I*Sqrt[e]*x) + 2*d*ArcS
in[1/(c*x)] + (16*I)*d*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Ar
cTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] + (16
*I)*d*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d
] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] + 4*d*ArcSec[c*x]*Log[1 +
 (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 8*d*ArcSi
n[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2
*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 4*d*ArcSec[c*x]*Log[1 + (I*(-Sqr
t[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 8*d*ArcSin[Sqrt[1
 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e]
)*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 4*d*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + S
qrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 8*d*ArcSin[Sqrt[1 - (I*Sq
rt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*Ar
cSec[c*x]))/(c*Sqrt[d])] + 4*d*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d
 + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 8*d*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c
*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]
))/(c*Sqrt[d])] - 8*d*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - (d*Sqrt[
e]*Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sq
rt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))])/Sqr
t[-(c^2*d) - e] - (d*Sqrt[e]*Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt
[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sq
rt[d] + I*Sqrt[e]*x))])/Sqrt[-(c^2*d) - e] - (4*I)*d*PolyLog[2, (I*(Sqrt[e]
 - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*d*PolyLog[2, (I
*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*d*Pol
yLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] -
 (4*I)*d*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sq
rt[d])] + (4*I)*d*PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(4*e^3)
```

Maple [C] time = 0.695, size = 783, normalized size = 1.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] 1/2*a*x^2/e^2-1/2*c^2*a/e^3*d^2/(c^2*e*x^2+c^2*d)-a/e^3*d*ln(c^2*e*x^2+c^2*
d)+1/2*c^2*b/(c^2*e*x^2+c^2*d)/e*arcsec(c*x)*x^4+c^2*b/(c^2*e*x^2+c^2*d)/e^
2*arcsec(c*x)*d*x^2-1/2*c*b/(c^2*e*x^2+c^2*d)/e*((c^2*x^2-1)/c^2/x^2)^(1/2)
*x^3-1/2*c*b/(c^2*e*x^2+c^2*d)/e^2*((c^2*x^2-1)/c^2/x^2)^(1/2)*x*d-1/2*I*b*
(e*(c^2*d+e))^(1/2)/(c^2*d+e)/e^3*arctanh(1/4*(2*c^2*d*(1/c/x+I*(1-1/c^2/x^
2)^(1/2))^2+2*c^2*d+4*e)/(c^2*d*e+e^2)^(1/2))*d-1/2*I*b/(c^2*e*x^2+c^2*d)/e
^2*d-2*I*b/e^3*d*dilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-2*I*b/e^3*d*dilog
(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+2*b/e^3*d*arcsec(c*x)*ln(1+I*(1/c/x+I*(
1-1/c^2/x^2)^(1/2)))+2*b/e^3*d*arcsec(c*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1
/2)))-1/2*I*b/(c^2*e*x^2+c^2*d)/e*x^2+1/2*I*c^2*b/e^3*d^2*sum((_R1^2+1)/(_R
1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R
1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c
^2*d+4*e)*_Z^2+c^2*d))+1/2*I*b/e^3*d*sum((_R1^2*c^2*d+c^2*d+4*e)/(_R1^2*c^2
*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilo
g((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*
e)*_Z^2+c^2*d))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{2}\,a\left(\frac{d^2}{e^4x^2+de^3}-\frac{x^2}{e^2}+\frac{2\,d\log\left(ex^2+d\right)}{e^3}\right)+b\int\frac{x^5\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{e^2x^4+2\,dex^2+d^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] -1/2*a*(d^2/(e^4*x^2 + d*e^3) - x^2/e^2 + 2*d*log(e*x^2 + d)/e^3) + b*integ
rate(x^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e^2*x^4 + 2*d*e*x^2 + d^2), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^5\operatorname{arcsec}(cx)+ax^5}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x^5*arcsec(c*x) + a*x^5)/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(b\operatorname{arcsec}(cx)+a)x^5}{\left(ex^2+d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5/(e*x^2 + d)^2, x)
```

3.97 $\int \frac{x^3(a+b\sec^{-1}(cx))}{(d+ex^2)^2}\,dx$

Optimal. Leaf size=570

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right.}{2e^2}$$

```
[Out] -(a + b*ArcSec[c*x])/(2*e*(e + d/x^2)) - (b*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[
e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(3/2)*Sqrt[c^2*d + e]) + ((a + b*ArcSec[
c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*e^2) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] - Sqrt[c^2*d + e])])/(2*e^2) + ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^2) + ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/
(2*e^2) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^2 - ((I/2)
*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))
])/e^2 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/e^2 - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(
Sqrt[e] + Sqrt[c^2*d + e]))])/e^2 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Ar
cSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^2 + ((I/2)*b*PolyLog[2, -E^((2*
I)*ArcSec[c*x])])/e^2
```

Rubi [A] time = 1.21563, antiderivative size = 570, normalized size of antiderivative = 1., number of steps used = 29, number of rules used = 12, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.571, Rules used = {5240, 4734, 4626, 3719, 2190, 2279, 2391, 4730, 377, 205, 4742, 4520}

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^2}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right.}{2e^2}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```


```
[Out] -(a + b*ArcSec[c*x])/(2*e*(e + d/x^2)) - (b*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[
e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(3/2)*Sqrt[c^2*d + e]) + ((a + b*ArcSec[
c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*e^2) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] - Sqrt[c^2*d + e])])/(2*e^2) + ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^2) + ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/
(2*e^2) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^2 - ((I/2)
*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))
])/e^2 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt
[c^2*d + e])])/e^2 - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(
Sqrt[e] + Sqrt[c^2*d + e]))])/e^2 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Ar
cSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^2 + ((I/2)*b*PolyLog[2, -E^((2*
I)*ArcSec[c*x])])/e^2
```


Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4626

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> -Subst[Int[
(a + b*x)^n/Cot[x], x], x, ArcCos[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0
]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rule 4730

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*(x_)*((d_) + (e_.)*(x_)^2)^(p_.), x_
Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcCos[c*x]))/(2*e*(p + 1)), x]
 + Dist[(b*c)/(2*e*(p + 1)), Int[(d + e*x^2)^(p + 1)/Sqrt[1 - c^2*x^2], x],
 x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[c^2*d + e, 0] && NeQ[p, -1]
```

Rule 377

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)/((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Su
bst[Int[1/(c - (b*c - a*d)*x^n), x], x, x/(a + b*x^n)^(1/n)] /; FreeQ[{a, b
, c, d}, x] && NeQ[b*c - a*d, 0] && EqQ[n*p + 1, 0] && IntegerQ[n]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rubi steps

$$\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e^2x} - \frac{dx\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e\left(e+dx^2\right)^2} - \frac{dx\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e^2\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x}\,dx, x, \frac{1}{x}\right)}{e^2} + \frac{d\,\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{e^2} + \frac{d\,\text{Subst}\left(\int \frac{x(a+b}{(e\cdots}\right.}{\cdots}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} + \frac{\text{Subst}\left(\int (a+bx)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{e^2} + \frac{d\,\text{Subst}\left(\int\left(-\frac{\sqrt{-d}\left(a+b\cos\cdots\right.}{2d\left(\sqrt{e}-\sqrt{\cdots}\right.}\right.\right.}{\cdots}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be^2} - \frac{(2i)\,\text{Subst}\left(\int \frac{e^{2ix}(a+bx)}{1+e^{2ix}}\,dx, x, \sec^{-1}(cx)\right)}{e^2} - \frac{\sqrt{-d}\cdots}{\cdots}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be^2} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2e^{3/2}\sqrt{c^2d+e}} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(\cdots\right.}{e^2}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2e^{3/2}\sqrt{c^2d+e}} - \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1+e^{2i\sec^{-1}(cx)}\right)}{e^2} - \frac{(ib)\cdots}{\cdots}$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2e^{3/2}\sqrt{c^2d+e}} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2} + \cdots$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2e^{3/2}\sqrt{c^2d+e}} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2} + \cdots$$

$$= -\frac{a+b\sec^{-1}(cx)}{2e\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2e^{3/2}\sqrt{c^2d+e}} + \frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^2} + \cdots$$

Mathematica [B] time = 1.11345, size = 1213, normalized size = 2.13

$$\frac{2ad}{ex^2+d} + \frac{b\sec^{-1}(cx)\sqrt{d}}{\sqrt{d}-i\sqrt{e}x} + \frac{b\sec^{-1}(cx)\sqrt{d}}{i\sqrt{e}x+\sqrt{d}} + 2b\sin^{-1}\left(\frac{1}{cx}\right) + 8ib\sin^{-1}\left(\frac{\sqrt{1-\frac{i\sqrt{e}}{c\sqrt{d}}}}{\sqrt{2}}\right)\tan^{-1}\left(\frac{\left(\sqrt{e}-ic\sqrt{d}\right)\tan\left(\frac{1}{2}\sec^{-1}(cx)\right)}{\sqrt{dc^2+e}}\right) + 8ib\sin^{-1}\left(\frac{\sqrt{i\cdots}}{\cdots}\right.\cdots$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] ((2*a*d)/(d + e*x^2) + (b*Sqrt[d]*ArcSec[c*x])/(Sqrt[d] - I*Sqrt[e]*x) + (b
*Sqrt[d]*ArcSec[c*x])/(Sqrt[d] + I*Sqrt[e]*x) + 2*b*ArcSin[1/(c*x)] + (8*I)
*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d
] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] + (8*I)*b*ArcSin[Sqrt[1 +
 (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcS
ec[c*x]/2])/Sqrt[c^2*d + e]] + 2*b*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c
^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 4*b*ArcSin[Sqrt[1 + (I*Sqrt[e]
)/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[
c*x]))/(c*Sqrt[d])] + 2*b*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e
])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 4*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqr
t[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/
(c*Sqrt[d])] + 2*b*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*
ArcSec[c*x]))/(c*Sqrt[d])] - 4*b*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/S
qrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d
])] + 2*b*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*
x]))/(c*Sqrt[d])] - 4*b*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*L
og[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 4*b
*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - (b*Sqrt[e]*Log[(2*Sqrt[d]*Sqr
t[e]*(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*
x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))])/Sqrt[-(c^2*d) - e] - (b*
Sqrt[e]*Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) -
 e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))
])/Sqrt[-(c^2*d) - e] + 2*a*Log[d + e*x^2] - (2*I)*b*PolyLog[2, (I*(Sqrt[e]
 - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*b*PolyLog[2, (I
*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*b*Pol
yLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] -
 (2*I)*b*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sq
rt[d])] + (2*I)*b*PolyLog[2, -E^((2*I)*ArcSec[c*x])])/(4*e^2)
```

Maple [C] time = 0.647, size = 594, normalized size = 1.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] 1/2*c^2*a/e^2*d/(c^2*e*x^2+c^2*d)+1/2*a/e^2*ln(c^2*e*x^2+c^2*d)-1/2*c^2*b*x
^2*arcsec(c*x)/e/(c^2*e*x^2+c^2*d)+1/2*I*b*(e*(c^2*d+e))^(1/2)/(c^2*d+e)/e^
2*arctanh(1/4*(2*c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2+2*c^2*d+4*e)/(c^2*d*
e+e^2)^(1/2))-1/4*I*b/e^2*sum((_R1^2*c^2*d+c^2*d+4*e)/(_R1^2*c^2*d+c^2*d+2*
e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/
x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2
*d))-b/e^2*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-b/e^2*arcsec(c
*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I*b/e^2*dilog(1+I*(1/c/x+I*(1-1/c
^2/x^2)^(1/2)))+I*b/e^2*dilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-1/4*I*c^2*
b/e^2*d*sum((_R1^2+1)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-
I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_
R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{2}\,a\left(\frac{d}{e^3x^2+de^2}+\frac{\log\left(ex^2+d\right)}{e^2}\right)+b\int\frac{x^3\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{e^2x^4+2\,dex^2+d^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] 1/2*a*(d/(e^3*x^2 + d*e^2) + log(e*x^2 + d)/e^2) + b*integrate(x^3*arctan(s
qrt(c*x + 1)*sqrt(c*x - 1))/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^3\,\text{arcsec}\,(cx)+ax^3}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x^3*arcsec(c*x) + a*x^3)/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(b\,\text{arcsec}\,(cx)+a)x^3}{\left(ex^2+d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/(e*x^2 + d)^2, x)
```

3.98 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=131

$$-\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}+\frac{bcx\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{2de\sqrt{c^2x^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{2d\sqrt{e}\sqrt{c^2x^2}\sqrt{c^2d+e}}$$

```
[Out] -(a + b*ArcSec[c*x])/(2*e*(d + e*x^2)) + (b*c*x*ArcTan[Sqrt[-1 + c^2*x^2]])
/(2*d*e*Sqrt[c^2*x^2]) - (b*c*x*ArcTan[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/Sqrt[c^
2*d + e]])/(2*d*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.120676, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263, Rules used = {5236, 446, 86, 63, 205}

$$-\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}+\frac{bcx\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{2de\sqrt{c^2x^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{2d\sqrt{e}\sqrt{c^2x^2}\sqrt{c^2d+e}}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] -(a + b*ArcSec[c*x])/(2*e*(d + e*x^2)) + (b*c*x*ArcTan[Sqrt[-1 + c^2*x^2]])
/(2*d*e*Sqrt[c^2*x^2]) - (b*c*x*ArcTan[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/Sqrt[c^
2*d + e]])/(2*d*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[c^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 86

```
Int[((e_.) + (f_.)*(x_))^(p_)/(((a_.) + (b_.)*(x_))*((c_.) + (d_.)*(x_))),
x_Symbol] :> Dist[b/(b*c - a*d), Int[(e + f*x)^p/(a + b*x), x], x] - Dist[d
/(b*c - a*d), Int[(e + f*x)^p/(c + d*x), x], x] /; FreeQ[{a, b, c, d, e, f,
 p}, x] &&  !IntegerQ[p]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
```

```
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rubi steps

$$\begin{aligned}\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx &= -\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}+\frac{(bcx)\int \frac{1}{x\sqrt{-1+c^2x^2}\left(d+ex^2\right)}\,dx}{2e\sqrt{c^2x^2}}\\ &= -\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}+\frac{(bcx)\,\text{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}(d+ex)}\,dx,x,x^2\right)}{4e\sqrt{c^2x^2}}\\ &= -\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}-\frac{(bcx)\,\text{Subst}\left(\int \frac{1}{\sqrt{-1+c^2x}(d+ex)}\,dx,x,x^2\right)}{4d\sqrt{c^2x^2}}+\frac{(bcx)\,\text{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}}\,dx,x\right.}{4de\sqrt{c^2x^2}}\\ &= -\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}-\frac{(bx)\,\text{Subst}\left(\int \frac{1}{d+\frac{e}{c^2}+\frac{ex^2}{c^2}}\,dx,x,\sqrt{-1+c^2x^2}\right)}{2cd\sqrt{c^2x^2}}+\frac{(bx)\,\text{Subst}\left(\int \frac{1}{\frac{1}{c^2}+\frac{x^2}{c^2}}\,dx,\right.}{2cde\sqrt{c^2x^2}}\\ &= -\frac{a+b\sec^{-1}(cx)}{2e\left(d+ex^2\right)}+\frac{bcx\tan^{-1}\left(\sqrt{-1+c^2x^2}\right)}{2de\sqrt{c^2x^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{e}\sqrt{-1+c^2x^2}}{\sqrt{c^2d+e}}\right)}{2d\sqrt{e}\sqrt{c^2d+e}\sqrt{c^2x^2}}\end{aligned}$$

Mathematica [C] time = 0.574981, size = 286, normalized size = 2.18

$$\frac{-\frac{2a}{d+ex^2}+\frac{b\sqrt{e}\log\left(\frac{4cd\sqrt{ex}\left(c\sqrt{d}-i\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2(-d)-e}\right)+4ide}{b\sqrt{c^2(-d)-e}\left(\sqrt{d}+i\sqrt{e}x\right)}\right)}{d\sqrt{c^2(-d)-e}}+\frac{b\sqrt{e}\log\left(\frac{4cd\sqrt{ex}\left(c\sqrt{d}+i\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2(-d)-e}\right)-4ide}{b\sqrt{c^2(-d)-e}\left(\sqrt{d}-i\sqrt{e}x\right)}\right)}{d\sqrt{c^2(-d)-e}}-\frac{2b\sec^{-1}(cx)}{d+ex^2}-\frac{2b\sin^{-1}\left(\frac{1}{cx}\right)}{d}}{4e}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] ((-2*a)/(d + e*x^2) - (2*b*ArcSec[c*x])/(d + e*x^2) - (2*b*ArcSin[1/(c*x)])
/d + (b*Sqrt[e]*Log[((4*I)*d*e + 4*c*d*Sqrt[e]*(c*Sqrt[d] - I*Sqrt[-(c^2*d)
 - e]*Sqrt[1 - 1/(c^2*x^2)])*x)/(b*Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*
x))])/(d*Sqrt[-(c^2*d) - e]) + (b*Sqrt[e]*Log[((-4*I)*d*e + 4*c*d*Sqrt[e]*(
c*Sqrt[d] + I*Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x)/(b*Sqrt[-(c^2*d)
 - e]*(Sqrt[d] - I*Sqrt[e]*x))])/(d*Sqrt[-(c^2*d) - e]))/(4*e)
```

Maple [B] time = 0.256, size = 354, normalized size = 2.7

$$-\frac{c^2a}{2\,e\left(c^2ex^2+c^2d\right)}-\frac{c^2b\mathrm{arcsec}\,(cx)}{2\,e\left(c^2ex^2+c^2d\right)}-\frac{b}{2\,ecxd}\sqrt{c^2x^2-1}\arctan\left(\frac{1}{\sqrt{c^2x^2-1}}\right)\frac{1}{\sqrt{\frac{c^2x^2-1}{c^2x^2}}}+\frac{b}{4\,ecxd}\sqrt{c^2x^2-1}\ln\left(2\,\frac{}{ecx+}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] -1/2*c^2*a/e/(c^2*e*x^2+c^2*d)-1/2*c^2*b/e/(c^2*e*x^2+c^2*d)*arcsec(c*x)-1/
2/c*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d*arctan(1/(c^2*x^2
-1)^(1/2))+1/4/c*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/(-(c
^2*d+e)/e)^(1/2)*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)^
(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))+1/4/c*b/e*(c^2*x^2-1)^(1/2)/((c^2*x^
2-1)/c^2/x^2)^(1/2)/x/d/(-(c^2*d+e)/e)^(1/2)*ln(-2*((-(c^2*d+e)/e)^(1/2)*(c
^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{\left(\left(c^2e^2x^2+c^2de\right)\int \frac{xe^{\left(\frac{1}{2}\log(cx+1)+\frac{1}{2}\log(cx-1)\right)}}{c^2e^2x^4+\left(c^2e^2x^4+\left(c^2de-e^2\right)x^2-de\right)(cx+1)(cx-1)+\left(c^2de-e^2\right)x^2-de}\,dx-\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)\right)b}{2\left(e^2x^2+de\right)}-\frac{a}{2\left(e^2x^2+de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] 1/2*(2*(c^2*e^2*x^2 + c^2*d*e)*integrate(1/2*x*e^(1/2*log(c*x + 1) + 1/2*lo
g(c*x - 1))/(c^2*e^2*x^4 + (c^2*d*e - e^2)*x^2 - d*e + (c^2*e^2*x^4 + (c^2*
d*e - e^2)*x^2 - d*e)*e^(log(c*x + 1) + log(c*x - 1))), x) - arctan(sqrt(c*
x + 1)*sqrt(c*x - 1)))*b/(e^2*x^2 + d*e) - 1/2*a/(e^2*x^2 + d*e)
```

Fricas [A] time = 1.94338, size = 833, normalized size = 6.36

$$\left[-\frac{2\,ac^2d^2+2\,ade+\sqrt{-c^2de-e^2}\left(bex^2+bd\right)\log\left(\frac{c^2ex^2-c^2d+2\,\sqrt{-c^2de-e^2}\sqrt{c^2x^2-1}-2\,e}{ex^2+d}\right)+2\left(bc^2d^2+bde\right)\operatorname{arcsec}(cx)-4\left(bc^2d^2\right.}{4\left(c^2d^3e+d^2e^2+\left(c^2d^2e^2+de^3\right)x^2\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] [-1/4*(2*a*c^2*d^2 + 2*a*d*e + sqrt(-c^2*d*e - e^2)*(b*e*x^2 + b*d)*log((c^
2*e*x^2 - c^2*d + 2*sqrt(-c^2*d*e - e^2)*sqrt(c^2*x^2 - 1) - 2*e)/(e*x^2 +
d)) + 2*(b*c^2*d^2 + b*d*e)*arcsec(c*x) - 4*(b*c^2*d^2 + b*d*e + (b*c^2*d*e
 + b*e^2)*x^2)*arctan(-c*x + sqrt(c^2*x^2 - 1)))/(c^2*d^3*e + d^2*e^2 + (c^
2*d^2*e^2 + d*e^3)*x^2), -1/2*(a*c^2*d^2 + a*d*e + sqrt(c^2*d*e + e^2)*(b*e
*x^2 + b*d)*arctan(sqrt(c^2*d*e + e^2)*sqrt(c^2*x^2 - 1)/(c^2*d + e)) + (b*
c^2*d^2 + b*d*e)*arcsec(c*x) - 2*(b*c^2*d^2 + b*d*e + (b*c^2*d*e + b*e^2)*x
^2)*arctan(-c*x + sqrt(c^2*x^2 - 1)))/(c^2*d^3*e + d^2*e^2 + (c^2*d^2*e^2 +
 d*e^3)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx) + a)x}{\left(ex^2 + d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/(e*x^2 + d)^2, x)
```

3.99 $\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=546

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^2}$$

```
[Out] -(e*(a + b*ArcSec[c*x]))/(2*d^2*(e + d/x^2)) + ((I/2)*(a + b*ArcSec[c*x])^2
)/(b*d^2) - (b*Sqrt[e]*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^
2)]*x)])/(2*d^2*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d^2) - ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*d^2) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] + Sqrt[c^2*d + e])])/(2*d^2) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d^2) + ((I/2)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d^2 +
((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/d^2 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/d^2 + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]
))/(Sqrt[e] + Sqrt[c^2*d + e])])/d^2
```

Rubi [A] time = 1.1398, antiderivative size = 546, normalized size of antiderivative = 1., number of steps used = 24, number of rules used = 10, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.476, Rules used = {5240, 4734, 4730, 377, 205, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^2}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^2),x]
```


```
[Out] -(e*(a + b*ArcSec[c*x]))/(2*d^2*(e + d/x^2)) + ((I/2)*(a + b*ArcSec[c*x])^2
)/(b*d^2) - (b*Sqrt[e]*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^
2)]*x)])/(2*d^2*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d^2) - ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*d^2) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] + Sqrt[c^2*d + e])])/(2*d^2) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d^2) + ((I/2)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d^2 +
((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/d^2 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/d^2 + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]
))/(Sqrt[e] + Sqrt[c^2*d + e])])/d^2
```


Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
```

```
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4730

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*(x_)*((d_) + (e_.)*(x_)^2)^(p_.), x_
Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcCos[c*x]))/(2*e*(p + 1)), x]
 + Dist[(b*c)/(2*e*(p + 1)), Int[(d + e*x^2)^(p + 1)/Sqrt[1 - c^2*x^2], x],
 x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[c^2*d + e, 0] && NeQ[p, -1]
```

Rule 377

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)/((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Su
bst[Int[1/(c - (b*c - a*d)*x^n), x], x, x/(a + b*x^n)^(1/n)] /; FreeQ[{a, b
, c, d}, x] && NeQ[b*c - a*d, 0] && EqQ[n*p + 1, 0] && IntegerQ[n]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{x^3\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int \left(-\frac{ex\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d\left(e+dx^2\right)^2}+\frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d}+\frac{e\,\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)}{d}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}-\frac{\text{Subst}\left(\int \left(-\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}-\sqrt{-d}\,x\right)}+\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}+\sqrt{-d}\,x\right)}\right)dx, x, \frac{1}{x}\right)}{d}-\frac{(be)\,\text{Subst}\left(\cdots\right.}{\cdots}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}+\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}\,x}\,dx, x, \frac{1}{x}\right)}{2(-d)^{3/2}}-\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}+\sqrt{-d}\,x}\,dx, x, \frac{1}{x}\right)}{2(-d)^{3/2}}-\frac{(be)\,\text{Su}\cdots}{\cdots}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}-\frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2d^2\sqrt{c^2d+e}}-\frac{\text{Subst}\left(\int \frac{(a+bx)\sin(x)}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos(x)}\,dx, x, \sec^{-1}(cx)\right)}{2(-d)^{3/2}}+\frac{\text{Su}\cdots}{\cdots}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^2}-\frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2d^2\sqrt{c^2d+e}}+\frac{i\,\text{Subst}\left(\int \frac{e^{ix}(a+bx)}{\frac{\sqrt{e}}{c}-\frac{\sqrt{c^2d+e}}{c}-\sqrt{\cdots}}\cdots\right.}{2(-d)\cdots}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^2}-\frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2d^2\sqrt{c^2d+e}}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1\cdots\right.}{2d^2}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^2}-\frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2d^2\sqrt{c^2d+e}}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1\cdots\right.}{2d^2}$$

$$= -\frac{e\left(a+b\sec^{-1}(cx)\right)}{2d^2\left(e+\frac{d}{x^2}\right)}+\frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^2}-\frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}\,x}\right)}{2d^2\sqrt{c^2d+e}}-\frac{\left(a+b\sec^{-1}(cx)\right)\log\left(1\cdots\right.}{2d^2}$$

Mathematica [F] time = 35.0102, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^2),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^2), x]
```

Maple [C] time = 0.879, size = 3095, normalized size = 5.7

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d)^2,x)
```

```
[Out] 1/2*b*c^2/d/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*
(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)+I*b/c^2*polylog(2,c^2*d*(1/c/x+I*(1-1
/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*e/d^3+I*b/c^4*polylo
g(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e
))*e^2/d^4-2*b/c^2/d^3*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2
*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*e-2*b/c^4/d^4*ln(1-c^2*d*(1/c/x+I*(1
-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*e^2+a/
d^2*ln(c*x)+1/4*b*c^2*(e*(c^2*d+e))^(1/2)/e/(c^2*d+e)/d*arcsec(c*x)*ln(1-c^
2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))-1/8
*I*b*c^2*(e*(c^2*d+e))^(1/2)/e/(c^2*d+e)/d*polylog(2,c^2*d*(1/c/x+I*(1-1/c^
2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))+2*I*b/c^4*e^2*arcsec(c*
x)^2/(c^2*d+e)/d^4*(e*(c^2*d+e))^(1/2)+1/8*I*b*c^2*polylog(2,c^2*d*(1/c/x+I
*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/d/e/(c^2*d+e)*(
e*(c^2*d+e))^(1/2)+I*b/c^4*e^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2)
)^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/(c^2*d+e)/d^4*(e*(c^2*d+e))^(1/2)-3
*b/c^2/d^3/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(
e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e*(c^2*d+e))^(1/2)*e-2*b/c^4*e^2/(c^2
*d+e)/d^4*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e)
)^(1/2)-2*e))*arcsec(c*x)*(e*(c^2*d+e))^(1/2)-1/4*b*c^2/d/e/(c^2*d+e)*ln(1-
c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*a
rcsec(c*x)*(e*(c^2*d+e))^(1/2)+3*I*b/c^2*arcsec(c*x)^2/d^3/(c^2*d+e)*(e*(c^
2*d+e))^(1/2)*e+3/2*I*b/c^2*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2
/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/d^3/(c^2*d+e)*(e*(c^2*d+e))^(1/2)*e+1/
2*a*c^2/d/(c^2*e*x^2+c^2*d)+I*b*arcsec(c*x)^2/d^2-1/2*b/d^2*ln(1-c^2*d*(1/c
/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)
+1/2*I*b/d^2*sum((_R1^2*c^2*d+2*c^2*d+4*e)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcse
c(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^
2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+1/4*I*
b*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(
1/2)-2*e))/d^2-1/2*a/d^2*ln(c^2*e*x^2+c^2*d)+b/c^2/d^3*ln(1-c^2*d*(1/c/x+I*
(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*(e*(
c^2*d+e))^(1/2)+I*b*(e*(c^2*d+e))^(1/2)/d^2/(c^2*d+e)*arcsec(c*x)^2-3/2*b/d
^2/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d
+e))^(1/2)-2*e))*arcsec(c*x)*(e*(c^2*d+e))^(1/2)+5/2*b/d^2/(c^2*d+e)*ln(1-c
^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*ar
csec(c*x)*e+1/2*b*(e*(c^2*d+e))^(1/2)/d^2/(c^2*d+e)*arcsec(c*x)*ln(1-c^2*d*
(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e))+2*I*b/c
^2*arcsec(c*x)^2*e/d^3+2*I*b/c^4*arcsec(c*x)^2*e^2/d^4-1/2*I*b/c^2*polylog(
2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))
/d^3*(e*(c^2*d+e))^(1/2)-I*b/c^2*arcsec(c*x)^2/d^3*(e*(c^2*d+e))^(1/2)-1/2*
I*b*c^2*arcsec(c*x)^2/d/(c^2*d+e)-1/4*I*b*c^2*polylog(2,c^2*d*(1/c/x+I*(1-1
/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/d/(c^2*d+e)-5/2*I*b*
arcsec(c*x)^2/d^2/(c^2*d+e)*e-1/4*I*b*(e*(c^2*d+e))^(1/2)/d^2/(c^2*d+e)*pol
```

```
ylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d+2*(e*(c^2*d+e))^(1/2)-
2*e))+3/4*I*b*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*
(c^2*d+e))^(1/2)-2*e))/d^2/(c^2*d+e)*(e*(c^2*d+e))^(1/2)-5/4*I*b*polylog(2,
c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))/d
^2/(c^2*d+e)*e+1/2*I*b*(e*(c^2*d+e))^(1/2)/d^2/(c^2*d+e)*arctanh(1/4*(2*c^2
*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2+2*c^2*d+4*e)/(c^2*d*e+e^2)^(1/2))-1/2*b*
c^2*x^2*arcsec(c*x)*e/(c^2*e*x^2+c^2*d)/d^2-I*b/c^4*polylog(2,c^2*d*(1/c/x+
I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*e/d^4*(e*(c^2*
d+e))^(1/2)-2*I*b/c^4*arcsec(c*x)^2*e/d^4*(e*(c^2*d+e))^(1/2)-2*I*b/c^2*pol
ylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-
2*e))/d^3/(c^2*d+e)*e^2-2*I*b/c^4*e^3*arcsec(c*x)^2/(c^2*d+e)/d^4-I*b/c^4*e
^3*polylog(2,c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^
(1/2)-2*e))/(c^2*d+e)/d^4+4*b/c^2/d^3/(c^2*d+e)*ln(1-c^2*d*(1/c/x+I*(1-1/c^
2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*arcsec(c*x)*e^2+2*b/c^4
/d^4*ln(1-c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/
2)-2*e))*arcsec(c*x)*e*(e*(c^2*d+e))^(1/2)+2*b/c^4*e^3/(c^2*d+e)/d^4*ln(1-c
^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2/(-c^2*d-2*(e*(c^2*d+e))^(1/2)-2*e))*ar
csec(c*x)-4*I*b/c^2*arcsec(c*x)^2/d^3/(c^2*d+e)*e^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{2}a\left(\frac{1}{dex^2+d^2}-\frac{\log\left(ex^2+d\right)}{d^2}+\frac{2\log\left(x\right)}{d^2}\right)+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{e^2x^5+2\,dex^3+d^2x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] 1/2*a*(1/(d*e*x^2 + d^2) - log(e*x^2 + d)/d^2 + 2*log(x)/d^2) + b*integrate
(arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e^2*x^5 + 2*d*e*x^3 + d^2*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{b\,\mathrm{arcsec}\left(cx\right)+a}{e^2x^5+2\,dex^3+d^2x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e^2*x^5 + 2*d*e*x^3 + d^2*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{(ex^2 + d)^2 x} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^2*x), x)
```

3.100 $\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=784

$$\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4e^{5/2}}-\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4e^{5/2}}+\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4e^{5/2}}-3ib\sqrt{\ }$$

```
[Out] -(d*(a + b*ArcSec[c*x]))/(4*e^2*(Sqrt[-d]*Sqrt[e] - d/x)) + (d*(a + b*ArcSe
c[c*x]))/(4*e^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (x*(a + b*ArcSec[c*x]))/e^2 - (
b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(c*e^2) - (b*Sqrt[d]*ArcTanh[(c^2*d - (Sq
rt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*e
^2*Sqrt[c^2*d + e]) - (b*Sqrt[d]*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*
Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*e^2*Sqrt[c^2*d + e]) +
(3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqr
t[e] - Sqrt[c^2*d + e])]])/(4*e^(5/2)) - (3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log
[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])]])/(4*e^(5/2
)) + (3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))
/(Sqrt[e] + Sqrt[c^2*d + e])]])/(4*e^(5/2)) - (3*Sqrt[-d]*(a + b*ArcSec[c*x]
)*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])]])/(4*e
^(5/2)) + (((3*I)/4)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))
/(Sqrt[e] - Sqrt[c^2*d + e]))])/e^(5/2) - (((3*I)/4)*b*Sqrt[-d]*PolyLog[2,
(c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^(5/2) + (((3
*I)/4)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sq
rt[c^2*d + e]))])/e^(5/2) - (((3*I)/4)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^(5/2)
```

Rubi [A] time = 2.35353, antiderivative size = 784, normalized size of antiderivative = 1., number of steps used = 51, number of rules used = 15, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.714, Rules used = {5240, 4734, 4628, 266, 63, 208, 4668, 4744, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4e^{5/2}}-\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4e^{5/2}}+\frac{3ib\sqrt{-d}\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4e^{5/2}}-3ib\sqrt{\ }$$

Antiderivative was successfully verified.

```
[In] Int[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] -(d*(a + b*ArcSec[c*x]))/(4*e^2*(Sqrt[-d]*Sqrt[e] - d/x)) + (d*(a + b*ArcSe
c[c*x]))/(4*e^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (x*(a + b*ArcSec[c*x]))/e^2 - (
b*ArcTanh[Sqrt[1 - 1/(c^2*x^2)]])/(c*e^2) - (b*Sqrt[d]*ArcTanh[(c^2*d - (Sq
rt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*e
^2*Sqrt[c^2*d + e]) - (b*Sqrt[d]*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*
Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*e^2*Sqrt[c^2*d + e]) +
(3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqr
t[e] - Sqrt[c^2*d + e])]])/(4*e^(5/2)) - (3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log
[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])]])/(4*e^(5/2
)) + (3*Sqrt[-d]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))
/(Sqrt[e] + Sqrt[c^2*d + e])]])/(4*e^(5/2)) - (3*Sqrt[-d]*(a + b*ArcSec[c*x]
```

```
)*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(4*e
^(5/2)) + (((3*I)/4)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))
/(Sqrt[e] - Sqrt[c^2*d + e]))])/e^(5/2) - (((3*I)/4)*b*Sqrt[-d]*PolyLog[2,
(c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/e^(5/2) + (((3
*I)/4)*b*Sqrt[-d]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sq
rt[c^2*d + e]))])/e^(5/2) - (((3*I)/4)*b*Sqrt[-d]*PolyLog[2, (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^(5/2)
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4628

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_.)*(x_))^(m_.), x_Symbol]
:> Simp[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(d*(m + 1)), x] + Dist[(b*c*n
)/(d*(m + 1)), Int[((d*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1))/Sqrt[1 - c^2
*x^2], x], x] /; FreeQ[{a, b, c, d, m}, x] && IGtQ[n, 0] && NeQ[m, -1]
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
```

```
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x^2\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e^2x^2} - \frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e\left(e+dx^2\right)^2} - \frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e^2\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x^2}\,dx, x, \frac{1}{x}\right)}{e^2} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{e^2} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}}{\left(e+dx^2\right.}\right.}{e}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} + \frac{b\,\text{Subst}\left(\int \frac{1}{x\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{ce^2} + \frac{d\,\text{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{a+b\cos}{2\sqrt{e}\left(\sqrt{e}+\right.}\right.\right.}{e^2}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2e^{5/2}} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}+\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{2e^{5/2}}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{d\,\text{Subst}\left(\int \frac{(a+bx)\sin(}{\frac{\sqrt{e}}{c}-\sqrt{-d}\cos}\right.}{2e^{5}}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

$$= -\frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{d\left(a+b\sec^{-1}(cx)\right)}{4e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{b\tanh^{-1}\left(\sqrt{1-\frac{1}{c^2x^2}}\right)}{ce^2}$$

Mathematica [A] time = 2.25693, size = 1331, normalized size = 1.7

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] (4*a*Sqrt[e]*x + (2*a*d*Sqrt[e]*x)/(d + e*x^2) - 6*a*Sqrt[d]*ArcTan[(Sqrt[e
]*x)/Sqrt[d]] + b*(4*Sqrt[e]*x*ArcSec[c*x] + (d*ArcSec[c*x])/((-I)*Sqrt[d]
+ Sqrt[e]*x) + (d*ArcSec[c*x])/(I*Sqrt[d] + Sqrt[e]*x) + 12*Sqrt[d]*ArcSin[
Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e
])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - 12*Sqrt[d]*ArcSin[Sqrt[1 + (I*Sqr
t[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]
/2])/Sqrt[c^2*d + e]] + (3*I)*Sqrt[d]*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqr
t[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (6*I)*Sqrt[d]*ArcSin[Sqrt[1
 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])
*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (3*I)*Sqrt[d]*ArcSec[c*x]*Log[1 + (I*(-S
qrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (6*I)*Sqrt[d]*A
rcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqr
t[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (3*I)*Sqrt[d]*ArcSec[c*x]*L
og[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (6*
I)*Sqrt[d]*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sq
rt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (3*I)*Sqrt[d]*Ar
cSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt
[d])] - (6*I)*Sqrt[d]*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log
[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (I*Sq
rt[d]*Sqrt[e]*Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2
*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e
]*x))])/Sqrt[-(c^2*d) - e] - (I*Sqrt[d]*Sqrt[e]*Log[(2*Sqrt[d]*Sqrt[e]*(-Sq
rt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqr
t[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))])/Sqrt[-(c^2*d) - e] + (4*Sqrt[e]*
Log[Cos[ArcSec[c*x]/2] - Sin[ArcSec[c*x]/2]])/c - (4*Sqrt[e]*Log[Cos[ArcSec
[c*x]/2] + Sin[ArcSec[c*x]/2]])/c - 3*Sqrt[d]*PolyLog[2, (I*(Sqrt[e] - Sqrt
[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 3*Sqrt[d]*PolyLog[2, (I*(-Sq
rt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 3*Sqrt[d]*PolyLo
g[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 3*
Sqrt[d]*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqr
t[d])]))/(4*e^(5/2))
```

Maple [C] time = 9.726, size = 1887, normalized size = 2.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] a*x/e^2+1/2*c^2*a/e^2*d*x/(c^2*e*x^2+c^2*d)-3/2*a/e^2*d/(d*e)^(1/2)*arctan(
e*x/(d*e)^(1/2))+c^2*b*x^3*arcsec(c*x)/e/(c^2*e*x^2+c^2*d)+3/2*c^2*b*x*arcs
ec(c*x)/e^2/(c^2*e*x^2+c^2*d)*d+1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2
*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2))/e^2/(c^2*d+e)/d*(e*(c^2*d+e))^(1/2)+I/c^4*b*(-(c^2*
d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1
/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/d^2-I/c^4*b*((c^2*d+2*
(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/
```

```
((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e^2/d^2*(e*(c^2*d+e))^(1/2)+3/
16*I*c*b/e^3*d*sum((_R1^2*c^2*d+c^2*d+4*e)/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*a
rcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-
1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-I/
c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-
1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)
/d^2*(e*(c^2*d+e))^(1/2)-3/16*I*c*b/e^3*d*sum((_R1^2*c^2*d+4*_R1^2*e+c^2*d)
/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(
1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_
Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d
)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1
/2)+2*e)*d)^(1/2))/(c^2*d+e)/d^2-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e
)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e
))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)/d^2+1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(
1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c
^2*d+e))^(1/2)+2*e)*d)^(1/2))/e^2/d-I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+
2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*
d+e))^(1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)/d-I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1
/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^
2*d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e)/d+2*I/c*b/e^2*arctan(1/c/x+I*(1-1/
c^2/x^2)^(1/2))+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/
2))/e/(c^2*d+e)/d^2*(e*(c^2*d+e))^(1/2)+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1
/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(
c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/d^2*(e*(c^2*d+e))^(1/2)+1/2*I/c^2*b*(-(c
^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)
^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/d-1/2*I/c^2*b*(-(
c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2
)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/(c^2*d+e)/d*(e*(
c^2*d+e))^(1/2)+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/
2))/e/d^2
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^4 \operatorname{arcsec}(cx) + ax^4}{e^2x^4 + 2\,dex^2 + d^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x^4*arcsec(c*x) + a*x^4)/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^4}{\left(ex^2 + d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^4/(e*x^2 + d)^2, x)
```

3.101 $\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=745

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4\sqrt{-d}e^{3/2}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4\sqrt{-d}e^{3/2}}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4\sqrt{-d}e^{3/2}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}\ldots}{\sqrt{c}\ldots}\right)}{4\sqrt{-d}e^{3/2}}$$

```
[Out] (a + b*ArcSec[c*x])/(4*e*(Sqrt[-d]*Sqrt[e] - d/x)) - (a + b*ArcSec[c*x])/(4
*e*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c
*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(4*Sqrt[d]*e*Sqrt[c^2*d +
 e]) + (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]
*Sqrt[1 - 1/(c^2*x^2)])])/(4*Sqrt[d]*e*Sqrt[c^2*d + e]) + ((a + b*ArcSec[c*
x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4
*Sqrt[-d]*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c
*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*Sqrt[-d]*e^(3/2)) + ((a + b*ArcSec[c
*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(
4*Sqrt[-d]*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[
c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(4*Sqrt[-d]*e^(3/2)) + ((I/4)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/(Sqrt[
-d]*e^(3/2)) - ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
- Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(3/2)) + ((I/4)*b*PolyLog[2, -((c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/(Sqrt[-d]*e^(3/2)) - ((I
/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])
])/(Sqrt[-d]*e^(3/2))
```

Rubi [A] time = 1.21664, antiderivative size = 745, normalized size of antiderivative = 1., number of steps used = 27, number of rules used = 10, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.476, Rules used = {5240, 4668, 4744, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4\sqrt{-d}e^{3/2}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4\sqrt{-d}e^{3/2}}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4\sqrt{-d}e^{3/2}}-\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}\ldots}{\sqrt{c}\ldots}\right)}{4\sqrt{-d}e^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] (a + b*ArcSec[c*x])/(4*e*(Sqrt[-d]*Sqrt[e] - d/x)) - (a + b*ArcSec[c*x])/(4
*e*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c
*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(4*Sqrt[d]*e*Sqrt[c^2*d +
 e]) + (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]
*Sqrt[1 - 1/(c^2*x^2)])])/(4*Sqrt[d]*e*Sqrt[c^2*d + e]) + ((a + b*ArcSec[c*
x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4
*Sqrt[-d]*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c
*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*Sqrt[-d]*e^(3/2)) + ((a + b*ArcSec[c
*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(
4*Sqrt[-d]*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[
c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(4*Sqrt[-d]*e^(3/2)) + ((I/4)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/(Sqrt[
-d]*e^(3/2)) - ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
```

```
- Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(3/2)) + ((I/4)*b*PolyLog[2, -((c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/(Sqrt[-d]*e^(3/2)) - ((I
/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])
])/(Sqrt[-d]*e^(3/2))
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
```

```
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}-dx\right)^2}-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}+dx\right)^2}-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2e\left(-de-d^2x^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}-dx\right)^2}dx, x, \frac{1}{x}\right)}{4e} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}+dx\right)^2}dx, x, \frac{1}{x}\right)}{4e} + \frac{d\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right.}{-de-d^2x^2}\right.}{2e}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\,\text{Subst}\left(\int \frac{1}{\left(\sqrt{-d}\sqrt{e}-dx\right)\sqrt{1-\frac{x^2}{c^2}}}dx, x, \frac{1}{x}\right)}{4ce} - \frac{b\,\text{Subst}\left(\int \right.}{}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}dx, x, \frac{1}{x}\right)}{4e^{3/2}} - \frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right.}{\sqrt{e}+\sqrt{-d}x}\right.}{4e^{3/2}}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4\sqrt{d}e\sqrt{c^2d+e}} + \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-d}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{}}\right.}{4\sqrt{d}e\sqrt{c^2d+e}}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4\sqrt{d}e\sqrt{c^2d+e}} + \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-d}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{}}\right.}{4\sqrt{d}e\sqrt{c^2d+e}}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4\sqrt{d}e\sqrt{c^2d+e}} + \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-d}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{}}\right.}{4\sqrt{d}e\sqrt{c^2d+e}}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4\sqrt{d}e\sqrt{c^2d+e}} + \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-d}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{}}\right.}{4\sqrt{d}e\sqrt{c^2d+e}}$$

$$= \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{a+b\sec^{-1}(cx)}{4e\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4\sqrt{d}e\sqrt{c^2d+e}} + \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-d}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{}}\right.}{4\sqrt{d}e\sqrt{c^2d+e}}$$

Mathematica [A] time = 1.53231, size = 1245, normalized size = 1.67

$$-\frac{2a\sqrt{e}x}{ex^2+d} + \frac{2a\tan^{-1}\left(\frac{\sqrt{e}x}{\sqrt{d}}\right)}{\sqrt{d}} + b\left(-\frac{i\log\left(\frac{ie^{i\sec^{-1}(cx)}\left(\sqrt{e}-\sqrt{dc^2+e}\right)}{c\sqrt{d}}+1\right)\sec^{-1}(cx)}{\sqrt{d}} + \frac{i\log\left(\frac{ie^{i\sec^{-1}(cx)}\left(\sqrt{dc^2+e}-\sqrt{e}\right)}{c\sqrt{d}}+1\right)\sec^{-1}(cx)}{\sqrt{d}} + \frac{i\log\left(1-\frac{i\left(\sqrt{e}+\sqrt{dc^2+e}\right)e^{i\sec^{-1}(}}{c\sqrt{d}}\right.}{\sqrt{d}}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]
```

```
[Out] ((-2*a*Sqrt[e]*x)/(d + e*x^2) + (2*a*ArcTan[(Sqrt[e]*x)/Sqrt[d]])/Sqrt[d] +
 b*(ArcSec[c*x]/(I*Sqrt[d] - Sqrt[e]*x) - ArcSec[c*x]/(I*Sqrt[d] + Sqrt[e]*
x) - (4*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*S
qrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]])/Sqrt[d] + (4*ArcSin
[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])
*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]])/Sqrt[d] - (I*ArcSec[c*x]*Log[1 + (I*
(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[d] - ((2*
I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] -
Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[d] + (I*ArcSec[c*x]*
Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sq
rt[d] + ((2*I)*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I
*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[d] + (I
*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*S
qrt[d])])/Sqrt[d] - ((2*I)*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]
]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/S
qrt[d] - (I*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[
c*x]))/(c*Sqrt[d])])/Sqrt[d] + ((2*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d
])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*S
qrt[d])])/Sqrt[d] - (I*Sqrt[e]*Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e] + c*(I*c*Sqr
t[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(S
qrt[d] - I*Sqrt[e]*x))])/(Sqrt[d]*Sqrt[-(c^2*d) - e]) + (I*Sqrt[e]*Log[(2*S
qrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(
c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))])/(Sqrt[d]*Sqrt
[-(c^2*d) - e]) + PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x
]))/(c*Sqrt[d])]/Sqrt[d] - PolyLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*
ArcSec[c*x]))/(c*Sqrt[d])]/Sqrt[d] - PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d
 + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]/Sqrt[d] + PolyLog[2, (I*(Sqrt[e] + S
qrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]/Sqrt[d]))/(4*e^(3/2))
```

Maple [C] time = 1.681, size = 1756, normalized size = 2.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] -1/2*c^2*a/e*x/(c^2*e*x^2+c^2*d)+1/2*a/e/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2)
)-1/2*c^2*b*arcsec(c*x)/e*x/(c^2*e*x^2+c^2*d)-1/4*I*c*b/e*sum(1/_R1/(_R1^2*
c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+d
ilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d
+4*e)*_Z^2+c^2*d))+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arct
an(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^
(1/2))*e/(c^2*d+e)/d^3+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)
*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2
*e)*d)^(1/2))*e/(c^2*d+e)/d^3-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d
)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^
(1/2)-2*e)*d)^(1/2))/d^3+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2
)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*
e)*d)^(1/2))/e/d^3*(e*(c^2*d+e))^(1/2)-1/2*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))
^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(
e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/d^2+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1
/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(
```

```
c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)+I/c^2*b*((
c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)
^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)/d^2+1/2*I/c^
2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/
c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)/d
^2*(e*(c^2*d+e))^(1/2)-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*
arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)
*d)^(1/2))/d^3-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d
*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2
))/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)+1/4*I*c*b/e*sum(_R1/(_R1^2*c^2*d+c^2*d
+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1
/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+
c^2*d))+I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1
/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(
c^2*d+e)/d^2-1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan
(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1
/2))/e/(c^2*d+e)/d^2*(e*(c^2*d+e))^(1/2)-1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e)
)^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e
*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e/d^2-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/
2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c
^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/d^3*(e*(c^2*d+e))^(1/2)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^2\,\text{arcsec}\,(cx)+ax^2}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^2}{\left(ex^2 + d\right)^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/(e*x^2 + d)^2, x)
```

3.102 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex^2)^2}\,dx$

Optimal. Leaf size=739

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{3/2}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{3/2}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4(-d)^{3/2}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right.}{4(-d)^{3/2}\sqrt{e}}$$

```
[Out] -(a + b*ArcSec[c*x])/(4*d*(Sqrt[-d]*Sqrt[e] - d/x)) + (a + b*ArcSec[c*x])/(
4*d*(Sqrt[-d]*Sqrt[e] + d/x)) - (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(
c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(4*d^(3/2)*Sqrt[c^2*d +
e]) - (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*
Sqrt[1 - 1/(c^2*x^2)])])/(4*d^(3/2)*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])
*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*(-
d)^(3/2)*Sqrt[e]) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*
x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*(-d)^(3/2)*Sqrt[e]) - ((a + b*ArcSec[
c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/
(4*(-d)^(3/2)*Sqrt[e]) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcS
ec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(4*(-d)^(3/2)*Sqrt[e]) - ((I/4)*b*P
olyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/(
(-d)^(3/2)*Sqrt[e]) + ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] - Sqrt[c^2*d + e])])/((-d)^(3/2)*Sqrt[e]) - ((I/4)*b*PolyLog[2, -((c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/((-d)^(3/2)*Sqr
t[e]) + ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[
c^2*d + e])])/((-d)^(3/2)*Sqrt[e])
```

Rubi [A] time = 2.21116, antiderivative size = 739, normalized size of antiderivative = 1., number of steps used = 47, number of rules used = 11, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.611, Rules used = {5230, 4734, 4668, 4744, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{3/2}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{3/2}\sqrt{e}}-\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4(-d)^{3/2}\sqrt{e}}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right.}{4(-d)^{3/2}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x^2)^2,x]
```


```
[Out] -(a + b*ArcSec[c*x])/(4*d*(Sqrt[-d]*Sqrt[e] - d/x)) + (a + b*ArcSec[c*x])/(
4*d*(Sqrt[-d]*Sqrt[e] + d/x)) - (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(
c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(4*d^(3/2)*Sqrt[c^2*d +
e]) - (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*
Sqrt[1 - 1/(c^2*x^2)])])/(4*d^(3/2)*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])
*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*(-
d)^(3/2)*Sqrt[e]) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*
x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(4*(-d)^(3/2)*Sqrt[e]) - ((a + b*ArcSec[
c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/
(4*(-d)^(3/2)*Sqrt[e]) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcS
ec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(4*(-d)^(3/2)*Sqrt[e]) - ((I/4)*b*P
olyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/(
(-d)^(3/2)*Sqrt[e]) + ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] - Sqrt[c^2*d + e])])/((-d)^(3/2)*Sqrt[e]) - ((I/4)*b*PolyLog[2, -((c
```

```
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/((-d)^(3/2)*Sqr
t[e]) + ((I/4)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[
c^2*d + e])])/((-d)^(3/2)*Sqrt[e])
```

Rule 5230

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*((d_.) + (e_.)*(x_)^2)^(p_.),
x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^(2*(p + 1))
, x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^2}\,dx = -\text{Subst}\left(\int \frac{x^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(-\frac{e\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d\left(e+dx^2\right)^2}+\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{d\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d} + \frac{e\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)}{d}$$

$$= -\frac{\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)}+\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx, x, \frac{1}{x}\right)}{d} + \frac{e\,\text{Subst}\left(\int\left(-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}-dx\right)^2} - \frac{d\left(a+b\cos^{-1}\cdots\right.}{4e\left(\sqrt{-d}\sqrt{e}+\cdots\right.}\cdots\right.\right.}{d}$$

$$= -\left(\frac{1}{4}\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}-dx\right)^2}\,dx, x, \frac{1}{x}\right)\right) - \frac{1}{4}\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}+dx\right)^2}\,dx, x, \frac{1}{x}\right) - \frac{1}{2}\text{Subs}\cdots$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{1}{2}\text{Subst}\left(\int\left(-\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2d\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} - \frac{a+b\cos^{-1}\cdots}{2d\sqrt{e}\left(\sqrt{e}+\cdots\right.}\cdots\right.\right.$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{b\,\text{Subst}\left(\int \frac{1}{d^2+\frac{de}{c^2}-x^2}\,dx, x, \frac{-d+\frac{\sqrt{-d}\sqrt{e}}{c^2x}}{\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4cd} - \frac{b\,\text{Subst}\left(\int \cdots\right.}{\cdots}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{a+b\sec^{-1}(cx)}{4d\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{b\tanh^{-1}\left(\frac{c^2d-\frac{\sqrt{-d}\sqrt{e}}{x}}{c\sqrt{d}\sqrt{c^2d+e}\sqrt{1-\frac{1}{c^2x^2}}}\right)}{4d^{3/2}\sqrt{c^2d+e}} - \frac{b\tanh^{-1}\left(\frac{c^2d+\frac{\sqrt{-}\cdots}{\cdots}}{c\sqrt{d}\sqrt{c^2d+e}\cdots}\right.}{4d^{3/2}\sqrt{c^2d+\cdots}}$$

Mathematica [A] time = 1.9696, size = 1239, normalized size = 1.68

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x^2)^2,x]
```

```
[Out] ((a*x)/(d^2 + d*e*x^2) + (a*ArcTan[(Sqrt[e]*x)/Sqrt[d]])/(d^(3/2)*Sqrt[e])
+ (b*((Sqrt[d]*ArcSec[c*x])/((-I)*Sqrt[d]*Sqrt[e] + e*x) + (Sqrt[d]*ArcSec[
c*x])/(I*Sqrt[d]*Sqrt[e] + e*x) - (4*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d]
)]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2
*d + e]])/Sqrt[e] + (4*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Ar
cTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]])/Sqrt[e]
 - (I*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))
/(c*Sqrt[d])])/Sqrt[e] - ((2*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sq
rt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d]
)])/Sqrt[e] + (I*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*A
rcSec[c*x]))/(c*Sqrt[d])])/Sqrt[e] + ((2*I)*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*
Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]
))/(c*Sqrt[d])])/Sqrt[e] + (I*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d
+ e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[e] - ((2*I)*ArcSin[Sqrt[1 - (I*
Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*
ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[e] - (I*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] +
Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[e] + ((2*I)*ArcSin[S
qrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d
+ e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])])/Sqrt[e] + (I*Log[(2*Sqrt[d]*Sqrt[e]*
(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(
Sqrt[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))])/Sqrt[-(c^2*d) - e] - (I*Log[(
2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 -
1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))])/Sqrt[-(c^2
*d) - e] + PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*
Sqrt[d])]/Sqrt[e] - PolyLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[
c*x]))/(c*Sqrt[d])]/Sqrt[e] - PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])]/Sqrt[e] + PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2
*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]/Sqrt[e]))/(2*d^(3/2)))/2
```

Maple [C] time = 1.806, size = 1748, normalized size = 2.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] 1/2*c^2*a*x/d/(c^2*e*x^2+c^2*d)+1/2*a/d/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))
+1/2*c^2*b*arcsec(c*x)*x/d/(c^2*e*x^2+c^2*d)+1/4*I*c*b/d*sum(_R1/(_R1^2*c^2
*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilo
g((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*
e)*_Z^2+c^2*d))+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/
2))/d^4/(c^2*d+e)*(e*(c^2*d+e))^(1/2)*e-1/4*I*c*b/d*sum(1/_R1/(_R1^2*c^2*d+
c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((
_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*
_Z^2+c^2*d))+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c
*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))
```

```
/d^4*e-I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/
x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*e/(c^
2*d+e)/d^3+1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d
*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2
))/d^3+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/
c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/d^
4*e-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x
+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/d^4/(
c^2*d+e)*e^2+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d
*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/
2))/d^4*(e*(c^2*d+e))^(1/2)-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(
1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)
+2*e)*d)^(1/2))/d^4/(c^2*d+e)*e^2-1/2*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2
)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^
2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)-I/c^4*b*(-(c
^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)
^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/d^4/(c^2*d+e)*(e*(c^2
*d+e))^(1/2)*e+1/2*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arc
tanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*
d)^(1/2))/d^3-I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1
/2))*e/(c^2*d+e)/d^3-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*ar
ctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d
)^(1/2))/d^4*(e*(c^2*d+e))^(1/2)+1/2*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+
2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+
e))^(1/2)+2*e)*d)^(1/2))/d^3/(c^2*d+e)*(e*(c^2*d+e))^(1/2)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\text{arcsec}\,(cx)+a}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx)+a}{\left(ex^2+d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x^2 + d)^2, x)
```

3.103 $\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=785

$$-\frac{3ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{5/2}}+\frac{3ib\sqrt{e}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{5/2}}-\frac{3ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4(-d)^{5/2}}+\cdots$$

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/d^2 - a/(d^2*x) - (b*ArcSec[c*x])/(d^2*x) + (e*
(a + b*ArcSec[c*x]))/(4*d^2*(Sqrt[-d]*Sqrt[e] - d/x)) - (e*(a + b*ArcSec[c*
x]))/(4*d^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*e*ArcTanh[(c^2*d - (Sqrt[-d]*Sqr
t[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*d^(5/2)*Sqr
t[c^2*d + e]) + (b*e*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt
[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*d^(5/2)*Sqrt[c^2*d + e]) - (3*Sqrt[
e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sq
rt[c^2*d + e])]])/(4*(-d)^(5/2)) + (3*Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])]])/(4*(-d)^(5/2)) -
 (3*Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqr
t[e] + Sqrt[c^2*d + e])]])/(4*(-d)^(5/2)) + (3*Sqrt[e]*(a + b*ArcSec[c*x])*L
og[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])]])/(4*(-d)
^(5/2)) - (((3*I)/4)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/
(Sqrt[e] - Sqrt[c^2*d + e]))]])/(-d)^(5/2) + (((3*I)/4)*b*Sqrt[e]*PolyLog[2,
 (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])]])/(-d)^(5/2) -
(((3*I)/4)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))]])/(-d)^(5/2) + (((3*I)/4)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-
d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])]])/(-d)^(5/2)
```

Rubi [A] time = 2.3073, antiderivative size = 785, normalized size of antiderivative = 1., number of steps used = 50, number of rules used = 13, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.619, Rules used = {5240, 4734, 4620, 261, 4668, 4744, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$-\frac{3ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{5/2}}+\frac{3ib\sqrt{e}\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{4(-d)^{5/2}}-\frac{3ib\sqrt{e}\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{4(-d)^{5/2}}+\cdots$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^2),x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/d^2 - a/(d^2*x) - (b*ArcSec[c*x])/(d^2*x) + (e*
(a + b*ArcSec[c*x]))/(4*d^2*(Sqrt[-d]*Sqrt[e] - d/x)) - (e*(a + b*ArcSec[c*
x]))/(4*d^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*e*ArcTanh[(c^2*d - (Sqrt[-d]*Sqr
t[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*d^(5/2)*Sqr
t[c^2*d + e]) + (b*e*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt
[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]])/(4*d^(5/2)*Sqrt[c^2*d + e]) - (3*Sqrt[
e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sq
rt[c^2*d + e])]])/(4*(-d)^(5/2)) + (3*Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 + (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])]])/(4*(-d)^(5/2)) -
 (3*Sqrt[e]*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqr
t[e] + Sqrt[c^2*d + e])]])/(4*(-d)^(5/2)) + (3*Sqrt[e]*(a + b*ArcSec[c*x])*L
og[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])]])/(4*(-d)
```

```
^(5/2)) - (((3*I)/4)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/
(Sqrt[e] - Sqrt[c^2*d + e]))])/(-d)^(5/2) + (((3*I)/4)*b*Sqrt[e]*PolyLog[2,
 (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(-d)^(5/2) -
(((3*I)/4)*b*Sqrt[e]*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/(-d)^(5/2) + (((3*I)/4)*b*Sqrt[e]*PolyLog[2, (c*Sqrt[-
d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(-d)^(5/2)
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4620

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.), x_Symbol] :> Simp[x*(a + b*Ar
cCos[c*x])^n, x] + Dist[b*c*n, Int[(x*(a + b*ArcCos[c*x])^(n - 1))/Sqrt[1 -
 c^2*x^2], x], x] /; FreeQ[{a, b, c}, x] && GtQ[n, 0]
```

Rule 261

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a + b*x^n)
^(p + 1)/(b*n*(p + 1)), x] /; FreeQ[{a, b, m, n, p}, x] && EqQ[m, n - 1] &&
 NeQ[p, -1]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
```

```
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^2}\,dx = -\operatorname{Subst}\left(\int \frac{x^4\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)$$

$$= -\operatorname{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{d^2} + \frac{e^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)^2} - \frac{2e\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)}\right) dx, x, \frac{1}{x}\right)$$

$$= -\frac{\operatorname{Subst}\left(\int \left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right) dx, x, \frac{1}{x}\right)}{d^2} + \frac{(2e)\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d^2} - \frac{e^2\operatorname{Subst}\left(\int \frac{a+b\cos\cdots}{(e+d\cdots}\right.}{d^2}\cdots$$

$$= -\frac{a}{d^2x} - \frac{b\operatorname{Subst}\left(\int \cos^{-1}\left(\frac{x}{c}\right) dx, x, \frac{1}{x}\right)}{d^2} + \frac{(2e)\operatorname{Subst}\left(\int \left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right) dx, x, \frac{1}{x}\right)}{d^2}$$

$$= -\frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} - \frac{b\operatorname{Subst}\left(\int \frac{x}{\sqrt{1-\frac{x^2}{c^2}}}\,dx, x, \frac{1}{x}\right)}{cd^2} + \frac{\sqrt{e}\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x, \frac{1}{x}\right)}{d^2} + \frac{\sqrt{e}\operatorname{Sub}\cdots}{\cdots}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} - \frac{\sqrt{e}\operatorname{Subst}\left(\int \frac{(a+\cdots}{\frac{\sqrt{e}}{c}-\cdots}\right.}{\cdots}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\left(i\sqrt{e}\right)\operatorname{Subst}\left(\int \cdots\right.}{\cdots}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{be\tanh^{-1}\left(\frac{c^2\cdots}{c\sqrt{d}\sqrt{c^2\cdots}}\right.}{4d^{5/2}\sqrt{c^2\cdots}}\cdots$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{be\tanh^{-1}\left(\frac{c^2\cdots}{c\sqrt{d}\sqrt{c^2\cdots}}\right.}{4d^{5/2}\sqrt{c^2\cdots}}\cdots$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{be\tanh^{-1}\left(\frac{c^2\cdots}{c\sqrt{d}\sqrt{c^2\cdots}}\right.}{4d^{5/2}\sqrt{c^2\cdots}}\cdots$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{be\tanh^{-1}\left(\frac{c^2\cdots}{c\sqrt{d}\sqrt{c^2\cdots}}\right.}{4d^{5/2}\sqrt{c^2\cdots}}\cdots$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{d^2} - \frac{a}{d^2x} - \frac{b\sec^{-1}(cx)}{d^2x} + \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{4d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{be\tanh^{-1}\left(\frac{c^2\cdots}{c\sqrt{d}\sqrt{c^2\cdots}}\right.}{4d^{5/2}\sqrt{c^2\cdots}}\cdots$$

Mathematica [A] time = 1.95202, size = 1291, normalized size = 1.64

$$-6\sqrt{e}\tan^{-1}\left(\frac{\sqrt{e}x}{\sqrt{d}}\right)a-\frac{4\sqrt{d}a}{x}-\frac{2\sqrt{d}exa}{ex^2+d}+b\left(4\sqrt{d}\sqrt{1-\frac{1}{c^2x^2}}c-\frac{4\sqrt{d}\sec^{-1}(cx)}{x}-\frac{\sqrt{d}e\sec^{-1}(cx)}{ex-i\sqrt{d}\sqrt{e}}-\frac{\sqrt{d}e\sec^{-1}(cx)}{ex+i\sqrt{d}\sqrt{e}}+12\sqrt{e}\sin^{-1}\left(\frac{\sqrt{1-\frac{i}{c}}}{\sqrt{2}}\right.\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^2),x]
```

```
[Out] ((-4*a*Sqrt[d])/x - (2*a*Sqrt[d]*e*x)/(d + e*x^2) - 6*a*Sqrt[e]*ArcTan[(Sqr
t[e]*x)/Sqrt[d]] + b*(4*c*Sqrt[d]*Sqrt[1 - 1/(c^2*x^2)] - (4*Sqrt[d]*ArcSec
[c*x])/x - (Sqrt[d]*e*ArcSec[c*x])/((-I)*Sqrt[d]*Sqrt[e] + e*x) - (Sqrt[d]*
e*ArcSec[c*x])/(I*Sqrt[d]*Sqrt[e] + e*x) + 12*Sqrt[e]*ArcSin[Sqrt[1 - (I*Sq
rt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[
c*x]/2])/Sqrt[c^2*d + e]] - 12*Sqrt[e]*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[
d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*
d + e]] + (3*I)*Sqrt[e]*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (6*I)*Sqrt[e]*ArcSin[Sqrt[1 + (I*Sqrt[e])
/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c
*x]))/(c*Sqrt[d])] - (3*I)*Sqrt[e]*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] + Sqrt[
c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (6*I)*Sqrt[e]*ArcSin[Sqrt[1 -
 (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (3*I)*Sqrt[e]*ArcSec[c*x]*Log[1 - (I*(Sqr
t[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (6*I)*Sqrt[e]*Arc
Sin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c
^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (3*I)*Sqrt[e]*ArcSec[c*x]*Log[
1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (6*I)*
Sqrt[e]*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[
e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (I*e*Log[(2*Sqrt[d]
*Sqrt[e]*(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2
)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))])/Sqrt[-(c^2*d) - e] +
 (I*e*Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e
]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))])
/Sqrt[-(c^2*d) - e] - 3*Sqrt[e]*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E
^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 3*Sqrt[e]*PolyLog[2, (I*(-Sqrt[e] + Sqrt[c
^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + 3*Sqrt[e]*PolyLog[2, ((-I)*(Sq
rt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 3*Sqrt[e]*PolyLo
g[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])]))/(4*d^
(5/2))
```

Maple [C] time = 8.437, size = 1817, normalized size = 2.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^2,x)
```

```
[Out] -1/2*a/d^2*e*c^2*x/(c^2*e*x^2+c^2*d)-3/2*a/d^2*e/(d*e)^(1/2)*arctan(e*x/(d*
e)^(1/2))-a/d^2/x+3/4*I*c*b/d^2*e*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcs
ec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c
^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-1/2*I
*b/c^2*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1
```

```
/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/d^4/(c^2*d+e)
*(e*(c^2*d+e))^(1/2)*e+I*b/c^4*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)
*e^3*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/
2)-2*e)*d)^(1/2))/d^5/(c^2*d+e)-1/2*b*c^2*x*arcsec(c*x)*e/(c^2*e*x^2+c^2*d)
/d^2-1/2*I*b/c^2*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/
c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/d^4
*e+I*b/c^4*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*
(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*e/d^5*(e*
(c^2*d+e))^(1/2)+I*b/c^4*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^2*a
rctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e
)*d)^(1/2))/d^5/(c^2*d+e)*(e*(c^2*d+e))^(1/2)-I*b/c^4*(-(c^2*d-2*(e*(c^2*d+
e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+
2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*e/d^5*(e*(c^2*d+e))^(1/2)-b*arcsec(c*x
)/d^2/x+c*b/d^2*((c^2*x^2-1)/c^2/x^2)^(1/2)-I*b/c^4*((c^2*d+2*(e*(c^2*d+e))
^(1/2)+2*e)*d)^(1/2)*e^2*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2
*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/d^5/(c^2*d+e)*(e*(c^2*d+e))^(1/2)-1/2*I
*b/c^2*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1
-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/d^4*e-3/4*
I*c*b/d^2*e*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*
(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1
=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+I*b/c^2*((c^2*d+2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2)*e^2*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d
+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/d^4/(c^2*d+e)-I*b/c^4*(-(c^2*d-2*(e*(
c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-
c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*e^2/d^5+1/2*I*b/c^2*(-(c^2*d-2*(
e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2)
)/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/d^4/(c^2*d+e)*(e*(c^2*d+e))
^(1/2)-I*b/c^4*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/
x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*e^2/d
^5+I*b/c^4*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^3*arctan(d*c*(1/c/
x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/d^5/(
c^2*d+e)+I*b/c^2*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^2*arctanh(d
*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/
2))/d^4/(c^2*d+e)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\mathrm{arcsec}\,(cx)+a}{e^2x^6+2\,dex^4+d^2x^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e^2*x^6 + 2*d*e*x^4 + d^2*x^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\left(ex^2 + d\right)^2 x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^2*x^2), x)
```

3.104 $\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx$

Optimal. Leaf size=707

$$-\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right)}{2e^3}$$

```
[Out] -(b*c*d*Sqrt[1 - 1/(c^2*x^2)])/(8*e^2*(c^2*d + e)*(e + d/x^2)*x) - (a + b*A
rcSec[c*x])/(4*e*(e + d/x^2)^2) - (a + b*ArcSec[c*x])/(2*e^2*(e + d/x^2)) -
 (b*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(5/2)
*Sqrt[c^2*d + e]) - (b*(c^2*d + 2*e)*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt
[1 - 1/(c^2*x^2)]*x)])/(8*e^(5/2)*(c^2*d + e)^(3/2)) + ((a + b*ArcSec[c*x])
*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e^
3) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
 Sqrt[c^2*d + e])])/(2*e^3) + ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I
*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^3) + ((a + b*ArcSec[c*x])
*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^
3) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^3 - ((I/2)*b*Po
lyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/e^
3 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*
d + e])])/e^3 - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] + Sqrt[c^2*d + e]))])/e^3 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[
c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 + ((I/2)*b*PolyLog[2, -E^((2*I)*Ar
cSec[c*x])])/e^3
```

Rubi [A] time = 1.40384, antiderivative size = 707, normalized size of antiderivative = 1., number of steps used = 33, number of rules used = 13, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.619, Rules used = {5240, 4734, 4626, 3719, 2190, 2279, 2391, 4730, 382, 377, 205, 4742, 4520}

$$-\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2e^3}-\frac{ib\,\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i}}{\sqrt{c^2d}}\right)}{2e^3}$$

Antiderivative was successfully verified.

```
[In] Int[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] -(b*c*d*Sqrt[1 - 1/(c^2*x^2)])/(8*e^2*(c^2*d + e)*(e + d/x^2)*x) - (a + b*A
rcSec[c*x])/(4*e*(e + d/x^2)^2) - (a + b*ArcSec[c*x])/(2*e^2*(e + d/x^2)) -
 (b*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(2*e^(5/2)
*Sqrt[c^2*d + e]) - (b*(c^2*d + 2*e)*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt
[1 - 1/(c^2*x^2)]*x)])/(8*e^(5/2)*(c^2*d + e)^(3/2)) + ((a + b*ArcSec[c*x])
*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*e^
3) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
 Sqrt[c^2*d + e])])/(2*e^3) + ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I
*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^3) + ((a + b*ArcSec[c*x])
*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*e^
3) - ((a + b*ArcSec[c*x])*Log[1 + E^((2*I)*ArcSec[c*x])])/e^3 - ((I/2)*b*Po
lyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/e^
```

```
3 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*
d + e])])/e^3 - ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] + Sqrt[c^2*d + e]))])/e^3 - ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[
c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/e^3 + ((I/2)*b*PolyLog[2, -E^((2*I)*Ar
cSec[c*x])])/e^3
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4626

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/(x_), x_Symbol] :> -Subst[Int[
(a + b*x)^n/Cot[x], x], x, ArcCos[c*x]] /; FreeQ[{a, b, c}, x] && IGtQ[n, 0
]
```

Rule 3719

```
Int[((c_.) + (d_.)*(x_))^(m_.)*tan[(e_.) + (f_.)*(x_)], x_Symbol] :> Simp[(
I*(c + d*x)^(m + 1))/(d*(m + 1)), x] - Dist[2*I, Int[((c + d*x)^m*E^(2*I*(e
 + f*x)))/(1 + E^(2*I*(e + f*x))), x], x] /; FreeQ[{c, d, e, f}, x] && IGtQ
[m, 0]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rule 4730

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*(x_)*((d_) + (e_.)*(x_)^2)^(p_.), x_
Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcCos[c*x]))/(2*e*(p + 1)), x]
 + Dist[(b*c)/(2*e*(p + 1)), Int[(d + e*x^2)^(p + 1)/Sqrt[1 - c^2*x^2], x],
 x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[c^2*d + e, 0] && NeQ[p, -1]
```

Rule 382

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_))^(q_), x_Symbol]
:> -Simp[(b*x*(a + b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*n*(p + 1)*(b*c -
a*d)), x] + Dist[(b*c + n*(p + 1)*(b*c - a*d))/(a*n*(p + 1)*(b*c - a*d)), I
nt[(a + b*x^n)^(p + 1)*(c + d*x^n)^q, x], x] /; FreeQ[{a, b, c, d, n, q}, x
] && NeQ[b*c - a*d, 0] && EqQ[n*(p + q + 2) + 1, 0] && (LtQ[p, -1] ||  !LtQ
[q, -1]) && NeQ[p, -1]
```

Rule 377

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)/((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Su
bst[Int[1/(c - (b*c - a*d)*x^n), x], x, x/(a + b*x^n)^(1/n)] /; FreeQ[{a, b
, c, d}, x] && NeQ[b*c - a*d, 0] && EqQ[n*p + 1, 0] && IntegerQ[n]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rubi steps

$$\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x\left(e+dx^2\right)^3}dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e^3x} - \frac{dx\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e\left(e+dx^2\right)^3} - \frac{dx\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e^2\left(e+dx^2\right)^2} - \frac{dx\left(a+b\text{ c}\right.}{e^3\left(e+\right.}\right.\right.$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{x}dx, x, \frac{1}{x}\right)}{e^3} + \frac{d\,\text{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}dx, x, \frac{1}{x}\right)}{e^3} + \frac{d\,\text{Subst}\left(\int \frac{x(a+b}{(e}\right.}{e}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{\text{Subst}\left(\int(a+bx)\tan(x)\,dx, x, \sec^{-1}(cx)\right)}{e^3} + \frac{d\,\text{Sub}}{}$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be^3} - \frac{(2}{}$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2be^3} - \frac{b\text{ t}}{}$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} -$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} -$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} -$$

$$= -\frac{bcd\sqrt{1-\frac{1}{c^2x^2}}}{8e^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} - \frac{a+b\sec^{-1}(cx)}{4e\left(e+\frac{d}{x^2}\right)^2} - \frac{a+b\sec^{-1}(cx)}{2e^2\left(e+\frac{d}{x^2}\right)} - \frac{b\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{2e^{5/2}\sqrt{c^2d+e}} -$$

Mathematica [B] time = 7.80729, size = 1805, normalized size = 2.55

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] -(a*d^2)/(4*e^3*(d + e*x^2)^2) + (a*d)/(e^3*(d + e*x^2)) + (a*Log[d + e*x^2
])/(2*e^3) + b*((((-7*I)/16)*Sqrt[d]*(-(ArcSec[c*x]/(I*Sqrt[d]*Sqrt[e] + e*
x)) + (I*(ArcSin[1/(c*x)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e] + c*(I*
c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) -
e]*(Sqrt[d] - I*Sqrt[e]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/e^(5/2) + (((7*
I)/16)*Sqrt[d]*(-(ArcSec[c*x]/((-I)*Sqrt[d]*Sqrt[e] + e*x)) - (I*(ArcSin[1/
(c*x)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-
(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sq
rt[e]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/e^(5/2) - (d*(-(ArcSec[c*x]/(Sqrt
[e]*((-I)*Sqrt[d] + Sqrt[e]*x)^2)) + (ArcSin[1/(c*x)]/Sqrt[e] - I*((c*Sqrt[
d]*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)/((c^2*d + e)*((-I)*Sqrt[d] + Sqrt[e]*x)
) + ((2*c^2*d + e)*Log[(-4*d*Sqrt[e]*Sqrt[c^2*d + e]*(I*Sqrt[e] + c*(c*Sqrt
[d] - Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*((-I)*Sqrt[
d] + Sqrt[e]*x))])/(c^2*d + e)^(3/2)))/d))/(16*e^(5/2)) - (d*((I*c*Sqrt[e]*
Sqrt[1 - 1/(c^2*x^2)]*x)/(Sqrt[d]*(c^2*d + e)*(I*Sqrt[d] + Sqrt[e]*x)) - Ar
cSec[c*x]/(Sqrt[e]*(I*Sqrt[d] + Sqrt[e]*x)^2) + ArcSin[1/(c*x)]/(d*Sqrt[e])
 - (I*(2*c^2*d + e)*Log[(4*d*Sqrt[e]*Sqrt[c^2*d + e]*((-I)*Sqrt[e] + c*(c*S
qrt[d] + Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*(I*Sqrt[
d] + Sqrt[e]*x))])/(d*(c^2*d + e)^(3/2))))/(16*e^(5/2)) + ((I/4)*(8*ArcSin[
Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*
Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e
] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1
+ (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + S
qrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I*
Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*
ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x]
)] - 2*PolyLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqr
t[d])] - 2*PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/
(c*Sqrt[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/e^3 + ((I/4)*(8*ArcSin[
Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e
])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(-Sq
rt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqr
t[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d +
 e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 - (I*(Sqrt[e
] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1
- (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec
[c*x])] - 2*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c
*Sqrt[d])] - 2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))
/(c*Sqrt[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/e^3)
```

Maple [C] time = 0.819, size = 1626, normalized size = 2.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^3,x)
```

```
[Out] -1/4*I*c^4*b/e^3/(c^2*d+e)*d^2*sum((_R1^2+1)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arc
sec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/
c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-1/8*
I*c^4*b/e^2/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*d^2-1/8*c^5*b/e^2/(c^2*e*x^2+c^2*
d)^2/(c^2*d+e)*((c^2*x^2-1)/c^2/x^2)^(1/2)*x*d^2-1/4*I*c^4*b/e/(c^2*e*x^2+c
^2*d)^2/(c^2*d+e)*x^2*d+5/8*I*c^2*b*(e*(c^2*d+e))^(1/2)/e^3/(c^2*d+e)^2*arc
tanh(1/4*(2*c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2+2*c^2*d+4*e)/(c^2*d*e+e^2
```

```
)^(1/2))*d-1/4*c^4*a*d^2/e^3/(c^2*e*x^2+c^2*d)^2+1/2*a/e^3*ln(c^2*e*x^2+c^2
*d)+c^2*a/e^3*d/(c^2*e*x^2+c^2*d)-b/e^2/(c^2*d+e)*arcsec(c*x)*ln(1-I*(1/c/x
+I*(1-1/c^2/x^2)^(1/2)))-b/e^2/(c^2*d+e)*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1/c
^2/x^2)^(1/2)))+I*b/e^2/(c^2*d+e)*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+
I*b/e^2/(c^2*d+e)*dilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-1/4*I*b/e^2/(c^2
*d+e)*sum((_R1^2*c^2*d+c^2*d+4*e)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln
((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1
/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-1/2*c^6*b/e^2/(
c^2*e*x^2+c^2*d)^2/(c^2*d+e)*arcsec(c*x)*d^2*x^2-1/8*c^5*b/e/(c^2*e*x^2+c^2
*d)^2/(c^2*d+e)*((c^2*x^2-1)/c^2/x^2)^(1/2)*x^3*d-1/2*c^4*b/e/(c^2*e*x^2+c^
2*d)^2/(c^2*d+e)*arcsec(c*x)*d*x^2-3/4*c^6*b/e/(c^2*e*x^2+c^2*d)^2/(c^2*d+e
)*arcsec(c*x)*d*x^4-1/4*I*c^2*b/e^2/(c^2*d+e)*d*sum((_R1^2+1)/(_R1^2*c^2*d+
c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((
_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*
_Z^2+c^2*d))-c^2*b/e^3/(c^2*d+e)*d*arcsec(c*x)*ln(1+I*(1/c/x+I*(1-1/c^2/x^2
)^(1/2)))-c^2*b/e^3/(c^2*d+e)*d*arcsec(c*x)*ln(1-I*(1/c/x+I*(1-1/c^2/x^2)^(
1/2)))+I*c^2*b/e^3/(c^2*d+e)*d*dilog(1+I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))+I*c
^2*b/e^3/(c^2*d+e)*d*dilog(1-I*(1/c/x+I*(1-1/c^2/x^2)^(1/2)))-1/4*I*c^2*b/e
^3/(c^2*d+e)*d*sum((_R1^2*c^2*d+c^2*d+4*e)/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcse
c(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^
2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-3/4*c^
4*b/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*arcsec(c*x)*x^4-1/8*I*c^4*b/(c^2*e*x^2+c^
2*d)^2/(c^2*d+e)*x^4+3/4*I*b*(e*(c^2*d+e))^(1/2)/e^2/(c^2*d+e)^2*arctanh(1/
4*(2*c^2*d*(1/c/x+I*(1-1/c^2/x^2)^(1/2))^2+2*c^2*d+4*e)/(c^2*d*e+e^2)^(1/2)
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{4}a\left(\frac{4dex^2+3d^2}{e^5x^4+2de^4x^2+d^2e^3}+\frac{2\log\left(ex^2+d\right)}{e^3}\right)+b\int\frac{x^5\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{e^3x^6+3de^2x^4+3d^2ex^2+d^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] 1/4*a*((4*d*e*x^2 + 3*d^2)/(e^5*x^4 + 2*d*e^4*x^2 + d^2*e^3) + 2*log(e*x^2
+ d)/e^3) + b*integrate(x^5*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e^3*x^6 +
3*d*e^2*x^4 + 3*d^2*e*x^2 + d^3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{bx^5\,\mathrm{arcsec}\,(cx)+ax^5}{e^3x^6+3de^2x^4+3d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] integral((b*x^5*arcsec(c*x) + a*x^5)/(e^3*x^6 + 3*d*e^2*x^4 + 3*d^2*e*x^2 +
 d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^5}{(ex^2 + d)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5/(e*x^2 + d)^3, x)
```

3.105 $\int \frac{x^3(a+b\sec^{-1}(cx))}{(d+ex^2)^3}\,dx$

Optimal. Leaf size=157

$$\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{bcx\left(c^2d+2e\right)\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{8de^{3/2}\sqrt{c^2x^2}\left(c^2d+e\right)^{3/2}}+\frac{bcx\sqrt{c^2x^2-1}}{8e\sqrt{c^2x^2}\left(c^2d+e\right)\left(d+ex^2\right)}$$

```
[Out] (b*c*x*Sqrt[-1 + c^2*x^2])/(8*e*(c^2*d + e)*Sqrt[c^2*x^2]*(d + e*x^2)) + (x
^4*(a + b*ArcSec[c*x]))/(4*d*(d + e*x^2)^2) - (b*c*(c^2*d + 2*e)*x*ArcTan[(
Sqrt[e]*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*d + e]])/(8*d*e^(3/2)*(c^2*d + e)^(3/2
)*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.174512, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 7, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333, Rules used = {264, 5238, 12, 446, 78, 63, 205}

$$\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{bcx\left(c^2d+2e\right)\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{8de^{3/2}\sqrt{c^2x^2}\left(c^2d+e\right)^{3/2}}+\frac{bcx\sqrt{c^2x^2-1}}{8e\sqrt{c^2x^2}\left(c^2d+e\right)\left(d+ex^2\right)}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] (b*c*x*Sqrt[-1 + c^2*x^2])/(8*e*(c^2*d + e)*Sqrt[c^2*x^2]*(d + e*x^2)) + (x
^4*(a + b*ArcSec[c*x]))/(4*d*(d + e*x^2)^2) - (b*c*(c^2*d + 2*e)*x*ArcTan[(
Sqrt[e]*Sqrt[-1 + c^2*x^2])/Sqrt[c^2*d + e]])/(8*d*e^(3/2)*(c^2*d + e)^(3/2
)*Sqrt[c^2*x^2])
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
```

```
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 78

```
Int[((a_.) + (b_.)*(x_))*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_))^(p
_.), x_Symbol] :> -Simp[((b*e - a*f)*(c + d*x)^(n + 1)*(e + f*x)^(p + 1))/(
f*(p + 1)*(c*f - d*e)), x] - Dist[(a*d*f*(n + p + 2) - b*(d*e*(n + 1) + c*f
*(p + 1)))/(f*(p + 1)*(c*f - d*e)), Int[(c + d*x)^n*(e + f*x)^(p + 1), x],
x] /; FreeQ[{a, b, c, d, e, f, n}, x] && LtQ[p, -1] && ( !LtQ[n, -1] || Int
egerQ[p] ||  !(IntegerQ[n] ||  !(EqQ[e, 0] ||  !(EqQ[c, 0] || LtQ[p, n]))))
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rubi steps

$$
\begin{aligned}
\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx &= \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{(bcx)\int\frac{x^3}{4d\sqrt{-1+c^2x^2}\left(d+ex^2\right)^2}\,dx}{\sqrt{c^2x^2}}\\
&= \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{(bcx)\int\frac{x^3}{\sqrt{-1+c^2x^2}\left(d+ex^2\right)^2}\,dx}{4d\sqrt{c^2x^2}}\\
&= \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{(bcx)\,\text{Subst}\left(\int\frac{x}{\sqrt{-1+c^2x}(d+ex)^2}\,dx,x,x^2\right)}{8d\sqrt{c^2x^2}}\\
&= \frac{bcx\sqrt{-1+c^2x^2}}{8e\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}+\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{\left(bc\left(c^2d+2e\right)x\right)\text{Subst}\left(\int\frac{1}{\sqrt{-1+c^2x}(d+e\cdots}\right.}{16de\left(c^2d+e\right)\sqrt{c^2x^2}}\\
&= \frac{bcx\sqrt{-1+c^2x^2}}{8e\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}+\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{\left(b\left(c^2d+2e\right)x\right)\text{Subst}\left(\int\frac{1}{d+\frac{e}{c^2}+\frac{ex^2}{c^2}}\,dx,\cdots\right.}{8cde\left(c^2d+e\right)\sqrt{c^2x^2}}\\
&= \frac{bcx\sqrt{-1+c^2x^2}}{8e\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}+\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{4d\left(d+ex^2\right)^2}-\frac{bc\left(c^2d+2e\right)x\tan^{-1}\left(\frac{\sqrt{e}\sqrt{-1+c^2x^2}}{\sqrt{c^2d+e}}\right)}{8de^{3/2}\left(c^2d+e\right)^{3/2}\sqrt{c^2x^2}}
\end{aligned}
$$

Mathematica [C] time = 1.31066, size = 389, normalized size = 2.48

$$
-\frac{\frac{8a}{d+ex^2}-\frac{4ad}{\left(d+ex^2\right)^2}+\frac{b\sqrt{e}\left(c^2d+2e\right)\log\left(-\frac{16de^{3/2}\sqrt{c^2(-d)-e}\left(\sqrt{e}+cx\left(-\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2(-d)-e}+ic\sqrt{d}\right)\right)}{b\left(c^2d+2e\right)\left(\sqrt{e}x+i\sqrt{d}\right)}\right)}{d\left(c^2(-d)-e\right)^{3/2}}+\frac{b\sqrt{e}\left(c^2d+2e\right)\log\left(\frac{16ide^{3/2}\sqrt{c^2(-d)-e}\left(-\sqrt{e}+cx\left(\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2(-d)-e\cdots}\right.\right.}{b\left(c^2d+2e\right)\left(\sqrt{d}+i\sqrt{e}x\right)}\right.}{d\left(c^2(-d)-e\right)^{3/2}}\cdots}{16e^2}
$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] -((-4*a*d)/(d + e*x^2)^2 + (8*a)/(d + e*x^2) - (2*b*c*e*Sqrt[1 - 1/(c^2*x^2
)]*x)/((c^2*d + e)*(d + e*x^2)) + (4*b*(d + 2*e*x^2)*ArcSec[c*x])/(d + e*x^
2)^2 + (4*b*ArcSin[1/(c*x)])/d + (b*Sqrt[e]*(c^2*d + 2*e)*Log[(-16*d*Sqrt[-
(c^2*d) - e]*e^(3/2)*(Sqrt[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1
- 1/(c^2*x^2)])*x))/(b*(c^2*d + 2*e)*(I*Sqrt[d] + Sqrt[e]*x))])/(d*(-(c^2*d
) - e)^(3/2)) + (b*Sqrt[e]*(c^2*d + 2*e)*Log[((16*I)*d*Sqrt[-(c^2*d) - e]*e
^(3/2)*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)
])*x))/(b*(c^2*d + 2*e)*(Sqrt[d] + I*Sqrt[e]*x))])/(d*(-(c^2*d) - e)^(3/2))
)/(16*e^2)
```

Maple [B] time = 0.277, size = 1870, normalized size = 11.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^3,x)
```

```
[Out] -1/2*c^2*a/e^2/(c^2*e*x^2+c^2*d)+1/4*c^4*a/e^2*d/(c^2*e*x^2+c^2*d)^2-1/2*c^
2*b*arcsec(c*x)/e^2/(c^2*e*x^2+c^2*d)+1/4*c^4*b*arcsec(c*x)/e^2*d/(c^2*e*x^
2+c^2*d)^2+1/4*c^3*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/(c^2*d
+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)
^(1/2))+1/4*c^3*b*(c^2*x^2-1)^(1/2)/e/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d/(c^2*
d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1
)^(1/2))-1/16*c^3*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/(-(c^2*
d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*
ln(-2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e
*c*x+(-c^2*e*d)^(1/2)))-1/16*c^3*b*(c^2*x^2-1)^(1/2)/e/((c^2*x^2-1)/c^2/x^2
)^(1/2)/x*d/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x
+(-c^2*e*d)^(1/2))*ln(-2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e+(-c^2*e*
d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))-1/16*c^3*b*(c^2*x^2-1)^(1/2)/((c
^2*x^2-1)/c^2/x^2)^(1/2)*x/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)
^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1
/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))-1/16*c^3*b*(c^2*x^2
-1)^(1/2)/e/((c^2*x^2-1)/c^2/x^2)^(1/2)/x*d/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/
(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(2*((-(c^2*d+e)/e)^(1/
2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))+1/
4*c*b*(c^2*x^2-1)^(1/2)*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d/(c^2*d+e)/(e*c*x+
(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2))+1/4
*c*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(c^2*d+e)/(e*c*x+(-c^2
*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2))-1/8*c^3*
b/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+
(-c^2*e*d)^(1/2))+1/8*c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(c^2*d+e)/(e*c*x+(-
c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))-1/8*c*b*(c^2*x^2-1)^(1/2)*e/((c^2
*x^2-1)/c^2/x^2)^(1/2)*x/d/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)
^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(-2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(
1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))-1/8*c*b*(c^2*x^2-
1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*
x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(-2*((-(c^2*d+e)/e)^(1/2)*(
c^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))-1/8*c
*b*(c^2*x^2-1)^(1/2)*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d/(-(c^2*d+e)/e)^(1/2)
/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(2*((-(c^2*
d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)
```

```
^(1/2)))-1/8*c*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(-(c^2*d+e
)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(
2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+
(-c^2*e*d)^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{(2ex^2+d)a}{4(e^4x^4+2de^3x^2+d^2e^2)}-\frac{\left((2ex^2+d)\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)-(e^4x^4+2de^3x^2+d^2e^2)\int\frac{}{c^2e^4x^6+(2c^2de^3-e^4)x^4-d^2e^2+(c^2}\right.}{4(e^4x^4+2de^3x^2+d^2e^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] -1/4*(2*e*x^2 + d)*a/(e^4*x^4 + 2*d*e^3*x^2 + d^2*e^2) - 1/4*((2*e*x^2 + d)
*arctan(sqrt(c*x + 1)*sqrt(c*x - 1)) - 4*(e^4*x^4 + 2*d*e^3*x^2 + d^2*e^2)*
integrate(1/4*(2*c^2*e*x^3 + c^2*d*x)*e^(1/2*log(c*x + 1) + 1/2*log(c*x - 1
))/(c^2*e^4*x^6 + (2*c^2*d*e^3 - e^4)*x^4 - d^2*e^2 + (c^2*d^2*e^2 - 2*d*e^
3)*x^2 + (c^2*e^4*x^6 + (2*c^2*d*e^3 - e^4)*x^4 - d^2*e^2 + (c^2*d^2*e^2 -
2*d*e^3)*x^2)*e^(log(c*x + 1) + log(c*x - 1))), x))*b/(e^4*x^4 + 2*d*e^3*x^
2 + d^2*e^2)
```

Fricas [B] time = 4.35592, size = 2093, normalized size = 13.33

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] [-1/16*(4*a*c^4*d^4 + 8*a*c^2*d^3*e + 4*a*d^2*e^2 + 8*(a*c^4*d^3*e + 2*a*c^
2*d^2*e^2 + a*d*e^3)*x^2 + (b*c^2*d^3 + (b*c^2*d*e^2 + 2*b*e^3)*x^4 + 2*b*d
^2*e + 2*(b*c^2*d^2*e + 2*b*d*e^2)*x^2)*sqrt(-c^2*d*e - e^2)*log((c^2*e*x^2
 - c^2*d + 2*sqrt(-c^2*d*e - e^2)*sqrt(c^2*x^2 - 1) - 2*e)/(e*x^2 + d)) + 4
*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2 + 2*(b*c^4*d^3*e + 2*b*c^2*d^2*e^2
+ b*d*e^3)*x^2)*arcsec(c*x) - 8*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2 + (b
*c^4*d^2*e^2 + 2*b*c^2*d*e^3 + b*e^4)*x^4 + 2*(b*c^4*d^3*e + 2*b*c^2*d^2*e^
2 + b*d*e^3)*x^2)*arctan(-c*x + sqrt(c^2*x^2 - 1)) - 2*(b*c^2*d^3*e + b*d^2
*e^2 + (b*c^2*d^2*e^2 + b*d*e^3)*x^2)*sqrt(c^2*x^2 - 1))/(c^4*d^5*e^2 + 2*c
^2*d^4*e^3 + d^3*e^4 + (c^4*d^3*e^4 + 2*c^2*d^2*e^5 + d*e^6)*x^4 + 2*(c^4*d
^4*e^3 + 2*c^2*d^3*e^4 + d^2*e^5)*x^2), -1/8*(2*a*c^4*d^4 + 4*a*c^2*d^3*e +
 2*a*d^2*e^2 + 4*(a*c^4*d^3*e + 2*a*c^2*d^2*e^2 + a*d*e^3)*x^2 + (b*c^2*d^3
 + (b*c^2*d*e^2 + 2*b*e^3)*x^4 + 2*b*d^2*e + 2*(b*c^2*d^2*e + 2*b*d*e^2)*x^
2)*sqrt(c^2*d*e + e^2)*arctan(sqrt(c^2*d*e + e^2)*sqrt(c^2*x^2 - 1)/(c^2*d
+ e)) + 2*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2 + 2*(b*c^4*d^3*e + 2*b*c^2
*d^2*e^2 + b*d*e^3)*x^2)*arcsec(c*x) - 4*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2
*e^2 + (b*c^4*d^2*e^2 + 2*b*c^2*d*e^3 + b*e^4)*x^4 + 2*(b*c^4*d^3*e + 2*b*c
^2*d^2*e^2 + b*d*e^3)*x^2)*arctan(-c*x + sqrt(c^2*x^2 - 1)) - (b*c^2*d^3*e
+ b*d^2*e^2 + (b*c^2*d^2*e^2 + b*d*e^3)*x^2)*sqrt(c^2*x^2 - 1))/(c^4*d^5*e^
2 + 2*c^2*d^4*e^3 + d^3*e^4 + (c^4*d^3*e^4 + 2*c^2*d^2*e^5 + d*e^6)*x^4 + 2
*(c^4*d^4*e^3 + 2*c^2*d^3*e^4 + d^2*e^5)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx)+a)x^3}{(ex^2+d)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/(e*x^2 + d)^3, x)
```

3.106 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx$

Optimal. Leaf size=193

$$-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{bcx\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{4d^2e\sqrt{c^2x^2}}-\frac{bcx\left(3c^2d+2e\right)\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{8d^2\sqrt{e}\sqrt{c^2x^2}\left(c^2d+e\right)^{3/2}}-\frac{bcx\sqrt{c^2x^2-1}}{8d\sqrt{c^2x^2}\left(c^2d+e\right)\left(d+ex^2\right)}$$

```
[Out] -(b*c*x*Sqrt[-1 + c^2*x^2])/(8*d*(c^2*d + e)*Sqrt[c^2*x^2]*(d + e*x^2)) - (
a + b*ArcSec[c*x])/(4*e*(d + e*x^2)^2) + (b*c*x*ArcTan[Sqrt[-1 + c^2*x^2]])
/(4*d^2*e*Sqrt[c^2*x^2]) - (b*c*(3*c^2*d + 2*e)*x*ArcTan[(Sqrt[e]*Sqrt[-1 +
 c^2*x^2])/Sqrt[c^2*d + e]])/(8*d^2*Sqrt[e]*(c^2*d + e)^(3/2)*Sqrt[c^2*x^2]
)
```

Rubi [A] time = 0.18969, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.316, Rules used = {5236, 446, 103, 156, 63, 205}

$$-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{bcx\tan^{-1}\left(\sqrt{c^2x^2-1}\right)}{4d^2e\sqrt{c^2x^2}}-\frac{bcx\left(3c^2d+2e\right)\tan^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2d+e}}\right)}{8d^2\sqrt{e}\sqrt{c^2x^2}\left(c^2d+e\right)^{3/2}}-\frac{bcx\sqrt{c^2x^2-1}}{8d\sqrt{c^2x^2}\left(c^2d+e\right)\left(d+ex^2\right)}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] -(b*c*x*Sqrt[-1 + c^2*x^2])/(8*d*(c^2*d + e)*Sqrt[c^2*x^2]*(d + e*x^2)) - (
a + b*ArcSec[c*x])/(4*e*(d + e*x^2)^2) + (b*c*x*ArcTan[Sqrt[-1 + c^2*x^2]])
/(4*d^2*e*Sqrt[c^2*x^2]) - (b*c*(3*c^2*d + 2*e)*x*ArcTan[(Sqrt[e]*Sqrt[-1 +
 c^2*x^2])/Sqrt[c^2*d + e]])/(8*d^2*Sqrt[e]*(c^2*d + e)^(3/2)*Sqrt[c^2*x^2]
)
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 103

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_
))^(p_.), x_Symbol] :> Simp[(b*(a + b*x)^(m + 1)*(c + d*x)^(n + 1)*(e + f*x
)^(p + 1))/((m + 1)*(b*c - a*d)*(b*e - a*f)), x] + Dist[1/((m + 1)*(b*c - a
*d)*(b*e - a*f)), Int[(a + b*x)^(m + 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*
(m + 1) - b*(d*e*(m + n + 2) + c*f*(m + p + 2)) - b*d*f*(m + n + p + 3)*x,
x], x], x] /; FreeQ[{a, b, c, d, e, f, n, p}, x] && LtQ[m, -1] && IntegerQ[
```

```
m] && (IntegerQ[n] || IntegersQ[2*n, 2*p])
```

Rule 156

```
Int[(((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_)))/(((a_.) + (b_.)*(x_))*
((c_.) + (d_.)*(x_))), x_Symbol] :> Dist[(b*g - a*h)/(b*c - a*d), Int[(e +
f*x)^p/(a + b*x), x], x] - Dist[(d*g - c*h)/(b*c - a*d), Int[(e + f*x)^p/(c
 + d*x), x], x] /; FreeQ[{a, b, c, d, e, f, g, h}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rubi steps

$$\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx = -\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{(bcx)\int \frac{1}{x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^2}\,dx}{4e\sqrt{c^2x^2}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}(d+ex)^2}\,dx,x,x^2\right)}{8e\sqrt{c^2x^2}}$$

$$= -\frac{bcx\sqrt{-1+c^2x^2}}{8d\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}-\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{-c^2d-e+\frac{1}{2}c^2ex}{x\sqrt{-1+c^2x}(d+ex)}\,dx,x,x^2\right)}{8de\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$= -\frac{bcx\sqrt{-1+c^2x^2}}{8d\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}}\,dx,x,x^2\right)}{8d^2e\sqrt{c^2x^2}}-\ldots$$

$$= -\frac{bcx\sqrt{-1+c^2x^2}}{8d\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{(bx)\,\mathrm{Subst}\left(\int \frac{1}{\frac{1}{c^2}+\frac{x^2}{c^2}}\,dx,x,\sqrt{-1+c^2x^2}\right)}{4cd^2e\sqrt{c^2x^2}}\ldots$$

$$= -\frac{bcx\sqrt{-1+c^2x^2}}{8d\left(c^2d+e\right)\sqrt{c^2x^2}\left(d+ex^2\right)}-\frac{a+b\sec^{-1}(cx)}{4e\left(d+ex^2\right)^2}+\frac{bcx\tan^{-1}\left(\sqrt{-1+c^2x^2}\right)}{4d^2e\sqrt{c^2x^2}}-\frac{bc\left(3c^2d+\ldots\right.}{8d^2\sqrt{e}\ldots}$$

Mathematica [C] time = 0.877326, size = 386, normalized size = 2.

$$\frac{1}{16}\left(-\frac{4a}{e\left(d+ex^2\right)^2}-\frac{b\left(3c^2d+2e\right)\log\left(-\frac{16d^2\sqrt{e}\sqrt{c^2(-d)-e}\left(\sqrt{e}+cx\left(-\sqrt{1-\frac{1}{c^2x^2}}\sqrt{c^2(-d)-e}+ic\sqrt{d}\right)\right)}{b\left(3c^2d+2e\right)\left(\sqrt{e}x+i\sqrt{d}\right)}\right)}{d^2\sqrt{e}\left(c^2(-d)-e\right)^{3/2}}-\frac{b\left(3c^2d+2e\right)\log\left(\frac{16id^2\sqrt{e}\sqrt{c^2(-\ldots}}{\ldots}\right.}{d^2\sqrt{e}\left(c\ldots\right.}\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] ((-4*a)/(e*(d + e*x^2)^2) - (2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x)/(d*(c^2*d + e)*
(d + e*x^2)) - (4*b*ArcSec[c*x])/(e*(d + e*x^2)^2) - (4*b*ArcSin[1/(c*x)])/
(d^2*e) - (b*(3*c^2*d + 2*e)*Log[(-16*d^2*Sqrt[-(c^2*d) - e]*Sqrt[e]*(Sqrt[
e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(b*(3*c
^2*d + 2*e)*(I*Sqrt[d] + Sqrt[e]*x))])/(d^2*(-(c^2*d) - e)^(3/2)*Sqrt[e]) -
 (b*(3*c^2*d + 2*e)*Log[((16*I)*d^2*Sqrt[-(c^2*d) - e]*Sqrt[e]*(-Sqrt[e] +
c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(b*(3*c^2*d
+ 2*e)*(Sqrt[d] + I*Sqrt[e]*x))])/(d^2*(-(c^2*d) - e)^(3/2)*Sqrt[e]))/16
```

Maple [B] time = 0.262, size = 1840, normalized size = 9.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^3,x)
```

```
[Out] -1/4*c^4*a/e/(c^2*e*x^2+c^2*d)^2-1/4*c^4*b/e/(c^2*e*x^2+c^2*d)^2*arcsec(c*x
)+1/4*c^3*b*(c^2*x^2-1)^(1/2)*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d/(c^2*d+e)/(
e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2
))+1/4*c^3*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(c^2*d+e)/(e*c
*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2))-
3/16*c^3*b*(c^2*x^2-1)^(1/2)*e/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d/(-(c^2*d+e)/
e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(-2
*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+
(-c^2*e*d)^(1/2)))-3/16*c^3*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)
/x/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*
d)^(1/2))*ln(-2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*
c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))-3/16*c^3*b*(c^2*x^2-1)^(1/2)*e/((c^2*x^2-
1)/c^2/x^2)^(1/2)*x/d/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-c^2*e*d)^(1/2
))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e
-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))-3/16*c^3*b*(c^2*x^2-1)^(
1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/(-(c^2*d+e)/e)^(1/2)/(c^2*d+e)/(e*c*x+(-
c^2*e*d)^(1/2))/(-e*c*x+(-c^2*e*d)^(1/2))*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x
^2-1)^(1/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))+1/4*c*b*(c^
2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d^2/(c^2*d+e)/(-e*c*x+(-c^2*e*
d)^(1/2))/(e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2))*e^2+1/4*c*b*
(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/(c^2*d+e)/(-e*c*x+(-c^2*e
*d)^(1/2))/(e*c*x+(-c^2*e*d)^(1/2))*arctan(1/(c^2*x^2-1)^(1/2))*e+1/8*c^3*b
/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d/(c^2*d+e)/(-e*c*x+(-c^2*e*d)^(1/2))/(e*c*x
+(-c^2*e*d)^(1/2))*e-1/8*c*b/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/(c^2*d+e)/(-e*
c*x+(-c^2*e*d)^(1/2))/(e*c*x+(-c^2*e*d)^(1/2))*e-1/8*c*b*(c^2*x^2-1)^(1/2)/
((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d^2/(c^2*d+e)/(-e*c*x+(-c^2*e*d)^(1/2))/(-(c^
2*d+e)/e)^(1/2)/(e*c*x+(-c^2*e*d)^(1/2))*ln(-2*((-(c^2*d+e)/e)^(1/2)*(c^2*x
^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^(1/2)))*e^2-1/8*c*
b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)/x/d/(c^2*d+e)/(-e*c*x+(-c^2
*e*d)^(1/2))/(-(c^2*d+e)/e)^(1/2)/(e*c*x+(-c^2*e*d)^(1/2))*ln(-2*((-(c^2*d+
e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e+(-c^2*e*d)^(1/2)*c*x-e)/(-e*c*x+(-c^2*e*d)^
(1/2)))*e-1/8*c*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)^(1/2)*x/d^2/(c^2*
d+e)/(-e*c*x+(-c^2*e*d)^(1/2))/(-(c^2*d+e)/e)^(1/2)/(e*c*x+(-c^2*e*d)^(1/2)
)*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)^(1/2)*c*x-e)/(e
*c*x+(-c^2*e*d)^(1/2)))*e^2-1/8*c*b*(c^2*x^2-1)^(1/2)/((c^2*x^2-1)/c^2/x^2)
^(1/2)/x/d/(c^2*d+e)/(-e*c*x+(-c^2*e*d)^(1/2))/(-(c^2*d+e)/e)^(1/2)/(e*c*x+
```

```
(-c^2*e*d)^(1/2))*ln(2*((-(c^2*d+e)/e)^(1/2)*(c^2*x^2-1)^(1/2)*e-(-c^2*e*d)
^(1/2)*c*x-e)/(e*c*x+(-c^2*e*d)^(1/2)))*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{\left(\left(c^2e^3x^4+2\,c^2de^2x^2+c^2d^2e\right)\int \frac{xe^{\left(\frac{1}{2}\,\log(cx+1)+\frac{1}{2}\,\log(cx-1)\right)}}{c^2e^3x^6+\left(2\,c^2de^2-e^3\right)x^4+\left(c^2e^3x^6+\left(2\,c^2de^2-e^3\right)x^4-d^2e+\left(c^2d^2e-2\,de^2\right)x^2\right)(cx+1)(cx-1)-d^2e+\left(c^2d^2e-2\,de^2\right)x^2}\,dx -}{4\left(e^3x^4+2\,de^2x^2+d^2e\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] 1/4*(4*(c^2*e^3*x^4 + 2*c^2*d*e^2*x^2 + c^2*d^2*e)*integrate(1/4*x*e^(1/2*l
og(c*x + 1) + 1/2*log(c*x - 1))/(c^2*e^3*x^6 + (2*c^2*d*e^2 - e^3)*x^4 - d^
2*e + (c^2*d^2*e - 2*d*e^2)*x^2 + (c^2*e^3*x^6 + (2*c^2*d*e^2 - e^3)*x^4 -
d^2*e + (c^2*d^2*e - 2*d*e^2)*x^2)*e^(log(c*x + 1) + log(c*x - 1))), x) - a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1)))*b/(e^3*x^4 + 2*d*e^2*x^2 + d^2*e) - 1/4
*a/(e^3*x^4 + 2*d*e^2*x^2 + d^2*e)
```

Fricas [B] time = 5.00913, size = 1839, normalized size = 9.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] [-1/16*(4*a*c^4*d^4 + 8*a*c^2*d^3*e + 4*a*d^2*e^2 + (3*b*c^2*d^3 + (3*b*c^2
*d*e^2 + 2*b*e^3)*x^4 + 2*b*d^2*e + 2*(3*b*c^2*d^2*e + 2*b*d*e^2)*x^2)*sqrt
(-c^2*d*e - e^2)*log((c^2*e*x^2 - c^2*d + 2*sqrt(-c^2*d*e - e^2)*sqrt(c^2*x
^2 - 1) - 2*e)/(e*x^2 + d)) + 4*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2)*arc
sec(c*x) - 8*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2 + (b*c^4*d^2*e^2 + 2*b*
c^2*d*e^3 + b*e^4)*x^4 + 2*(b*c^4*d^3*e + 2*b*c^2*d^2*e^2 + b*d*e^3)*x^2)*a
rctan(-c*x + sqrt(c^2*x^2 - 1)) + 2*(b*c^2*d^3*e + b*d^2*e^2 + (b*c^2*d^2*e
^2 + b*d*e^3)*x^2)*sqrt(c^2*x^2 - 1))/(c^4*d^6*e + 2*c^2*d^5*e^2 + d^4*e^3
+ (c^4*d^4*e^3 + 2*c^2*d^3*e^4 + d^2*e^5)*x^4 + 2*(c^4*d^5*e^2 + 2*c^2*d^4*
e^3 + d^3*e^4)*x^2), -1/8*(2*a*c^4*d^4 + 4*a*c^2*d^3*e + 2*a*d^2*e^2 + (3*b
*c^2*d^3 + (3*b*c^2*d*e^2 + 2*b*e^3)*x^4 + 2*b*d^2*e + 2*(3*b*c^2*d^2*e + 2
*b*d*e^2)*x^2)*sqrt(c^2*d*e + e^2)*arctan(sqrt(c^2*d*e + e^2)*sqrt(c^2*x^2
- 1)/(c^2*d + e)) + 2*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2)*arcsec(c*x) -
 4*(b*c^4*d^4 + 2*b*c^2*d^3*e + b*d^2*e^2 + (b*c^4*d^2*e^2 + 2*b*c^2*d*e^3
+ b*e^4)*x^4 + 2*(b*c^4*d^3*e + 2*b*c^2*d^2*e^2 + b*d*e^3)*x^2)*arctan(-c*x
 + sqrt(c^2*x^2 - 1)) + (b*c^2*d^3*e + b*d^2*e^2 + (b*c^2*d^2*e^2 + b*d*e^3
)*x^2)*sqrt(c^2*x^2 - 1))/(c^4*d^6*e + 2*c^2*d^5*e^2 + d^4*e^3 + (c^4*d^4*e
^3 + 2*c^2*d^3*e^4 + d^2*e^5)*x^4 + 2*(c^4*d^5*e^2 + 2*c^2*d^4*e^3 + d^3*e^
4)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x}{(ex^2 + d)^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/(e*x^2 + d)^3, x)
```

3.107 $\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^3}\,dx$

Optimal. Leaf size=685

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-}}{\sqrt{c}}\right.}{2d^3}$$

```
[Out] (b*c*e*Sqrt[1 - 1/(c^2*x^2)])/(8*d^2*(c^2*d + e)*(e + d/x^2)*x) + (e^2*(a +
 b*ArcSec[c*x]))/(4*d^3*(e + d/x^2)^2) - (e*(a + b*ArcSec[c*x]))/(d^3*(e +
d/x^2)) + ((I/2)*(a + b*ArcSec[c*x])^2)/(b*d^3) - (b*Sqrt[e]*ArcTan[Sqrt[c^
2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(d^3*Sqrt[c^2*d + e]) + (b*S
qrt[e]*(c^2*d + 2*e)*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)
]*x)])/(8*d^3*(c^2*d + e)^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d^3) - ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*d^3) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] + Sqrt[c^2*d + e])])/(2*d^3) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d^3) + ((I/2)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d^3 +
((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/d^3 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/d^3 + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]
))/(Sqrt[e] + Sqrt[c^2*d + e])])/d^3
```

Rubi [A] time = 1.2912, antiderivative size = 685, normalized size of antiderivative = 1., number of steps used = 28, number of rules used = 11, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.524, Rules used = {5240, 4734, 4730, 382, 377, 205, 4742, 4520, 2190, 2279, 2391}

$$\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{e}-\sqrt{c^2d+e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,-\frac{c\sqrt{-d}e^{i\sec^{-1}(cx)}}{\sqrt{c^2d+e}+\sqrt{e}}\right)}{2d^3}+\frac{ib\text{PolyLog}\left(2,\frac{c\sqrt{-}}{\sqrt{c}}\right.}{2d^3}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^3),x]
```

```
[Out] (b*c*e*Sqrt[1 - 1/(c^2*x^2)])/(8*d^2*(c^2*d + e)*(e + d/x^2)*x) + (e^2*(a +
 b*ArcSec[c*x]))/(4*d^3*(e + d/x^2)^2) - (e*(a + b*ArcSec[c*x]))/(d^3*(e +
d/x^2)) + ((I/2)*(a + b*ArcSec[c*x])^2)/(b*d^3) - (b*Sqrt[e]*ArcTan[Sqrt[c^
2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)])/(d^3*Sqrt[c^2*d + e]) + (b*S
qrt[e]*(c^2*d + 2*e)*ArcTan[Sqrt[c^2*d + e]/(c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)
]*x)])/(8*d^3*(c^2*d + e)^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(2*d^3) - ((a + b*ArcSec[
c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/
(2*d^3) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt
[e] + Sqrt[c^2*d + e])])/(2*d^3) - ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]
*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(2*d^3) + ((I/2)*b*PolyLo
g[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/d^3 +
((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/d^3 + ((I/2)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
```

```
 Sqrt[c^2*d + e]))])/d^3 + ((I/2)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]
))/(Sqrt[e] + Sqrt[c^2*d + e])])/d^3
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4730

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))*(x_)*((d_) + (e_.)*(x_)^2)^(p_.), x_
Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcCos[c*x]))/(2*e*(p + 1)), x]
 + Dist[(b*c)/(2*e*(p + 1)), Int[(d + e*x^2)^(p + 1)/Sqrt[1 - c^2*x^2], x],
 x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[c^2*d + e, 0] && NeQ[p, -1]
```

Rule 382

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_))^(q_), x_Symbol]
:> -Simp[(b*x*(a + b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*n*(p + 1)*(b*c -
a*d)), x] + Dist[(b*c + n*(p + 1)*(b*c - a*d))/(a*n*(p + 1)*(b*c - a*d)), I
nt[(a + b*x^n)^(p + 1)*(c + d*x^n)^q, x], x] /; FreeQ[{a, b, c, d, n, q}, x
] && NeQ[b*c - a*d, 0] && EqQ[n*(p + q + 2) + 1, 0] && (LtQ[p, -1] ||  !LtQ
[q, -1]) && NeQ[p, -1]
```

Rule 377

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)/((c_) + (d_.)*(x_)^(n_)), x_Symbol] :> Su
bst[Int[1/(c - (b*c - a*d)*x^n), x], x, x/(a + b*x^n)^(1/n)] /; FreeQ[{a, b
, c, d}, x] && NeQ[b*c - a*d, 0] && EqQ[n*p + 1, 0] && IntegerQ[n]
```

Rule 205

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[a/b, 2]*ArcTan[x/Rt[a
/b, 2]])/a, x] /; FreeQ[{a, b}, x] && PosQ[a/b]
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^3}\,dx = -\operatorname{Subst}\left(\int \frac{x^5\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^3}\,dx, x, \frac{1}{x}\right)$$

$$= -\operatorname{Subst}\left(\int\left(\frac{e^2x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)^3} - \frac{2ex\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)^2} + \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\operatorname{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d^2} + \frac{(2e)\operatorname{Subst}\left(\int \frac{x\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)}{d^2} - \frac{e^2\operatorname{Subst}\left(\int \frac{x\left(a+b\cos\right.}{\left(e+dx\right.}\right.}{d^2}$$

$$= \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} - \frac{\operatorname{Subst}\left(\int\left(-\frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{\sqrt{-d}\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2d\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx,\right.}{d^2}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} - \frac{\operatorname{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\sqrt{e}-\sqrt{-d}x}\,dx, x\right.}{2(-d)^{5/2}}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} - \frac{b\sqrt{e}\tan^{-1}\left(\frac{\sqrt{c^2d+e}}{c\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}x}\right)}{d^3\sqrt{c^2d+e}} -$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^3} - \frac{b\sqrt{e}}{}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^3} - \frac{b\sqrt{e}}{}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^3} - \frac{b\sqrt{e}}{}$$

$$= \frac{bce\sqrt{1-\frac{1}{c^2x^2}}}{8d^2\left(c^2d+e\right)\left(e+\frac{d}{x^2}\right)x} + \frac{e^2\left(a+b\sec^{-1}(cx)\right)}{4d^3\left(e+\frac{d}{x^2}\right)^2} - \frac{e\left(a+b\sec^{-1}(cx)\right)}{d^3\left(e+\frac{d}{x^2}\right)} + \frac{i\left(a+b\sec^{-1}(cx)\right)^2}{2bd^3} - \frac{b\sqrt{e}}{}$$

Mathematica [F] time = 50.1005, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^3),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^3), x]
```

Maple [C] time = 1.949, size = 5373, normalized size = 7.8

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d)^3,x)
```

```
[Out] result too large to display
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{4}\,a\left(\frac{2\,ex^2+3\,d}{d^2e^2x^4+2\,d^3ex^2+d^4}-\frac{2\,\log\left(ex^2+d\right)}{d^3}+\frac{4\,\log\left(x\right)}{d^3}\right)+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{e^3x^7+3\,de^2x^5+3\,d^2ex^3+d^3x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] 1/4*a*((2*e*x^2 + 3*d)/(d^2*e^2*x^4 + 2*d^3*e*x^2 + d^4) - 2*log(e*x^2 + d)
/d^3 + 4*log(x)/d^3) + b*integrate(arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(e^3
*x^7 + 3*d*e^2*x^5 + 3*d^2*e*x^3 + d^3*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\text{arcsec}\left(cx\right)+a}{e^3x^7+3\,de^2x^5+3\,d^2ex^3+d^3x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e^3*x^7 + 3*d*e^2*x^5 + 3*d^2*e*x^3 + d^3*x),
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\left(ex^2 + d\right)^3 x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^3*x), x)
```

3.108 $\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx$

Optimal. Leaf size=1124

result too large to display

```
[Out] (b*c*Sqrt[-d]*Sqrt[1 - 1/(c^2*x^2)])/(16*e^(3/2)*(c^2*d + e)*(Sqrt[-d]*Sqrt
[e] - d/x)) + (b*c*Sqrt[-d]*Sqrt[1 - 1/(c^2*x^2)])/(16*e^(3/2)*(c^2*d + e)*
(Sqrt[-d]*Sqrt[e] + d/x)) + (Sqrt[-d]*(a + b*ArcSec[c*x]))/(16*e^(3/2)*(Sqr
t[-d]*Sqrt[e] - d/x)^2) + (3*(a + b*ArcSec[c*x]))/(16*e^2*(Sqrt[-d]*Sqrt[e]
 - d/x)) - (Sqrt[-d]*(a + b*ArcSec[c*x]))/(16*e^(3/2)*(Sqrt[-d]*Sqrt[e] + d
/x)^2) - (3*(a + b*ArcSec[c*x]))/(16*e^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*Arc
Tanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(
c^2*x^2)])])/(16*Sqrt[d]*e*(c^2*d + e)^(3/2)) + (3*b*ArcTanh[(c^2*d - (Sqrt
[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sq
rt[d]*e^2*Sqrt[c^2*d + e]) + (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*S
qrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sqrt[d]*e*(c^2*d + e)^(
3/2)) + (3*b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d +
 e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sqrt[d]*e^2*Sqrt[c^2*d + e]) + (3*(a + b*A
rcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/(16*Sqrt[-d]*e^(5/2)) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*Sqrt[-d]*e^(5/2)) + (3*(
a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c
^2*d + e])])/(16*Sqrt[-d]*e^(5/2)) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*Sqrt[-d]*e^(5/2))
 + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqr
t[c^2*d + e]))])/(Sqrt[-d]*e^(5/2)) - (((3*I)/16)*b*PolyLog[2, (c*Sqrt[-d]*
E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(5/2)) + (((3*
I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d
+ e]))])/(Sqrt[-d]*e^(5/2)) - (((3*I)/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(5/2))
```

Rubi [A] time = 1.58321, antiderivative size = 1124, normalized size of antiderivative = 1., number of steps used = 35, number of rules used = 11, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.524, Rules used = {5240, 4668, 4744, 731, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$\frac{b\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}c}{16e^{3/2}\left(dc^2+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{b\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}c}{16e^{3/2}\left(dc^2+e\right)\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}+\frac{3\left(a+b\sec^{-1}(cx)\right)}{16e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}-\frac{3\left(a+b\sec^{-1}(cx)\right)}{16e^2\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}+\frac{\sqrt{-d}\left(a\cdots\right.}{16e^{3/2}\left(\cdots\right.}$$

Antiderivative was successfully verified.

```
[In] Int[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] (b*c*Sqrt[-d]*Sqrt[1 - 1/(c^2*x^2)])/(16*e^(3/2)*(c^2*d + e)*(Sqrt[-d]*Sqrt
[e] - d/x)) + (b*c*Sqrt[-d]*Sqrt[1 - 1/(c^2*x^2)])/(16*e^(3/2)*(c^2*d + e)*
(Sqrt[-d]*Sqrt[e] + d/x)) + (Sqrt[-d]*(a + b*ArcSec[c*x]))/(16*e^(3/2)*(Sqr
t[-d]*Sqrt[e] - d/x)^2) + (3*(a + b*ArcSec[c*x]))/(16*e^2*(Sqrt[-d]*Sqrt[e]
 - d/x)) - (Sqrt[-d]*(a + b*ArcSec[c*x]))/(16*e^(3/2)*(Sqrt[-d]*Sqrt[e] + d
/x)^2) - (3*(a + b*ArcSec[c*x]))/(16*e^2*(Sqrt[-d]*Sqrt[e] + d/x)) + (b*Arc
Tanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(
c^2*x^2)])])/(16*Sqrt[d]*e*(c^2*d + e)^(3/2)) + (3*b*ArcTanh[(c^2*d - (Sqrt
[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sq
```

```
rt[d]*e^2*Sqrt[c^2*d + e]) + (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*S
qrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sqrt[d]*e*(c^2*d + e)^(
3/2)) + (3*b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d +
 e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*Sqrt[d]*e^2*Sqrt[c^2*d + e]) + (3*(a + b*A
rcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/(16*Sqrt[-d]*e^(5/2)) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^
(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*Sqrt[-d]*e^(5/2)) + (3*(
a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c
^2*d + e])])/(16*Sqrt[-d]*e^(5/2)) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt
[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*Sqrt[-d]*e^(5/2))
 + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqr
t[c^2*d + e]))])/(Sqrt[-d]*e^(5/2)) - (((3*I)/16)*b*PolyLog[2, (c*Sqrt[-d]*
E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(5/2)) + (((3*
I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d
+ e]))])/(Sqrt[-d]*e^(5/2)) - (((3*I)/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*Arc
Sec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(Sqrt[-d]*e^(5/2))
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 731

```
Int[((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :> Simp[
(e*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*d^2 + a*e^2)), x] + D
ist[(c*d)/(c*d^2 + a*e^2), Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] /; F
reeQ[{a, c, d, e, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ[m + 2*p + 3, 0]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{x^4 \left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx = -\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^3}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int \left(-\frac{d^3\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{8(-d)^{3/2}e^{3/2}\left(\sqrt{-d}\sqrt{e}-dx\right)^3} - \frac{3d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{16e^2\left(\sqrt{-d}\sqrt{e}-dx\right)^2} - \frac{d^3\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{8(-d)^{3/2}e^{3/2}\left(\sqrt{-d}\sqrt{e}+\right.}\right.\right.$$

$$= \frac{(3d)\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}-dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16e^2} + \frac{(3d)\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}+dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16e^2} + \frac{(3d)\,\text{Subst}\left(\int \right.}{}$$

$$= \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3\left(a+b\sec^{-1}(cx)\right)}{16e^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)^2} - \frac{3\left(a+b\sec^{-1}(cx)\right)}{16e^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

$$= \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{-d}\sqrt{1-\frac{1}{c^2x^2}}}{16e^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{-d}\left(a+b\sec^{-1}(cx)\right)}{16e^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} + \frac{3}{1}$$

Mathematica [A] time = 6.1773, size = 1819, normalized size = 1.62

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] (a*d*x)/(4*e^2*(d + e*x^2)^2) - (5*a*x)/(8*e^2*(d + e*x^2)) + (3*a*ArcTan[(
Sqrt[e]*x)/Sqrt[d]])/(8*Sqrt[d]*e^(5/2)) + b*((5*(-(ArcSec[c*x]/(I*Sqrt[d]*
Sqrt[e] + e*x)) + (I*(ArcSin[1/(c*x)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(Sqr
t[e] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt
[-(c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/(16
*e^2) + (5*(-(ArcSec[c*x]/((-I)*Sqrt[d]*Sqrt[e] + e*x)) - (I*(ArcSin[1/(c*x
)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2
*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e
]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/(16*e^2) + ((I/16)*Sqrt[d]*(-(ArcSec[
c*x]/(Sqrt[e]*((-I)*Sqrt[d] + Sqrt[e]*x)^2)) + (ArcSin[1/(c*x)]/Sqrt[e] - I
*((c*Sqrt[d]*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)/((c^2*d + e)*((-I)*Sqrt[d] +
Sqrt[e]*x)) + ((2*c^2*d + e)*Log[(-4*d*Sqrt[e]*Sqrt[c^2*d + e]*(I*Sqrt[e] +
 c*(c*Sqrt[d] - Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*(
(-I)*Sqrt[d] + Sqrt[e]*x))])/(c^2*d + e)^(3/2)))/d))/e^2 - ((I/16)*Sqrt[d]*
((I*c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)/(Sqrt[d]*(c^2*d + e)*(I*Sqrt[d] + Sq
rt[e]*x)) - ArcSec[c*x]/(Sqrt[e]*(I*Sqrt[d] + Sqrt[e]*x)^2) + ArcSin[1/(c*x
)]/(d*Sqrt[e]) - (I*(2*c^2*d + e)*Log[(4*d*Sqrt[e]*Sqrt[c^2*d + e]*((-I)*Sq
rt[e] + c*(c*Sqrt[d] + Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d
 + e)*(I*Sqrt[d] + Sqrt[e]*x))])/(d*(c^2*d + e)^(3/2))))/e^2 + (3*(8*ArcSin
[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])
*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[
e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1
 + (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])
*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] +
Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I
*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I
*ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x
])] - 2*PolyLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sq
rt[d])] - 2*PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))
/(c*Sqrt[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(32*Sqrt[d]*e^(5/2)) -
 (3*(8*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sq
rt[d] + Sqrt[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*L
og[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4
*I)*ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e]
+ Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[
1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*
ArcSin[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqr
t[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E
^((2*I)*ArcSec[c*x])] - 2*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*Ar
cSec[c*x]))/(c*Sqrt[d])] - 2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I
*ArcSec[c*x]))/(c*Sqrt[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(32*Sqrt
[d]*e^(5/2)))
```

Maple [C] time = 2.084, size = 3223, normalized size = 2.9

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^3,x)
```

```
[Out] 1/8*c^5*b*x^2/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)/e*((c^2*x^2-1)/c^2/x^2)^(1/2)*d
-3/8*c^4*b*x/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)/e*arcsec(c*x)*d+3/8*a/e^2/(d*e)^
(1/2)*arctan(e*x/(d*e)^(1/2))-5/8*c^4*a/(c^2*e*x^2+c^2*d)^2/e*x^3-3/4*I/c^2
*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c
^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/(c^2*d+e)/
d^2*(e*(c^2*d+e))^(1/2)+5/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^
```

(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1
/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/e/d^2*(e*(c^2*d+e))^(1/2)-5/4*I/c^2*b*((c^2*
d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/
2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2/e/d^2*(e*(c^2*
d+e))^(1/2)+3/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/
2))/e^2/(c^2*d+e)/d^2*(e*(c^2*d+e))^(1/2)+7/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(
e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2/d^2-I/c^4*b*(-(c^2*d-2*(e*(c^
2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^
2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)/d^3+7/4*I/c^2*b*(-(c^2*d
-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/
2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^2-I/c^4*b*(
(c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2
)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)/d^3+3/16*I*
c^3*b/e^2/(c^2*d+e)*d*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R
1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))
/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-3/16*I*c^3*b/e^2/(c
^2*d+e)*d*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*
(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1
=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+3/4*I*b*((c^2*d+2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(
e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e)^2/d-3/8*I*b*(-(c^2*d-2*(e*(c^
2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^
2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/(c^2*d+e)/d+3/4*I*b*(-(c^2*d-2
(e(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2)
)/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)^2/d-3/8*I*b*((c
^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^
(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e^2/(c^2*d+e)/d+3/16*I*
c*b/e/(c^2*d+e)*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/
x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1))
,_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-3/8*c^4*a/(c^2*e*x^2+c^2*
d)^2/e^2*d*x+1/8*c^5*b*x^4/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*((c^2*x^2-1)/c^2/x
^2)^(1/2)-5/8*c^4*b*x^3/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*arcsec(c*x)-3/16*I*c*
b/e/(c^2*d+e)*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/
x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1))
,_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))-3/8*I*b*((c^2*d+2*(e*(c^2
*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d
+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e^2/(c^2*d+e)^2/d*(e*(c^2*d+e))^(1/2)
-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1
-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2
/d^3*(e*(c^2*d+e))^(1/2)-5/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)
^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(
1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)/d^2-5/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/
2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2
*d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e)/d^2-5/8*c^6*b*x^3/(c^2*e*x^2+c^2*d)
^2/(c^2*d+e)/e*arcsec(c*x)*d-3/8*c^6*b*x/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)/e^2*
arcsec(c*x)*d^2+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(
d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/
2))/(c^2*d+e)^2*e/d^3+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*
arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*
e)*d)^(1/2))/(c^2*d+e)^2*e/d^3+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*
d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))
^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^3*(e*(c^2*d+e))^(1/2)+3/8*I*b*(-(c^2*d-
2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2
))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e^2/(c^2*d+e)^2/d*(e*(c^2*
d+e))^(1/2)-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*
c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2
))/e/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2

```
)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*
d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^4\,\text{arcsec}\,(cx)+ax^4}{e^3x^6+3\,de^2x^4+3\,d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] integral((b*x^4*arcsec(c*x) + a*x^4)/(e^3*x^6 + 3*d*e^2*x^4 + 3*d^2*e*x^2 +
 d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(b\,\text{arcsec}\,(cx)+a)x^4}{\left(ex^2+d\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^4/(e*x^2 + d)^3, x)
```

3.109 $\int \frac{x^2(a+b\sec^{-1}(cx))}{(d+ex^2)^3}\,dx$

Optimal. Leaf size=1124

result too large to display

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*Sqrt[-d]*Sqrt[e]*(c^2*d + e)*(Sqrt[-d]*Sqrt
[e] - d/x)) + (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*Sqrt[-d]*Sqrt[e]*(c^2*d + e)*
(Sqrt[-d]*Sqrt[e] + d/x)) + (a + b*ArcSec[c*x])/(16*Sqrt[-d]*Sqrt[e]*(Sqrt[
-d]*Sqrt[e] - d/x)^2) + (a + b*ArcSec[c*x])/(16*d*e*(Sqrt[-d]*Sqrt[e] - d/x
)) - (a + b*ArcSec[c*x])/(16*Sqrt[-d]*Sqrt[e]*(Sqrt[-d]*Sqrt[e] + d/x)^2) -
 (a + b*ArcSec[c*x])/(16*d*e*(Sqrt[-d]*Sqrt[e] + d/x)) - (b*ArcTanh[(c^2*d
- (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])
/(16*d^(3/2)*(c^2*d + e)^(3/2)) + (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)
/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(3/2)*e*Sqrt[c^2
*d + e]) - (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d
+ e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(3/2)*(c^2*d + e)^(3/2)) + (b*ArcTanh[(
c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^
2)])])/(16*d^(3/2)*e*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqr
t[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/
2)) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
- Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 -
 (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(3/2
)*e^(3/2)) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/2)) - ((I/16)*b*PolyLog[2,
-((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/((-d)^(3/2)
*e^(3/2)) + ((I/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
Sqrt[c^2*d + e])])/((-d)^(3/2)*e^(3/2)) - ((I/16)*b*PolyLog[2, -((c*Sqrt[-d
]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/((-d)^(3/2)*e^(3/2)) +
((I/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d +
 e])])/((-d)^(3/2)*e^(3/2))
```

Rubi [A] time = 3.02182, antiderivative size = 1124, normalized size of antiderivative = 1., number of steps used = 63, number of rules used = 12, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.571, Rules used = {5240, 4734, 4668, 4744, 731, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$\frac{b\sqrt{1-\frac{1}{c^2x^2}}c}{16\sqrt{-d}\sqrt{e}\left(dc^2+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{b\sqrt{1-\frac{1}{c^2x^2}}c}{16\sqrt{-d}\sqrt{e}\left(dc^2+e\right)\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}+\frac{a+b\sec^{-1}(cx)}{16de\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}-\frac{a+b\sec^{-1}(cx)}{16de\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}+\frac{}{16}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*Sqrt[-d]*Sqrt[e]*(c^2*d + e)*(Sqrt[-d]*Sqrt
[e] - d/x)) + (b*c*Sqrt[1 - 1/(c^2*x^2)])/(16*Sqrt[-d]*Sqrt[e]*(c^2*d + e)*
(Sqrt[-d]*Sqrt[e] + d/x)) + (a + b*ArcSec[c*x])/(16*Sqrt[-d]*Sqrt[e]*(Sqrt[
-d]*Sqrt[e] - d/x)^2) + (a + b*ArcSec[c*x])/(16*d*e*(Sqrt[-d]*Sqrt[e] - d/x
)) - (a + b*ArcSec[c*x])/(16*Sqrt[-d]*Sqrt[e]*(Sqrt[-d]*Sqrt[e] + d/x)^2) -
 (a + b*ArcSec[c*x])/(16*d*e*(Sqrt[-d]*Sqrt[e] + d/x)) - (b*ArcTanh[(c^2*d
- (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])
/(16*d^(3/2)*(c^2*d + e)^(3/2)) + (b*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)
/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(3/2)*e*Sqrt[c^2
```

```
*d + e]) - (b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d
+ e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(3/2)*(c^2*d + e)^(3/2)) + (b*ArcTanh[(
c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^
2)])])/(16*d^(3/2)*e*Sqrt[c^2*d + e]) - ((a + b*ArcSec[c*x])*Log[1 - (c*Sqr
t[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/
2)) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e]
- Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/2)) - ((a + b*ArcSec[c*x])*Log[1 -
 (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(3/2
)*e^(3/2)) + ((a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(S
qrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(3/2)*e^(3/2)) - ((I/16)*b*PolyLog[2,
-((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e]))])/((-d)^(3/2)
*e^(3/2)) + ((I/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] -
Sqrt[c^2*d + e])])/((-d)^(3/2)*e^(3/2)) - ((I/16)*b*PolyLog[2, -((c*Sqrt[-d
]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e]))])/((-d)^(3/2)*e^(3/2)) +
((I/16)*b*PolyLog[2, (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d +
 e])])/((-d)^(3/2)*e^(3/2))
```

Rule 5240

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*(x_)^(m_.)*((d_.) + (e_.)*(x_)
^2)^(p_.), x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^
(m + 2*(p + 1)), x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0]
&& IntegerQ[m] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 731

```
Int[((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :> Simp[
(e*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*d^2 + a*e^2)), x] + D
ist[(c*d)/(c*d^2 + a*e^2), Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] /; F
reeQ[{a, c, d, e, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ[m + 2*p + 3, 0]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^3}\,dx = -\text{Subst}\left(\int \frac{x^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^3}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(-\frac{e\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d\left(e+dx^2\right)^3}+\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{d\left(e+dx^2\right)^2}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)}{d}+\frac{e\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^3}\,dx, x, \frac{1}{x}\right)}{d}$$

$$= -\frac{\text{Subst}\left(\int\left(-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}-dx\right)^2}-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}+dx\right)^2}-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{2e\left(-de-d^2x^2\right)}\right)dx, x, \frac{1}{x}\right)}{d}+\frac{e\,\text{Subst}\left(\int\left(-\frac{}{8(}\right.\right.}{}$$

$$= -\frac{3\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}-dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16e}-\frac{3\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}+dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16e}+\frac{\text{Subst}\left(\int \frac{a+b\cos}{\left(\sqrt{-d}\sqrt{e}\right.}\right.}{4e}$$

$$= \frac{a+b\sec^{-1}(cx)}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2}+\frac{a+b\sec^{-1}(cx)}{16de\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}-\frac{a+b\sec^{-1}(cx)}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)^2}-\frac{a+b\,\text{se}}{16de\left(\sqrt{-\right.}}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

$$= \frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{bc\sqrt{1-\frac{1}{c^2x^2}}}{16\sqrt{-d}\sqrt{e}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)}+\frac{a+b\sec^{-}}{16\sqrt{-d}\sqrt{e}\left(\sqrt{-}\right.}$$

Mathematica [A] time = 6.11301, size = 1827, normalized size = 1.63

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^3,x]
```

```
[Out] -(a*x)/(4*e*(d + e*x^2)^2) + (a*x)/(8*d*e*(d + e*x^2)) + (a*ArcTan[(Sqrt[e]
*x)/Sqrt[d]])/(8*d^(3/2)*e^(3/2)) + b*(-(-(ArcSec[c*x]/(I*Sqrt[d]*Sqrt[e] +
 e*x)) + (I*(ArcSin[1/(c*x)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e] + c*
(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d)
 - e]*(Sqrt[d] - I*Sqrt[e]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d])/(16*d*e) - (-
(ArcSec[c*x]/((-I)*Sqrt[d]*Sqrt[e] + e*x)) - (I*(ArcSin[1/(c*x)]/Sqrt[e] -
Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d) - e]*Sqrt
[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x))]/Sqrt[-
(c^2*d) - e]))/Sqrt[d])/(16*d*e) - ((I/16)*(-(ArcSec[c*x]/(Sqrt[e]*((-I)*Sq
rt[d] + Sqrt[e]*x)^2)) + (ArcSin[1/(c*x)]/Sqrt[e] - I*((c*Sqrt[d]*Sqrt[e]*S
qrt[1 - 1/(c^2*x^2)]*x)/((c^2*d + e)*((-I)*Sqrt[d] + Sqrt[e]*x)) + ((2*c^2*
d + e)*Log[(-4*d*Sqrt[e]*Sqrt[c^2*d + e]*(I*Sqrt[e] + c*(c*Sqrt[d] - Sqrt[c
^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*((-I)*Sqrt[d] + Sqrt[e]
*x))])/(c^2*d + e)^(3/2)))/d))/(Sqrt[d]*e) + ((I/16)*((I*c*Sqrt[e]*Sqrt[1 -
 1/(c^2*x^2)]*x)/(Sqrt[d]*(c^2*d + e)*(I*Sqrt[d] + Sqrt[e]*x)) - ArcSec[c*x
]/(Sqrt[e]*(I*Sqrt[d] + Sqrt[e]*x)^2) + ArcSin[1/(c*x)]/(d*Sqrt[e]) - (I*(2
*c^2*d + e)*Log[(4*d*Sqrt[e]*Sqrt[c^2*d + e]*((-I)*Sqrt[e] + c*(c*Sqrt[d] +
 Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*(I*Sqrt[d] + Sqr
t[e]*x))])/(d*(c^2*d + e)^(3/2))))/(Sqrt[d]*e) + (8*ArcSin[Sqrt[1 + (I*Sqrt
[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec[c*x]/
2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d +
 e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c
*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]
))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*
E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(c*Sqrt
[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c
*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 2*PolyLog[2
, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 2*PolyL
og[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + P
olyLog[2, -E^((2*I)*ArcSec[c*x])])/(32*d^(3/2)*e^(3/2)) - (8*ArcSin[Sqrt[1
- (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqrt[e])*Tan[
ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(-Sqrt[e] +
 Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 - (
I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^
(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 - (I*(Sqrt[e] + Sqr
t[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 - (I*Sq
rt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*Ar
cSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])]
 - 2*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d
])] - 2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqr
t[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])])/(32*d^(3/2)*e^(3/2)))
```

Maple [C] time = 2.354, size = 2357, normalized size = 2.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^3,x)
```

```
[Out] -1/8*c^6*b*x/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)/e*arcsec(c*x)*d-1/8*c^5*b*x^4/(c
^2*e*x^2+c^2*d)^2*e/(c^2*d+e)/d*((c^2*x^2-1)/c^2/x^2)^(1/2)+1/8*c^4*b*x^3/(
c^2*e*x^2+c^2*d)^2*e/(c^2*d+e)/d*arcsec(c*x)+1/8*I*b*(-(c^2*d-2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2
*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/e/d^2*(e*(c^2*d+e))^(1/2)-1
/8*I*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1
/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2/e
/d^2*(e*(c^2*d+e))^(1/2)+1/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^
(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2
)+2*e)*d)^(1/2))/(c^2*d+e)^2*e/d^3+1/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/
2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c
^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^3*(e*(c^2*d+e))^(1/2)+1/4*I/c^2
*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c
^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2*e/
d^3-1/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c
/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2
*d+e)^2/d^3*(e*(c^2*d+e))^(1/2)+1/8*c^6*b*x^3/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)
*arcsec(c*x)-1/8*c^5*b*x^2/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*((c^2*x^2-1)/c^2/x
^2)^(1/2)-1/8*c^4*b*x/(c^2*e*x^2+c^2*d)^2/(c^2*d+e)*arcsec(c*x)-1/16*I*c*b/
d/(c^2*d+e)*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-
I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_
R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+1/16*I*c*b/d/(c^2*d+e)*sum(
_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1
/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z
^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+1/16*I*c^3*b/e/(c^2*d+e)*sum(_R1/(_R1^2*c^2*d
+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog(
(_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)
*_Z^2+c^2*d))-1/16*I*c^3*b/e/(c^2*d+e)*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I
*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(
1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+
1/4*I*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(
1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)
^2/d^2+1/4*I*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/
x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*
d+e)^2/d^2-1/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh
(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(
1/2))/e/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)+1/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e
))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(
e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e)/d^3*(e*(c^2*d+e))^(1/2)-1/8*I
*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c
^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/e/(c^2*d+e)/d^
2-1/8*I*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(
1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/e/(c^2*d+e
)/d^2-1/4*I/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1
/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c
^2*d+e)/d^3-1/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan
h(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^
(1/2))/(c^2*d+e)/d^3+1/8*c^4*a/(c^2*e*x^2+c^2*d)^2/d*x^3-1/8*c^4*a/(c^2*e*x
^2+c^2*d)^2/e*x+1/8*a/d/e/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^2\,\text{arcsec}\,(cx) + ax^2}{e^3x^6 + 3\,de^2x^4 + 3\,d^2ex^2 + d^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)/(e^3*x^6 + 3*d*e^2*x^4 + 3*d^2*e*x^2 +
 d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\text{arcsec}\,(cx) + a)x^2}{\left(ex^2 + d\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/(e*x^2 + d)^3, x)
```

3.110 $\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^3}\,dx$

Optimal. Leaf size=1114

result too large to display

```
[Out] (b*c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)])/(16*(-d)^(3/2)*(c^2*d + e)*(Sqrt[-d]*Sq
rt[e] - d/x)) + (b*c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)])/(16*(-d)^(3/2)*(c^2*d +
 e)*(Sqrt[-d]*Sqrt[e] + d/x)) + (Sqrt[e]*(a + b*ArcSec[c*x]))/(16*(-d)^(3/2
)*(Sqrt[-d]*Sqrt[e] - d/x)^2) - (5*(a + b*ArcSec[c*x]))/(16*d^2*(Sqrt[-d]*S
qrt[e] - d/x)) - (Sqrt[e]*(a + b*ArcSec[c*x]))/(16*(-d)^(3/2)*(Sqrt[-d]*Sqr
t[e] + d/x)^2) + (5*(a + b*ArcSec[c*x]))/(16*d^2*(Sqrt[-d]*Sqrt[e] + d/x))
+ (b*e*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sq
rt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*(c^2*d + e)^(3/2)) - (5*b*ArcTanh[(c^2*d
 - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]
)/(16*d^(5/2)*Sqrt[c^2*d + e]) + (b*e*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x
)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*(c^2*d +
e)^(3/2)) - (5*b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2
*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*Sqrt[c^2*d + e]) + (3*(a + b*A
rcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/(16*(-d)^(5/2)*Sqrt[e]) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*
E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*(-d)^(5/2)*Sqrt[e]) +
(3*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sq
rt[c^2*d + e])])/(16*(-d)^(5/2)*Sqrt[e]) - (3*(a + b*ArcSec[c*x])*Log[1 + (
c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(5/2)*
Sqrt[e]) + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] - Sqrt[c^2*d + e]))])/((-d)^(5/2)*Sqrt[e]) - (((3*I)/16)*b*PolyLog[2, (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/((-d)^(5/2)*Sqrt
[e]) + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/((-d)^(5/2)*Sqrt[e]) - (((3*I)/16)*b*PolyLog[2, (c*Sqr
t[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/((-d)^(5/2)*Sqrt[e])
```

Rubi [A] time = 3.7913, antiderivative size = 1114, normalized size of antiderivative = 1., number of steps used = 81, number of rules used = 12, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.667, Rules used = {5230, 4734, 4668, 4744, 731, 725, 206, 4742, 4520, 2190, 2279, 2391}

$$\frac{b\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}c}{16(-d)^{3/2}\left(dc^2+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{b\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}c}{16(-d)^{3/2}\left(dc^2+e\right)\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}-\frac{5\left(a+b\sec^{-1}(cx)\right)}{16d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)}+\frac{5\left(a+b\sec^{-1}(cx)\right)}{16d^2\left(\frac{d}{x}+\sqrt{-d}\sqrt{e}\right)}+-\ 1$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x^2)^3,x]
```

```
[Out] (b*c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)])/(16*(-d)^(3/2)*(c^2*d + e)*(Sqrt[-d]*Sq
rt[e] - d/x)) + (b*c*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)])/(16*(-d)^(3/2)*(c^2*d +
 e)*(Sqrt[-d]*Sqrt[e] + d/x)) + (Sqrt[e]*(a + b*ArcSec[c*x]))/(16*(-d)^(3/2
)*(Sqrt[-d]*Sqrt[e] - d/x)^2) - (5*(a + b*ArcSec[c*x]))/(16*d^2*(Sqrt[-d]*S
qrt[e] - d/x)) - (Sqrt[e]*(a + b*ArcSec[c*x]))/(16*(-d)^(3/2)*(Sqrt[-d]*Sqr
t[e] + d/x)^2) + (5*(a + b*ArcSec[c*x]))/(16*d^2*(Sqrt[-d]*Sqrt[e] + d/x))
+ (b*e*ArcTanh[(c^2*d - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sq
rt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*(c^2*d + e)^(3/2)) - (5*b*ArcTanh[(c^2*d
 - (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])]
```

```
)/(16*d^(5/2)*Sqrt[c^2*d + e]) + (b*e*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x
)/(c*Sqrt[d]*Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*(c^2*d +
e)^(3/2)) - (5*b*ArcTanh[(c^2*d + (Sqrt[-d]*Sqrt[e])/x)/(c*Sqrt[d]*Sqrt[c^2
*d + e]*Sqrt[1 - 1/(c^2*x^2)])])/(16*d^(5/2)*Sqrt[c^2*d + e]) + (3*(a + b*A
rcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d +
e])])/(16*(-d)^(5/2)*Sqrt[e]) - (3*(a + b*ArcSec[c*x])*Log[1 + (c*Sqrt[-d]*
E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/(16*(-d)^(5/2)*Sqrt[e]) +
(3*(a + b*ArcSec[c*x])*Log[1 - (c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sq
rt[c^2*d + e])])/(16*(-d)^(5/2)*Sqrt[e]) - (3*(a + b*ArcSec[c*x])*Log[1 + (
c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/(16*(-d)^(5/2)*
Sqrt[e]) + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[
e] - Sqrt[c^2*d + e]))])/((-d)^(5/2)*Sqrt[e]) - (((3*I)/16)*b*PolyLog[2, (c
*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] - Sqrt[c^2*d + e])])/((-d)^(5/2)*Sqrt
[e]) + (((3*I)/16)*b*PolyLog[2, -((c*Sqrt[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] +
 Sqrt[c^2*d + e]))])/((-d)^(5/2)*Sqrt[e]) - (((3*I)/16)*b*PolyLog[2, (c*Sqr
t[-d]*E^(I*ArcSec[c*x]))/(Sqrt[e] + Sqrt[c^2*d + e])])/((-d)^(5/2)*Sqrt[e])
```

Rule 5230

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))^(n_.)*((d_.) + (e_.)*(x_)^2)^(p_.),
x_Symbol] :> -Subst[Int[((e + d*x^2)^p*(a + b*ArcCos[x/c])^n)/x^(2*(p + 1))
, x], x, 1/x] /; FreeQ[{a, b, c, d, e, n}, x] && IGtQ[n, 0] && IntegerQ[p]
```

Rule 4734

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((f_.)*(x_))^(m_.)*((d_) + (e_
.)*(x_)^2)^(p_.), x_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (
f*x)^m*(d + e*x^2)^p, x], x] /; FreeQ[{a, b, c, d, e, f}, x] && NeQ[c^2*d +
 e, 0] && IGtQ[n, 0] && IntegerQ[p] && IntegerQ[m]
```

Rule 4668

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Int[ExpandIntegrand[(a + b*ArcCos[c*x])^n, (d + e*x^2)^p, x], x
] /; FreeQ[{a, b, c, d, e, n}, x] && NeQ[c^2*d + e, 0] && IntegerQ[p] && (G
tQ[p, 0] || IGtQ[n, 0])
```

Rule 4744

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)*((d_) + (e_.)*(x_))^(m_.), x_S
ymbol] :> Simp[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^n)/(e*(m + 1)), x] +
Dist[(b*c*n)/(e*(m + 1)), Int[((d + e*x)^(m + 1)*(a + b*ArcCos[c*x])^(n - 1
))/Sqrt[1 - c^2*x^2], x], x] /; FreeQ[{a, b, c, d, e, m}, x] && IGtQ[n, 0]
&& NeQ[m, -1]
```

Rule 731

```
Int[((d_) + (e_.)*(x_))^(m_)*((a_) + (c_.)*(x_)^2)^(p_), x_Symbol] :> Simp[
(e*(d + e*x)^(m + 1)*(a + c*x^2)^(p + 1))/((m + 1)*(c*d^2 + a*e^2)), x] + D
ist[(c*d)/(c*d^2 + a*e^2), Int[(d + e*x)^(m + 1)*(a + c*x^2)^p, x], x] /; F
reeQ[{a, c, d, e, m, p}, x] && NeQ[c*d^2 + a*e^2, 0] && EqQ[m + 2*p + 3, 0]
```

Rule 725

```
Int[1/(((d_) + (e_.)*(x_))*Sqrt[(a_) + (c_.)*(x_)^2]), x_Symbol] :> -Subst[
Int[1/(c*d^2 + a*e^2 - x^2), x], x, (a*e - c*d*x)/Sqrt[a + c*x^2]] /; FreeQ
[{a, c, d, e}, x]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 4742

```
Int[((a_.) + ArcCos[(c_.)*(x_)]*(b_.))^(n_.)/((d_) + (e_.)*(x_)), x_Symbol]
 :> -Subst[Int[((a + b*x)^n*Sin[x])/(c*d + e*Cos[x]), x], x, ArcCos[c*x]] /
; FreeQ[{a, b, c, d, e}, x] && IGtQ[n, 0]
```

Rule 4520

```
Int[(((e_.) + (f_.)*(x_))^(m_.)*Sin[(c_.) + (d_.)*(x_)])/(Cos[(c_.) + (d_.)
*(x_)]*(b_.) + (a_)), x_Symbol] :> Simp[(I*(e + f*x)^(m + 1))/(b*f*(m + 1))
, x] + (-Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a - Rt[a^2 - b^2, 2] +
b*E^(I*(c + d*x))), x], x] - Dist[I, Int[((e + f*x)^m*E^(I*(c + d*x)))/(a +
 Rt[a^2 - b^2, 2] + b*E^(I*(c + d*x))), x], x]) /; FreeQ[{a, b, c, d, e, f}
, x] && IGtQ[m, 0] && PosQ[a^2 - b^2]
```

Rule 2190

```
Int[(((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)*((c_.) + (d_.)*(x_))^(m_.))/
((a_) + (b_.)*((F_)^((g_.)*((e_.) + (f_.)*(x_))))^(n_.)), x_Symbol] :> Simp
[((c + d*x)^m*Log[1 + (b*(F^(g*(e + f*x)))^n)/a])/(b*f*g*n*Log[F]), x] - Di
st[(d*m)/(b*f*g*n*Log[F]), Int[(c + d*x)^(m - 1)*Log[1 + (b*(F^(g*(e + f*x)
))^n)/a], x], x] /; FreeQ[{F, a, b, c, d, e, f, g, n}, x] && IGtQ[m, 0]
```

Rule 2279

```
Int[Log[(a_) + (b_.)*((F_)^((e_.)*((c_.) + (d_.)*(x_))))^(n_.)], x_Symbol]
:> Dist[1/(d*e*n*Log[F]), Subst[Int[Log[a + b*x]/x, x], x, (F^(e*(c + d*x))
)^n], x] /; FreeQ[{F, a, b, c, d, e, n}, x] && GtQ[a, 0]
```

Rule 2391

```
Int[Log[(c_.)*((d_) + (e_.)*(x_)^(n_.))]/(x_), x_Symbol] :> -Simp[PolyLog[2
, -(c*e*x^n)]/n, x] /; FreeQ[{c, d, e, n}, x] && EqQ[c*d, 1]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^3}\,dx = -\text{Subst}\left(\int \frac{x^4\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{\left(e+dx^2\right)^3}\,dx, x, \frac{1}{x}\right)$$

$$= -\text{Subst}\left(\int\left(\frac{e^2\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)^3} - \frac{2e\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{d^2\left(e+dx^2\right)^2} + \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{d^2\left(e+dx^2\right)}\right)dx, x, \frac{1}{x}\right)$$

$$= -\frac{\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{e+dx^2}\,dx, x, \frac{1}{x}\right)}{d^2} + \frac{(2e)\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^2}\,dx, x, \frac{1}{x}\right)}{d^2} - \frac{e^2\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(e+dx^2\right)^3} \cdots\right)}{d^2}$$

$$= -\frac{\text{Subst}\left(\int\left(\frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}-\sqrt{-d}x\right)} + \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{2\sqrt{e}\left(\sqrt{e}+\sqrt{-d}x\right)}\right)dx, x, \frac{1}{x}\right)}{d^2} + \frac{(2e)\,\text{Subst}\left(\int\left(-\frac{d\left(a+b\cos^{-1}\left(\frac{x}{c}\right)\right)}{4e\left(\sqrt{-d}\sqrt{e}-dx\right)^2} - \frac{d\left(a+b\cos^{-1} \cdots\right.}{4e\left(\sqrt{-d}\sqrt{e}+ \cdots\right.}\right.\right.}{d^2}$$

$$= \frac{3\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}-dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16d} + \frac{3\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{\left(\sqrt{-d}\sqrt{e}+dx\right)^2}\,dx, x, \frac{1}{x}\right)}{16d} + \frac{3\,\text{Subst}\left(\int \frac{a+b\cos^{-1}\left(\frac{x}{c}\right)}{-de-d^2x^2}\,dx, \cdots\right)}{8d}$$

$$= \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} - \frac{5\left(a+b\sec^{-1}(cx)\right)}{16d^2\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} - \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)^2} + \frac{5\left(a+b\sec^{-1}(cx)\right)}{16d^2\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

$$= \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)} + \frac{bc\sqrt{e}\sqrt{1-\frac{1}{c^2x^2}}}{16(-d)^{3/2}\left(c^2d+e\right)\left(\sqrt{-d}\sqrt{e}+\frac{d}{x}\right)} + \frac{\sqrt{e}\left(a+b\sec^{-1}(cx)\right)}{16(-d)^{3/2}\left(\sqrt{-d}\sqrt{e}-\frac{d}{x}\right)^2} \cdots$$

Mathematica [A] time = 6.05491, size = 1812, normalized size = 1.63

result too large to display

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x^2)^3,x]
```

```
[Out] (a*x)/(4*d*(d + e*x^2)^2) + (3*a*x)/(8*d^2*(d + e*x^2)) + (3*a*ArcTan[(Sqrt
[e]*x)/Sqrt[d]])/(8*d^(5/2)*Sqrt[e]) + b*((-3*(-(ArcSec[c*x]/(I*Sqrt[d]*Sqr
t[e] + e*x)) + (I*(ArcSin[1/(c*x)]/Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(Sqrt[e
] + c*(I*c*Sqrt[d] - Sqrt[-(c^2*d) - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(
c^2*d) - e]*(Sqrt[d] - I*Sqrt[e]*x))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/(16*d^
2) - (3*(-(ArcSec[c*x]/((-I)*Sqrt[d]*Sqrt[e] + e*x)) - (I*(ArcSin[1/(c*x)]/
Sqrt[e] - Log[(2*Sqrt[d]*Sqrt[e]*(-Sqrt[e] + c*(I*c*Sqrt[d] + Sqrt[-(c^2*d)
 - e]*Sqrt[1 - 1/(c^2*x^2)])*x))/(Sqrt[-(c^2*d) - e]*(Sqrt[d] + I*Sqrt[e]*x
))]/Sqrt[-(c^2*d) - e]))/Sqrt[d]))/(16*d^2) + ((I/16)*(-(ArcSec[c*x]/(Sqrt[
e]*((-I)*Sqrt[d] + Sqrt[e]*x)^2)) + (ArcSin[1/(c*x)]/Sqrt[e] - I*((c*Sqrt[d
]*Sqrt[e]*Sqrt[1 - 1/(c^2*x^2)]*x)/((c^2*d + e)*((-I)*Sqrt[d] + Sqrt[e]*x))
 + ((2*c^2*d + e)*Log[(-4*d*Sqrt[e]*Sqrt[c^2*d + e]*(I*Sqrt[e] + c*(c*Sqrt[
d] - Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*((-I)*Sqrt[d
] + Sqrt[e]*x))])/(c^2*d + e)^(3/2)))/d))/d^(3/2) - ((I/16)*((I*c*Sqrt[e]*S
qrt[1 - 1/(c^2*x^2)]*x)/(Sqrt[d]*(c^2*d + e)*(I*Sqrt[d] + Sqrt[e]*x)) - Arc
Sec[c*x]/(Sqrt[e]*(I*Sqrt[d] + Sqrt[e]*x)^2) + ArcSin[1/(c*x)]/(d*Sqrt[e])
- (I*(2*c^2*d + e)*Log[(4*d*Sqrt[e]*Sqrt[c^2*d + e]*((-I)*Sqrt[e] + c*(c*Sq
rt[d] + Sqrt[c^2*d + e]*Sqrt[1 - 1/(c^2*x^2)])*x))/((2*c^2*d + e)*(I*Sqrt[d
] + Sqrt[e]*x))])/(d*(c^2*d + e)^(3/2))))/d^(3/2) + (3*(8*ArcSin[Sqrt[1 + (
I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[((I*c*Sqrt[d] + Sqrt[e])*Tan[ArcSec
[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] - Sqrt[c
^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[
e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSe
c[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d
+ e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt[1 + (I*Sqrt[e])/(
c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x
]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*ArcSec[c*x])] - 2*Pol
yLog[2, (I*(-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - 2
*PolyLog[2, ((-I)*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d]
)] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(32*d^(5/2)*Sqrt[e]) - (3*(8*ArcS
in[Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*ArcTan[(((-I)*c*Sqrt[d] + Sqr
t[e])*Tan[ArcSec[c*x]/2])/Sqrt[c^2*d + e]] - (2*I)*ArcSec[c*x]*Log[1 + (I*(
-Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (4*I)*ArcSin[
Sqrt[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 + (I*(-Sqrt[e] + Sqrt[c^2*
d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] - (2*I)*ArcSec[c*x]*Log[1 - (I*(Sqr
t[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (4*I)*ArcSin[Sqrt
[1 - (I*Sqrt[e])/(c*Sqrt[d])]/Sqrt[2]]*Log[1 - (I*(Sqrt[e] + Sqrt[c^2*d + e
])*E^(I*ArcSec[c*x]))/(c*Sqrt[d])] + (2*I)*ArcSec[c*x]*Log[1 + E^((2*I)*Arc
Sec[c*x])] - 2*PolyLog[2, (I*(Sqrt[e] - Sqrt[c^2*d + e])*E^(I*ArcSec[c*x]))
/(c*Sqrt[d])] - 2*PolyLog[2, (I*(Sqrt[e] + Sqrt[c^2*d + e])*E^(I*ArcSec[c*x
]))/(c*Sqrt[d])] + PolyLog[2, -E^((2*I)*ArcSec[c*x])]))/(32*d^(5/2)*Sqrt[e]
))
```

Maple [C] time = 2.15, size = 3214, normalized size = 2.9

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

[In] int((a+b*arcsec(c*x))/(e*x^2+d)^3,x)

[Out] I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-
1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*e^2/(c^2*d+e
)/d^5+5/8*I*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x
+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d
+e)^2/d^3*(e*(c^2*d+e))^(1/2)-5/4*I*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d
)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^
(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2*e/d^3-5/8*I*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/
2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c
^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^3*(e*(c^2*d+e))^(1/2)-5/4*I*b*(
(c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2
)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2*e/d^3-3/1
6*I*c*b/(c^2*d+e)/d^2*e*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln
((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1
/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+3/16*I*c*b/(c^2
*d+e)/d^2*e*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*ln((_R1-1/c/x-I*
(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)),_R1
=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+I/c^4*b*(-(c^2*d-2*(e*(c^2*d+
e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+
2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*e^2/(c^2*d+e)/d^5+3/8*c^4*b*x^3/(c^2*e
*x^2+c^2*d)^2/d^2/(c^2*d+e)*arcsec(c*x)*e^2+5/8*c^4*b*x/(c^2*e*x^2+c^2*d)^2
/d/(c^2*d+e)*arcsec(c*x)*e+1/8*c^5*b*x^4/(c^2*e*x^2+c^2*d)^2/d^2/(c^2*d+e)*
((c^2*x^2-1)/c^2/x^2)^(1/2)*e^2+3/8*c^6*b*x^3/(c^2*e*x^2+c^2*d)^2*e/(c^2*d+
e)/d*arcsec(c*x)+1/8*c^5*b*x^2/(c^2*e*x^2+c^2*d)^2/d/(c^2*d+e)*((c^2*x^2-1)
/c^2/x^2)^(1/2)*e-5/4*I/c^2*b*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^
2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)
*d)^(1/2)/(c^2*d+e)/d^4*(e*(c^2*d+e))^(1/2)+7/4*I/c^2*b*(-(c^2*d-2*(e*(c^2*
d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*
d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*e/(c^2*d+e)/d^4-9/4*I/c^2*b*(-(c^2*d
-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^2*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)
^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^4-9/4*I
/c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^2*arctan(d*c*(1/c/x+I*
(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)
^2/d^4-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^3*arctan(d*c*(
1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(
c^2*d+e)^2/d^5+5/4*I/c^2*b*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2
d+2(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)
*d)^(1/2)/(c^2*d+e)/d^4*(e*(c^2*d+e))^(1/2)-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e)
)^(1/2)+2*e)*d)^(1/2)*e^3*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*
d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^5+7/4*I/c^2*b*((c^2*d+
2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2)
)/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*e/(c^2*d+e)/d^4+I/c^4*b*(-(c
^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)
^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))*e/(c^2*d+e)/d^5*(e*(c
^2*d+e))^(1/2)+I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e^2*arct
an(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^
(1/2))/(c^2*d+e)^2/d^5*(e*(c^2*d+e))^(1/2)+3/8*c^2*a/d^2*x/(c^2*e*x^2+c^2*d
)+1/4*c^4*a*x/d/(c^2*e*x^2+c^2*d)^2+5/8*I*b*arctan(d*c*(1/c/x+I*(1-1/c^2/x^
2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))*((c^2*d+2*(e*(c^2*d+
e))^(1/2)+2*e)*d)^(1/2)/(c^2*d+e)/d^3+5/8*c^6*b*x/(c^2*e*x^2+c^2*d)^2/(c^2*
d+e)*arcsec(c*x)+3/16*I*c^3*b/(c^2*d+e)/d*sum(_R1/(_R1^2*c^2*d+c^2*d+2*e)*(
I*arcsec(c*x)*ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*
(1-1/c^2/x^2)^(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))
-3/16*I*c^3*b/(c^2*d+e)/d*sum(1/_R1/(_R1^2*c^2*d+c^2*d+2*e)*(I*arcsec(c*x)*
ln((_R1-1/c/x-I*(1-1/c^2/x^2)^(1/2))/_R1)+dilog((_R1-1/c/x-I*(1-1/c^2/x^2)^
(1/2))/_R1)),_R1=RootOf(c^2*d*_Z^4+(2*c^2*d+4*e)*_Z^2+c^2*d))+5/8*I*b*arcta
nh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)
^(1/2))*(-(c^2*d-2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)/(c^2*d+e)/d^3+3/8*a/d^

```
2/(d*e)^(1/2)*arctan(e*x/(d*e)^(1/2))-I/c^4*b*(-(c^2*d-2*(e*(c^2*d+e))^(1/2
)+2*e)*d)^(1/2)*e^2*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((-c^2*d+2*(e
*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^5*(e*(c^2*d+e))^(1/2)+7/4*I/
c^2*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e*arctan(d*c*(1/c/x+I*(1-
1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2))/(c^2*d+e)^2/
d^4*(e*(c^2*d+e))^(1/2)-I/c^4*b*((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e)*d)^(1/2)
*arctan(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/((c^2*d+2*(e*(c^2*d+e))^(1/2)+2*e
)*d)^(1/2))*e/(c^2*d+e)/d^5*(e*(c^2*d+e))^(1/2)-7/4*I/c^2*b*(-(c^2*d-2*(e*(
c^2*d+e))^(1/2)+2*e)*d)^(1/2)*e*arctanh(d*c*(1/c/x+I*(1-1/c^2/x^2)^(1/2))/(
(-c^2*d+2*(e*(c^2*d+e))^(1/2)-2*e)*d)^(1/2))/(c^2*d+e)^2/d^4*(e*(c^2*d+e))^
(1/2)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\operatorname{arcsec}\left(cx\right)+a}{e^{3}x^{6}+3\,de^{2}x^{4}+3\,d^{2}ex^{2}+d^{3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/(e^3*x^6 + 3*d*e^2*x^4 + 3*d^2*e*x^2 + d^3), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d)**3,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\operatorname{arcsec}\left(cx\right)+a}{\left(ex^{2}+d\right)^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^3,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x^2 + d)^3, x)
```

3.111 $\int x^5\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=403

$$\frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{2d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3}+\frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^3}+\frac{bx\sqrt{c^2x^2-1}\,(2}{}$$

```
[Out] (b*(23*c^4*d^2 + 12*c^2*d*e - 75*e^2)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(1680*c^5*e^2*Sqrt[c^2*x^2]) + (b*(29*c^2*d - 25*e)*x*Sqrt[-1 + c^2*x^2]*(
d + e*x^2)^(3/2))/(840*c^3*e^2*Sqrt[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d
+ e*x^2)^(5/2))/(42*c*e^2*Sqrt[c^2*x^2]) + (d^2*(d + e*x^2)^(3/2)*(a + b*Ar
cSec[c*x]))/(3*e^3) - (2*d*(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*e^3) +
 ((d + e*x^2)^(7/2)*(a + b*ArcSec[c*x]))/(7*e^3) + (8*b*c*d^(7/2)*x*ArcTan[
Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(105*e^3*Sqrt[c^2*x^2]) - (b
*(105*c^6*d^3 - 35*c^4*d^2*e + 63*c^2*d*e^2 + 75*e^3)*x*ArcTanh[(Sqrt[e]*Sq
rt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(1680*c^6*e^(5/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 1.27487, antiderivative size = 403, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {266, 43, 5238, 12, 1615, 154, 157, 63, 217, 206, 93, 204}

$$\frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{2d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3}+\frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^3}+\frac{bx\sqrt{c^2x^2-1}\,(2}{}$$

Antiderivative was successfully verified.

```
[In] Int[x^5*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```



```
[Out] (b*(23*c^4*d^2 + 12*c^2*d*e - 75*e^2)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(1680*c^5*e^2*Sqrt[c^2*x^2]) + (b*(29*c^2*d - 25*e)*x*Sqrt[-1 + c^2*x^2]*(
d + e*x^2)^(3/2))/(840*c^3*e^2*Sqrt[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d
+ e*x^2)^(5/2))/(42*c*e^2*Sqrt[c^2*x^2]) + (d^2*(d + e*x^2)^(3/2)*(a + b*Ar
cSec[c*x]))/(3*e^3) - (2*d*(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*e^3) +
 ((d + e*x^2)^(7/2)*(a + b*ArcSec[c*x]))/(7*e^3) + (8*b*c*d^(7/2)*x*ArcTan[
Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(105*e^3*Sqrt[c^2*x^2]) - (b
*(105*c^6*d^3 - 35*c^4*d^2*e + 63*c^2*d*e^2 + 75*e^3)*x*ArcTanh[(Sqrt[e]*Sq
rt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(1680*c^6*e^(5/2)*Sqrt[c^2*x^2])
```


Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
```

```
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1615

```
Int[(Px_)*((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f
_.)*(x_))^(p_.), x_Symbol] :> With[{q = Expon[Px, x], k = Coeff[Px, x, Expo
n[Px, x]]}, Simp[(k*(a + b*x)^(m + q - 1)*(c + d*x)^(n + 1)*(e + f*x)^(p +
1))/(d*f*b^(q - 1)*(m + n + p + q + 1)), x] + Dist[1/(d*f*b^q*(m + n + p +
q + 1)), Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^p*ExpandToSum[d*f*b^q*(m + n
 + p + q + 1)*Px - d*f*k*(m + n + p + q + 1)*(a + b*x)^q + k*(a + b*x)^(q -
 2)*(a^2*d*f*(m + n + p + q + 1) - b*(b*c*e*(m + q - 1) + a*(d*e*(n + 1) +
c*f*(p + 1))) + b*(a*d*f*(2*(m + q) + n + p) - b*(d*e*(m + q + n) + c*f*(m
+ q + p)))*x), x], x], x] /; NeQ[m + n + p + q + 1, 0]] /; FreeQ[{a, b, c,
d, e, f, m, n, p}, x] && PolyQ[Px, x] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
```

```
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^5\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)dx = \frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} - \frac{2d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3} + \frac{\left(d+ex^2\right)}{}$$

$$= \frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} - \frac{2d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3} + \frac{\left(d+ex^2\right)}{}$$

$$= \frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} - \frac{2d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3} + \frac{\left(d+ex^2\right)}{}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{42ce^2\sqrt{c^2x^2}} + \frac{d^2\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} - \frac{2d\left(d+ex^2\right)^{5/}}{}$$

$$= \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{840c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{42ce^2\sqrt{c^2x^2}} + \frac{d^2\left(d\right.}{}$$

$$= \frac{b\left(23c^4d^2+12c^2de-75e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{1680c^5e^2\sqrt{c^2x^2}} + \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2}}{840c^3e^2\sqrt{c^2x^2}}$$

$$= \frac{b\left(23c^4d^2+12c^2de-75e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{1680c^5e^2\sqrt{c^2x^2}} + \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2}}{840c^3e^2\sqrt{c^2x^2}}$$

$$= \frac{b\left(23c^4d^2+12c^2de-75e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{1680c^5e^2\sqrt{c^2x^2}} + \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2}}{840c^3e^2\sqrt{c^2x^2}}$$

$$= \frac{b\left(23c^4d^2+12c^2de-75e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{1680c^5e^2\sqrt{c^2x^2}} + \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2}}{840c^3e^2\sqrt{c^2x^2}}$$

$$= \frac{b\left(23c^4d^2+12c^2de-75e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{1680c^5e^2\sqrt{c^2x^2}} + \frac{b\left(29c^2d-25e\right)x\sqrt{-1+c^2}}{840c^3e^2\sqrt{c^2x^2}}$$

Mathematica [C] time = 0.646696, size = 366, normalized size = 0.91

$$\frac{\sqrt{d+ex^2}\left(16ac^5\left(-4d^2ex^2+8d^3+3de^2x^4+15e^3x^6\right)-bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^4\left(-41d^2+22dex^2+40e^2x^4\right)+2c^2e\left(19d+25ex^2\right)\right.}{1680c^5e^3}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x^5*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(-128*c^4*d^4*Sqrt[1 + d/(e*x^2)]*(-1 + c^2*x^2)*AppellF1[1, 1/2, 1/2,
2, 1/(c^2*x^2), -(d/(e*x^2))] + e*(105*c^6*d^3 - 35*c^4*d^2*e + 63*c^2*d*e^
2 + 75*e^3)*Sqrt[1 - 1/(c^2*x^2)]*x^4*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]
*AppellF1[1, 1/2, 1/2, 2, c^2*x^2, -((e*x^2)/d)]))/(3360*c^5*e^3*x*(-1 + c^
2*x^2)*Sqrt[d + e*x^2]) + (Sqrt[d + e*x^2]*(16*a*c^5*(8*d^3 - 4*d^2*e*x^2 +
 3*d*e^2*x^4 + 15*e^3*x^6) - b*e*Sqrt[1 - 1/(c^2*x^2)]*x*(75*e^2 + 2*c^2*e*
(19*d + 25*e*x^2) + c^4*(-41*d^2 + 22*d*e*x^2 + 40*e^2*x^4)) + 16*b*c^5*(8*
d^3 - 4*d^2*e*x^2 + 3*d*e^2*x^4 + 15*e^3*x^6)*ArcSec[c*x]))/(1680*c^5*e^3)
```

Maple [F] time = 1.842, size = 0, normalized size = 0.

$$\int x^5 (a + b\operatorname{arcsec}(cx)) \sqrt{ex^2 + d}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

```
[Out] int(x^5*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 33.8132, size = 3776, normalized size = 9.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/6720*(128*b*c^7*sqrt(-d)*d^3*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c
^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2
+ d)*sqrt(-d) + 8*d^2)/x^4) + (105*b*c^6*d^3 - 35*b*c^4*d^2*e + 63*b*c^2*d*
```

```
e^2 + 75*b*e^3)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*
e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x
^2 + d)*sqrt(e) + e^2) + 4*(240*a*c^7*e^3*x^6 + 48*a*c^7*d*e^2*x^4 - 64*a*c
^7*d^2*e*x^2 + 128*a*c^7*d^3 + 16*(15*b*c^7*e^3*x^6 + 3*b*c^7*d*e^2*x^4 - 4
*b*c^7*d^2*e*x^2 + 8*b*c^7*d^3)*arcsec(c*x) - (40*b*c^5*e^3*x^4 - 41*b*c^5*
d^2*e + 38*b*c^3*d*e^2 + 75*b*c*e^3 + 2*(11*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2
)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^7*e^3), 1/6720*(256*b*c^7*d^(7/2)*
arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(
d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (105*b*c^6*d^3 - 35*b*c^4*d
^2*e + 63*b*c^2*d*e^2 + 75*b*e^3)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c
^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2
*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(240*a*c^7*e^3*x^6 + 48*a*c^7*
d*e^2*x^4 - 64*a*c^7*d^2*e*x^2 + 128*a*c^7*d^3 + 16*(15*b*c^7*e^3*x^6 + 3*b
*c^7*d*e^2*x^4 - 4*b*c^7*d^2*e*x^2 + 8*b*c^7*d^3)*arcsec(c*x) - (40*b*c^5*e
^3*x^4 - 41*b*c^5*d^2*e + 38*b*c^3*d*e^2 + 75*b*c*e^3 + 2*(11*b*c^5*d*e^2 +
 25*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^7*e^3), 1/3360*(
64*b*c^7*sqrt(-d)*d^3*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d
*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(
-d) + 8*d^2)/x^4) + (105*b*c^6*d^3 - 35*b*c^4*d^2*e + 63*b*c^2*d*e^2 + 75*b
*e^3)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(
e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(240
*a*c^7*e^3*x^6 + 48*a*c^7*d*e^2*x^4 - 64*a*c^7*d^2*e*x^2 + 128*a*c^7*d^3 +
16*(15*b*c^7*e^3*x^6 + 3*b*c^7*d*e^2*x^4 - 4*b*c^7*d^2*e*x^2 + 8*b*c^7*d^3)
*arcsec(c*x) - (40*b*c^5*e^3*x^4 - 41*b*c^5*d^2*e + 38*b*c^3*d*e^2 + 75*b*c
*e^3 + 2*(11*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2
 + d))/(c^7*e^3), 1/3360*(128*b*c^7*d^(7/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*(
(c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*
e)*x^2 - d^2)) + (105*b*c^6*d^3 - 35*b*c^4*d^2*e + 63*b*c^2*d*e^2 + 75*b*e^
3)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x
^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(240*a*
c^7*e^3*x^6 + 48*a*c^7*d*e^2*x^4 - 64*a*c^7*d^2*e*x^2 + 128*a*c^7*d^3 + 16*
(15*b*c^7*e^3*x^6 + 3*b*c^7*d*e^2*x^4 - 4*b*c^7*d^2*e*x^2 + 8*b*c^7*d^3)*ar
csec(c*x) - (40*b*c^5*e^3*x^4 - 41*b*c^5*d^2*e + 38*b*c^3*d*e^2 + 75*b*c*e^
3 + 2*(11*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 +
d))/(c^7*e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))*(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)x^5 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*x^5, x)
```

3.112 $\int x^3\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)dx$

Optimal. Leaf size=294

$$-\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}-\frac{2bcd^{5/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{15e^2\sqrt{c^2x^2}}+\frac{bx\left(15c^4d^2-10c^2de\right.}{120c}$$

```
[Out] -(b*(c^2*d + 9*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(120*c^3*e*Sqrt[c^2
*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*e*Sqrt[c^2*x^2])
- (d*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*e^2) + ((d + e*x^2)^(5/2)*(a
 + b*ArcSec[c*x]))/(5*e^2) - (2*b*c*d^(5/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[
d]*Sqrt[-1 + c^2*x^2])])/(15*e^2*Sqrt[c^2*x^2]) + (b*(15*c^4*d^2 - 10*c^2*d
*e - 9*e^2)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(1
20*c^4*e^(3/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.398106, antiderivative size = 294, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {266, 43, 5238, 12, 573, 154, 157, 63, 217, 206, 93, 204}

$$-\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}-\frac{2bcd^{5/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{15e^2\sqrt{c^2x^2}}+\frac{bx\left(15c^4d^2-10c^2de\right.}{120c}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(c^2*d + 9*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(120*c^3*e*Sqrt[c^2
*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*e*Sqrt[c^2*x^2])
- (d*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*e^2) + ((d + e*x^2)^(5/2)*(a
 + b*ArcSec[c*x]))/(5*e^2) - (2*b*c*d^(5/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[
d]*Sqrt[-1 + c^2*x^2])])/(15*e^2*Sqrt[c^2*x^2]) + (b*(15*c^4*d^2 - 10*c^2*d
*e - 9*e^2)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(1
20*c^4*e^(3/2)*Sqrt[c^2*x^2])
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
```

```
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 573

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
)*((e_) + (f_.)*(x_)^(n_))^(r_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simpl
ify[(m + 1)/n] - 1)*(a + b*x)^p*(c + d*x)^q*(e + f*x)^r, x], x, x^n], x] /;
 FreeQ[{a, b, c, d, e, f, m, n, p, q, r}, x] && IntegerQ[Simplify[(m + 1)/n
]]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
```

```
&& LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^3\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)dx = -\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}-\frac{(bcx)\int\frac{(d+e\ldots}{15\ldots}}{\ldots}$$

$$= -\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}-\frac{(bcx)\int\frac{(d+e\ldots}{\ldots}}{15\ldots}$$

$$= -\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}-\frac{(bcx)\,\text{Subst}\ldots}{\ldots}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\frac{\left(d+ex^2\right)^{5/2}\left(a\ldots\right.}{5\ldots}$$

$$= -\frac{b\left(c^2d+9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{\ldots}}{\ldots}$$

$$= -\frac{b\left(c^2d+9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{\ldots}}{\ldots}$$

$$= -\frac{b\left(c^2d+9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{\ldots}}{\ldots}$$

$$= -\frac{b\left(c^2d+9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{\ldots}}{\ldots}$$

$$= -\frac{b\left(c^2d+9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce\sqrt{c^2x^2}}-\frac{d\left(d+ex^2\right)^{\ldots}}{\ldots}$$

Mathematica [A] time = 0.737132, size = 327, normalized size = 1.11

$$\frac{\sqrt{d+ex^2}\left(8ac^3\left(-2d^2+dex^2+3e^2x^4\right)+8bc^3\sec^{-1}(cx)\left(-2d^2+dex^2+3e^2x^4\right)-bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(7d+6ex^2\right)+9e\right)\right)}{120c^3e^2}\ldots$$

Antiderivative was successfully verified.

```
[In] Integrate[x^3*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(8*a*c^3*(-2*d^2 + d*e*x^2 + 3*e^2*x^4) - b*e*Sqrt[1 - 1/(
c^2*x^2)]*x*(9*e + c^2*(7*d + 6*e*x^2)) + 8*b*c^3*(-2*d^2 + d*e*x^2 + 3*e^2
*x^4)*ArcSec[c*x]))/(120*c^3*e^2) + (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[c^2]*S
```

```
qrt[e]*Sqrt[c^2*d + e]*(15*c^4*d^2 - 10*c^2*d*e - 9*e^2)*Sqrt[(c^2*(d + e*x
^2))/(c^2*d + e)]*ArcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^
2*d + e])] + 16*c^7*d^(5/2)*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x
^2])/Sqrt[d + e*x^2]]))/(120*c^6*e^2*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.681, size = 0, normalized size = 0.

$$\int x^3 (a + b\operatorname{arcsec}(cx)) \sqrt{ex^2 + d}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

```
[Out] int(x^3*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 15.3251, size = 3039, normalized size = 10.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/480*(16*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2
*d^2 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 +
d)*sqrt(-d) + 8*d^2)/x^4) - (15*b*c^4*d^2 - 10*b*c^2*d*e - 9*b*e^2)*sqrt(e)
*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2
*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2)
+ 4*(24*a*c^5*e^2*x^4 + 8*a*c^5*d*e*x^2 - 16*a*c^5*d^2 + 8*(3*b*c^5*e^2*x^4
 + b*c^5*d*e*x^2 - 2*b*c^5*d^2)*arcsec(c*x) - (6*b*c^3*e^2*x^2 + 7*b*c^3*d*
e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e^2), -1/480*(32*b*
c^5*d^(5/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^
2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (15*b*c^4*d^2 -
 10*b*c^2*d*e - 9*b*e^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e +
8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)
*sqrt(e*x^2 + d)*sqrt(e) + e^2) - 4*(24*a*c^5*e^2*x^4 + 8*a*c^5*d*e*x^2 - 1
6*a*c^5*d^2 + 8*(3*b*c^5*e^2*x^4 + b*c^5*d*e*x^2 - 2*b*c^5*d^2)*arcsec(c*x)
 - (6*b*c^3*e^2*x^2 + 7*b*c^3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^
2 + d))/(c^5*e^2), 1/240*(8*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c^2*d*e +
e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2
*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) - (15*b*c^4*d^2 - 10*b*c^2*d*e -
```

```
 9*b*e^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*s
qrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*
(24*a*c^5*e^2*x^4 + 8*a*c^5*d*e*x^2 - 16*a*c^5*d^2 + 8*(3*b*c^5*e^2*x^4 + b
*c^5*d*e*x^2 - 2*b*c^5*d^2)*arcsec(c*x) - (6*b*c^3*e^2*x^2 + 7*b*c^3*d*e +
9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e^2), -1/240*(16*b*c^5*
d^(5/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 +
d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (15*b*c^4*d^2 - 10*
b*c^2*d*e - 9*b*e^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2
*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)
*x^2)) - 2*(24*a*c^5*e^2*x^4 + 8*a*c^5*d*e*x^2 - 16*a*c^5*d^2 + 8*(3*b*c^5*
e^2*x^4 + b*c^5*d*e*x^2 - 2*b*c^5*d^2)*arcsec(c*x) - (6*b*c^3*e^2*x^2 + 7*b
*c^3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))*(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)x^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*x^3, x)
```

3.113 $\int x\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)dx$

Optimal. Leaf size=195

$$\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e}+\frac{bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}}-\frac{bx\left(3c^2d+e\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{6c^2\sqrt{e}\sqrt{c^2x^2}}$$

```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*Sqrt[c^2*x^2]) + ((d + e*x^2
)^(3/2)*(a + b*ArcSec[c*x]))/(3*e) + (b*c*d^(3/2)*x*ArcTan[Sqrt[d + e*x^2]/
(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*e*Sqrt[c^2*x^2]) - (b*(3*c^2*d + e)*x*Arc
Tanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(6*c^2*Sqrt[e]*Sqrt
[c^2*x^2])
```

Rubi [A] time = 0.190292, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 9, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.429, Rules used = {5236, 446, 102, 157, 63, 217, 206, 93, 204}

$$\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e}+\frac{bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}}-\frac{bx\left(3c^2d+e\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{6c^2\sqrt{e}\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[x*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```


```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*Sqrt[c^2*x^2]) + ((d + e*x^2
)^(3/2)*(a + b*ArcSec[c*x]))/(3*e) + (b*c*d^(3/2)*x*ArcTan[Sqrt[d + e*x^2]/
(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*e*Sqrt[c^2*x^2]) - (b*(3*c^2*d + e)*x*Arc
Tanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(6*c^2*Sqrt[e]*Sqrt
[c^2*x^2])
```


Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 102

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_
))^(p_.), x_Symbol] :> Simp[(b*(a + b*x)^(m - 1)*(c + d*x)^(n + 1)*(e + f*x
)^(p + 1))/(d*f*(m + n + p + 1)), x] + Dist[1/(d*f*(m + n + p + 1)), Int[(a
 + b*x)^(m - 2)*(c + d*x)^n*(e + f*x)^p*Simp[a^2*d*f*(m + n + p + 1) - b*(b
*c*e*(m - 1) + a*(d*e*(n + 1) + c*f*(p + 1))) + b*(a*d*f*(2*m + n + p) - b*
(d*e*(m + n) + c*f*(m + p)))*x, x], x], x] /; FreeQ[{a, b, c, d, e, f, n, p
}, x] && GtQ[m, 1] && NeQ[m + n + p + 1, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)dx = \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{(bcx)\int\frac{\left(d+ex^2\right)^{3/2}}{x\sqrt{-1+c^2x^2}}dx}{3e\sqrt{c^2x^2}}$$

$$= \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{(bcx)\,\text{Subst}\left(\int\frac{(d+ex)^{3/2}}{x\sqrt{-1+c^2x}}dx,x,x^2\right)}{6e\sqrt{c^2x^2}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{(bx)\,\text{Subst}\left(\int\frac{c^2d^2+\frac{1}{2}e(3c}{x\sqrt{-1+c^2x}}\right.}{6ce\sqrt{c^2x^2}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(bcd^2x\right)\text{Subst}\left(\int\frac{}{x\sqrt{-1+}}\right.}{6e\sqrt{c^2x}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} - \frac{\left(bcd^2x\right)\text{Subst}\left(\int\frac{1}{-d-x^2}\right.}{3e\sqrt{c^2x^2}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2}}\right.}{3e\sqrt{c^2x^2}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6c\sqrt{c^2x^2}} + \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e} + \frac{bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2}}\right.}{3e\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.456565, size = 266, normalized size = 1.36

$$\frac{\sqrt{d+ex^2}\left(2ac\left(d+ex^2\right)-bex\sqrt{1-\frac{1}{c^2x^2}}+2bc\sec^{-1}(cx)\left(d+ex^2\right)\right)}{6ce} - \frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^5d^{3/2}\sqrt{d+ex^2}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)+\right.}{6c^4e\sqrt{c^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[x*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(-(b*e*Sqrt[1 - 1/(c^2*x^2)]*x) + 2*a*c*(d + e*x^2) + 2*b*
c*(d + e*x^2)*ArcSec[c*x]))/(6*c*e) - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[c^2]
*Sqrt[e]*Sqrt[c^2*d + e]*(3*c^2*d + e)*Sqrt[(c^2*(d + e*x^2))/(c^2*d + e)]*
ArcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] + 2*c^5
*d^(3/2)*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2
]]))/(6*c^4*e*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.386, size = 0, normalized size = 0.

$$\int x\left(a+b\,\text{arcsec}\left(cx\right)\right)\sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

```
[Out] int(x*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.69076, size = 2425, normalized size = 12.44

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/24*(2*b*c^3*sqrt(-d)*d*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2
 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*s
qrt(-d) + 8*d^2)/x^4) + (3*b*c^2*d + b*e)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d
^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*
sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(2*a*c^3*e*x^2 + 2*a*c
^3*d - sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 + b*c^3*d)*arcsec(c*x))*sqr
t(e*x^2 + d))/(c^3*e), 1/24*(4*b*c^3*d^(3/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*
((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d
*e)*x^2 - d^2)) + (3*b*c^2*d + b*e)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6
*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c
^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(2*a*c^3*e*x^2 + 2*a*c^3*d -
 sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 + b*c^3*d)*arcsec(c*x))*sqrt(e*x^
2 + d))/(c^3*e), 1/12*(b*c^3*sqrt(-d)*d*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^
4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqr
t(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + (3*b*c^2*d + b*e)*sqrt(-e)*arctan(1/2
*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*
e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(2*a*c^3*e*x^2 + 2*a*c^3*d -
sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 + b*c^3*d)*arcsec(c*x))*sqrt(e*x^2
 + d))/(c^3*e), 1/12*(2*b*c^3*d^(3/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d
 - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2
 - d^2)) + (3*b*c^2*d + b*e)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*
sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e
- c*e^2)*x^2)) + 2*(2*a*c^3*e*x^2 + 2*a*c^3*d - sqrt(c^2*x^2 - 1)*b*c*e + 2
*(b*c^3*e*x^2 + b*c^3*d)*arcsec(c*x))*sqrt(e*x^2 + d))/(c^3*e)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))*(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)x \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*x, x)
```

3.114 $\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x},x\right)$$

```
[Out] Unintegrable[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x, x]
```

Rubi [A] time = 0.0977567, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] Defer[Int][(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x, x]
```

Rubi steps

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x}\,dx = \int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x}\,dx$$

Mathematica [A] time = 4.0937, size = 0, normalized size = 0.

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x, x]
```

Maple [A] time = 1.288, size = 0, normalized size = 0.

$$\int \frac{a+b\,\text{arcsec}\,(cx)}{x}\sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x,x)
```

```
[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x,x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x, x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\,\text{asec}\,(cx))\sqrt{d+ex^2}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2)/x,x)
```

```
[Out] Integral((a + b*asec(c*x))*sqrt(d + e*x**2)/x, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x,x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x, x)
```

3.115 $\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3},x\right)$$

```
[Out] Unintegrable[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^3, x]
```

Rubi [A] time = 0.101281, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^3,x]

[Out] Defer[Int][(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^3, x]
```

Rubi steps

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx=\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx$$

Mathematica [A] time = 4.42819, size = 0, normalized size = 0.

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^3,x]

[Out] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^3, x]
```

Maple [A] time = 1.26, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^3}\sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^3,x)

[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^3,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}(cx)+a)}{x^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^3,x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^3, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2)/x**3,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex^2+d}(b\,\text{arcsec}(cx)+a)}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^3,x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^3, x)
```

3.116 $\int x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right) dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[x^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0936754, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Int[x^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][x^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right) dx = \int x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right) dx$$

Mathematica [A] time = 8.82391, size = 0, normalized size = 0.

$$\int x^2 \sqrt{d+ex^2} \left(a+b \sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Integrate[x^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[x^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.629, size = 0, normalized size = 0.

$$\int x^2 \left(a+b\mathrm{arcsec}\left(cx\right)\right) \sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

```
[Out] int(x^2*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(bx^2 \operatorname{arcsec}(cx) + ax^2\right)\sqrt{ex^2 + d}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)*sqrt(e*x^2 + d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))*(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)x^2\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*x^2, x)
```

3.117 $\int \sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=22

$$\text{Unintegrable}\left(\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0337469, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Verification is Not applicable to the result.

```
[In] Int[Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int \sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx = \int \sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Mathematica [A] time = 4.20742, size = 0, normalized size = 0.

$$\int \sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.29, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))\sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a),x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int (a+b\,\text{asec}\,(cx))\sqrt{d+ex^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2),x)
```

```
[Out] Integral((a + b*asec(c*x))*sqrt(d + e*x**2), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a), x)
```

3.118 $\int \frac{\sqrt{d+ex^2}(a+b\sec^{-1}(cx))}{x^2} dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^2},x\right)$$

```
[Out] Unintegrable[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^2, x]
```

Rubi [A] time = 0.0860681, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^2,x]

[Out] Defer[Int][(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^2, x]
```

Rubi steps

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx = \int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Mathematica [A] time = 1.40766, size = 0, normalized size = 0.

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^2,x]

[Out] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^2, x]
```

Maple [A] time = 1.257, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^2}\sqrt{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^2,x)

[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^2,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{x^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^2,x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^2, x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+b\,\text{asec}\,(cx))\sqrt{d+ex^2}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2)/x**2,x)
```

```
[Out] Integral((a + b*asec(c*x))*sqrt(d + e*x**2)/x**2, x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^2,x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^2, x)
```

3.119 $\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$

Optimal. Leaf size=328

$$\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\left(2c^2d+3e\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{9d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{2bc\sqrt{c^2x^2-}}{}$$

```
[Out] (2*b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d*Sqrt[c^2*x^2]
) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*x^2*Sqrt[c^2*x^2]) - ((d +
e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*d*x^3) - (2*b*c^2*(c^2*d + 2*e)*x*Sqrt
[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(9*d*Sq
rt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(2*c^2
*d + 3*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(
e/(c^2*d))])/(9*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.424043, antiderivative size = 328, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {264, 5238, 12, 474, 583, 524, 427, 426, 424, 421, 419}

$$-\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{2bc\sqrt{c^2x^2-1}\left(c^2d+2e\right)\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}}+\frac{bc\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}}+\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)}{9d\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] (2*b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d*Sqrt[c^2*x^2]
) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*x^2*Sqrt[c^2*x^2]) - ((d +
e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*d*x^3) - (2*b*c^2*(c^2*d + 2*e)*x*Sqrt
[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(9*d*Sq
rt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(2*c^2
*d + 3*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(
e/(c^2*d))])/(9*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 474

```
Int[((e_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)
)^(q_), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n)^
(q - 1))/(a*e*(m + 1)), x] - Dist[1/(a*e^n*(m + 1)), Int[(e*x)^(m + n)*(a +
 b*x^n)^p*(c + d*x^n)^(q - 2)*Simp[c*(c*b - a*d)*(m + 1) + c*n*(b*c*(p + 1)
 + a*d*(q - 1)) + d*((c*b - a*d)*(m + 1) + c*b*n*(p + q))*x^n, x], x], x] /
; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && GtQ[q,
 1] && LtQ[m, -1] && IntBinomialQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx = -\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3} - \frac{(bcx)\int -\frac{\left(d+ex^2\right)^{3/2}}{3dx^4\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3} + \frac{(bcx)\int \frac{\left(d+ex^2\right)^{3/2}}{x^4\sqrt{-1+c^2x^2}}\,dx}{3d\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3} - \frac{(bcx)\int \frac{-2d\left(c^2d+2e\right)-e\left(c^2d\cdots\right.}{x^2\sqrt{-1+c^2x^2}\sqrt{d+\cdots}}}{9d\sqrt{c^2x^2}}$$

$$= \frac{2bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+\cdots\right.}{3dx^3}$$

$$= \frac{2bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+\cdots\right.}{3dx^3}$$

$$= \frac{2bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+\cdots\right.}{3dx^3}$$

$$= \frac{2bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+\cdots\right.}{3dx^3}$$

$$= \frac{2bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9x^2\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{3/2}\left(a+\cdots\right.}{3dx^3}$$

Mathematica [C] time = 0.612809, size = 247, normalized size = 0.75

$$\frac{\sqrt{d+ex^2}\left(-3a\left(d+ex^2\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2dx^2+d+4ex^2\right)-3b\sec^{-1}(cx)\left(d+ex^2\right)\right)}{9dx^3} - \frac{ibcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}\left(2c^2\cdots\right.}{\cdots}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] (Sqrt[d + e*x^2]*(-3*a*(d + e*x^2) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(d + 2*c^2
*d*x^2 + 4*e*x^2) - 3*b*(d + e*x^2)*ArcSec[c*x]))/(9*d*x^3) - ((I/9)*b*c*Sq
rt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(2*c^2*d*(c^2*d + 2*e)*EllipticE[
I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] - (2*c^4*d^2 + 5*c^2*d*e + 3*e^2)*El
lipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d*Sqrt[1 - c^2
*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.7, size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{arcsec}\,(cx)}{x^4}\sqrt{e x^2 + d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^4,x)
```

```
[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^4,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{e x^2 + d}(b\,\mathrm{arcsec}\,(cx) + a)}{x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^4,x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^4, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2)/x**4,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{e x^2 + d}(b\,\mathrm{arcsec}\,(cx) + a)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^4,x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^4, x)
```

3.120 $\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx$

Optimal. Leaf size=453

$$\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\left(24c^4d^2+7c^2de-30e^2\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{225d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{2e\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}$$

```
[Out] (b*c*(24*c^4*d^2 + 19*c^2*d*e - 31*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(225*d^2*Sqrt[c^2*x^2]) + (b*c*(12*c^2*d - e)*Sqrt[-1 + c^2*x^2]*Sqrt[d +
e*x^2])/(225*d*x^2*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/
2))/(25*d*x^4*Sqrt[c^2*x^2]) - ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(5*d
*x^5) + (2*e*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(15*d^2*x^3) - (b*c^2*(
24*c^4*d^2 + 19*c^2*d*e - 31*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*Ellip
ticE[ArcSin[c*x], -(e/(c^2*d))])/(225*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*
Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(24*c^4*d^2 + 7*c^2*d*e - 30*e^2)*x*S
qrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/
(225*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.600779, antiderivative size = 453, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {271, 264, 5238, 12, 580, 583, 524, 427, 426, 424, 421, 419}

$$\frac{2e\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{bc\sqrt{c^2x^2-1}\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^6,x]
```


```
[Out] (b*c*(24*c^4*d^2 + 19*c^2*d*e - 31*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(225*d^2*Sqrt[c^2*x^2]) + (b*c*(12*c^2*d - e)*Sqrt[-1 + c^2*x^2]*Sqrt[d +
e*x^2])/(225*d*x^2*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/
2))/(25*d*x^4*Sqrt[c^2*x^2]) - ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(5*d
*x^5) + (2*e*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(15*d^2*x^3) - (b*c^2*(
24*c^4*d^2 + 19*c^2*d*e - 31*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*Ellip
ticE[ArcSin[c*x], -(e/(c^2*d))])/(225*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*
Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(24*c^4*d^2 + 7*c^2*d*e - 30*e^2)*x*S
qrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/
(225*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```


Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 580

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^q)/(a*g*(m + 1)), x] - Dist[1/(a*g^n*(m + 1)), I
nt[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^(q - 1)*Simp[c*(b*e - a*f)*(m +
1) + e*n*(b*c*(p + 1) + a*d*q) + d*((b*e - a*f)*(m + 1) + b*e*n*(p + q + 1)
)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p}, x] && IGtQ[n, 0] && Gt
Q[q, 0] && LtQ[m, -1] &&  !(EqQ[q, 1] && SimplerQ[e + f*x^n, c + d*x^n])
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx = -\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{2e\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{(bcx)\int\frac{(d+ex^2}{15d}}{\sqrt{}}$$

$$= -\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{2e\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{(bcx)\int\frac{(d+ex^2}{x}}{15d^2}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{25dx^4\sqrt{c^2x^2}}-\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{2e\left(d+ex^2\right)^{3/2}(a+b}{15d^2x^3}$$

$$= \frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225dx^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{25dx^4\sqrt{c^2x^2}}-\frac{\left(d+ex^2\right)^{3/2}(a}{5d}$$

$$= \frac{bc\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+\frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d}}{225dx^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+\frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d}}{225dx^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+\frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d}}{225dx^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+\frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d}}{225dx^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(24c^4d^2+19c^2de-31e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{225d^2\sqrt{c^2x^2}}+\frac{bc\left(12c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d}}{225dx^2\sqrt{c^2x^2}}$$

Mathematica [C] time = 0.667276, size = 325, normalized size = 0.72

$$\frac{\sqrt{d+ex^2}\left(-15a\left(3d^2+dex^2-2e^2x^4\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3d^2\left(8c^4x^4+4c^2x^2+3\right)+dex^2\left(19c^2x^2+8\right)-31e^2x^4\right)-15b\,\mathrm{se}}{225d^2x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/x^6,x]
```

```
[Out] (Sqrt[d + e*x^2]*(-15*a*(3*d^2 + d*e*x^2 - 2*e^2*x^4) + b*c*Sqrt[1 - 1/(c^2
*x^2)]*x*(-31*e^2*x^4 + d*e*x^2*(8 + 19*c^2*x^2) + 3*d^2*(3 + 4*c^2*x^2 + 8
*c^4*x^4)) - 15*b*(3*d^2 + d*e*x^2 - 2*e^2*x^4)*ArcSec[c*x]))/(225*d^2*x^5)
 - ((I/225)*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d*(24*c^4*
d^2 + 19*c^2*d*e - 31*e^2)*EllipticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]
 + (-24*c^6*d^3 - 31*c^4*d^2*e + 23*c^2*d*e^2 + 30*e^3)*EllipticF[I*ArcSinh
[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d^2*Sqrt[1 - c^2*x^2]*Sqrt[d +
e*x^2])
```

Maple [F] time = 2.864, size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{arcsec}\,(cx)}{x^6}\sqrt{ex^2 + d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^6,x)
```

```
[Out] int((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^6,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex^2 + d}(b\,\mathrm{arcsec}\,(cx) + a)}{x^6}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^6,x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^6, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))*(e*x**2+d)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex^2+d}(b\,\mathrm{arcsec}\,(cx)+a)}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))*(e*x^2+d)^(1/2)/x^6,x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/x^6, x)
```

3.121 $\int x^3 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=374

$$-\frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}+\frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^2}+\frac{bx\sqrt{c^2x^2-1}\left(3c^4d^2-38c^2de-25e^2\right)\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}}-\frac{2bc}{}$$

```
[Out] (b*(3*c^4*d^2 - 38*c^2*d*e - 25*e^2)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/
(560*c^5*e*Sqrt[c^2*x^2]) - (b*(13*c^2*d + 25*e)*x*Sqrt[-1 + c^2*x^2]*(d +
e*x^2)^(3/2))/(840*c^3*e*Sqrt[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^
2)^(5/2))/(42*c*e*Sqrt[c^2*x^2]) - (d*(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x])
)/(5*e^2) + ((d + e*x^2)^(7/2)*(a + b*ArcSec[c*x]))/(7*e^2) - (2*b*c*d^(7/2
)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(35*e^2*Sqrt[c^2*
x^2]) + (b*(35*c^6*d^3 - 35*c^4*d^2*e - 63*c^2*d*e^2 - 25*e^3)*x*ArcTanh[(S
qrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(560*c^6*e^(3/2)*Sqrt[c^2*
x^2])
```

Rubi [A] time = 0.507682, antiderivative size = 374, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {266, 43, 5238, 12, 573, 154, 157, 63, 217, 206, 93, 204}

$$-\frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2}+\frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^2}+\frac{bx\sqrt{c^2x^2-1}\left(3c^4d^2-38c^2de-25e^2\right)\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}}-\frac{2bc}{}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```


```
[Out] (b*(3*c^4*d^2 - 38*c^2*d*e - 25*e^2)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/
(560*c^5*e*Sqrt[c^2*x^2]) - (b*(13*c^2*d + 25*e)*x*Sqrt[-1 + c^2*x^2]*(d +
e*x^2)^(3/2))/(840*c^3*e*Sqrt[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^
2)^(5/2))/(42*c*e*Sqrt[c^2*x^2]) - (d*(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x])
)/(5*e^2) + ((d + e*x^2)^(7/2)*(a + b*ArcSec[c*x]))/(7*e^2) - (2*b*c*d^(7/2
)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(35*e^2*Sqrt[c^2*
x^2]) + (b*(35*c^6*d^3 - 35*c^4*d^2*e - 63*c^2*d*e^2 - 25*e^3)*x*ArcTanh[(S
qrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(560*c^6*e^(3/2)*Sqrt[c^2*
x^2])
```


Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
```

```
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 573

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
)*((e_) + (f_.)*(x_)^(n_))^(r_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simpl
ify[(m + 1)/n] - 1)*(a + b*x)^p*(c + d*x)^q*(e + f*x)^r, x], x, x^n], x] /;
 FreeQ[{a, b, c, d, e, f, m, n, p, q, r}, x] && IntegerQ[Simplify[(m + 1)/n
]]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
```

```
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x^3 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx = -\frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2} + \frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^2} - \frac{(bcx)\int \frac{(d+e}{35}}{}$$

$$= -\frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2} + \frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^2} - \frac{(bcx)\int \frac{(d+e}{}}{35e}$$

$$= -\frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2} + \frac{\left(d+ex^2\right)^{7/2}\left(a+b\sec^{-1}(cx)\right)}{7e^2} - \frac{(bcx)\,\mathrm{Subst}}{}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{42ce\sqrt{c^2x^2}} - \frac{d\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^2} + \frac{\left(d+ex^2\right)^{7/2}\left(a\right.}{7e}$$

$$= -\frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{840c^3e\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{42ce\sqrt{c^2x^2}} - \frac{d\left(d\right.}{}$$

$$= \frac{b\left(3c^4d^2-38c^2de-25e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}} - \frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}}{840c^3e\sqrt{c^2x^2}}$$

$$= \frac{b\left(3c^4d^2-38c^2de-25e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}} - \frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}}{840c^3e\sqrt{c^2x^2}}$$

$$= \frac{b\left(3c^4d^2-38c^2de-25e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}} - \frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}}{840c^3e\sqrt{c^2x^2}}$$

$$= \frac{b\left(3c^4d^2-38c^2de-25e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}} - \frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}}{840c^3e\sqrt{c^2x^2}}$$

$$= \frac{b\left(3c^4d^2-38c^2de-25e^2\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{560c^5e\sqrt{c^2x^2}} - \frac{b\left(13c^2d+25e\right)x\sqrt{-1+c^2x^2}}{840c^3e\sqrt{c^2x^2}}$$

Mathematica [C] time = 0.595271, size = 339, normalized size = 0.91

$$-\frac{\sqrt{d+ex^2}\left(48ac^5\left(2d-5ex^2\right)\left(d+ex^2\right)^2+bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^4\left(57d^2+106dex^2+40e^2x^4\right)+2c^2e\left(82d+25ex^2\right)+75e^2\right)+\right.}{1680c^5e^2}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[x^3*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -(b*(32*c^4*d^4*Sqrt[1 + d/(e*x^2)]*(-1 + c^2*x^2)*AppellF1[1, 1/2, 1/2, 2,
 1/(c^2*x^2), -(d/(e*x^2))] + e*(-35*c^6*d^3 + 35*c^4*d^2*e + 63*c^2*d*e^2
+ 25*e^3)*Sqrt[1 - 1/(c^2*x^2)]*x^4*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*A
ppellF1[1, 1/2, 1/2, 2, c^2*x^2, -((e*x^2)/d)]))/(1120*c^5*e^2*x*(-1 + c^2*
x^2)*Sqrt[d + e*x^2]) - (Sqrt[d + e*x^2]*(48*a*c^5*(2*d - 5*e*x^2)*(d + e*x
^2)^2 + b*e*Sqrt[1 - 1/(c^2*x^2)]*x*(75*e^2 + 2*c^2*e*(82*d + 25*e*x^2) + c
^4*(57*d^2 + 106*d*e*x^2 + 40*e^2*x^4)) + 48*b*c^5*(2*d - 5*e*x^2)*(d + e*x
^2)^2*ArcSec[c*x]))/(1680*c^5*e^2)
```

Maple [F] time = 1.519, size = 0, normalized size = 0.

$$\int x^3 \left(e x^2 + d\right)^{\frac{3}{2}} \left(a + b \operatorname{arcsec}\left(c x\right)\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int(x^3*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 31.2762, size = 3771, normalized size = 10.08

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] [1/6720*(96*b*c^7*sqrt(-d)*d^3*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^
2*d^2 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 +
 d)*sqrt(-d) + 8*d^2)/x^4) - 3*(35*b*c^6*d^3 - 35*b*c^4*d^2*e - 63*b*c^2*d*
e^2 - 25*b*e^3)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*
e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x
^2 + d)*sqrt(e) + e^2) + 4*(240*a*c^7*e^3*x^6 + 384*a*c^7*d*e^2*x^4 + 48*a*
c^7*d^2*e*x^2 - 96*a*c^7*d^3 + 48*(5*b*c^7*e^3*x^6 + 8*b*c^7*d*e^2*x^4 + b*
c^7*d^2*e*x^2 - 2*b*c^7*d^3)*arcsec(c*x) - (40*b*c^5*e^3*x^4 + 57*b*c^5*d^2
*e + 164*b*c^3*d*e^2 + 75*b*c*e^3 + 2*(53*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2)*
sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^7*e^2), -1/6720*(192*b*c^7*d^(7/2)*a
rctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d
)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + 3*(35*b*c^6*d^3 - 35*b*c^4*d
```

```
^2*e - 63*b*c^2*d*e^2 - 25*b*e^3)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c
^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2
*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) - 4*(240*a*c^7*e^3*x^6 + 384*a*c^7
*d*e^2*x^4 + 48*a*c^7*d^2*e*x^2 - 96*a*c^7*d^3 + 48*(5*b*c^7*e^3*x^6 + 8*b*
c^7*d*e^2*x^4 + b*c^7*d^2*e*x^2 - 2*b*c^7*d^3)*arcsec(c*x) - (40*b*c^5*e^3*
x^4 + 57*b*c^5*d^2*e + 164*b*c^3*d*e^2 + 75*b*c*e^3 + 2*(53*b*c^5*d*e^2 + 2
5*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^7*e^2), 1/3360*(48
*b*c^7*sqrt(-d)*d^3*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e
)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d
) + 8*d^2)/x^4) - 3*(35*b*c^6*d^3 - 35*b*c^4*d^2*e - 63*b*c^2*d*e^2 - 25*b*
e^3)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e
*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(240*
a*c^7*e^3*x^6 + 384*a*c^7*d*e^2*x^4 + 48*a*c^7*d^2*e*x^2 - 96*a*c^7*d^3 + 4
8*(5*b*c^7*e^3*x^6 + 8*b*c^7*d*e^2*x^4 + b*c^7*d^2*e*x^2 - 2*b*c^7*d^3)*arc
sec(c*x) - (40*b*c^5*e^3*x^4 + 57*b*c^5*d^2*e + 164*b*c^3*d*e^2 + 75*b*c*e^
3 + 2*(53*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 +
d))/(c^7*e^2), -1/3360*(96*b*c^7*d^(7/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^
2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*
x^2 - d^2)) + 3*(35*b*c^6*d^3 - 35*b*c^4*d^2*e - 63*b*c^2*d*e^2 - 25*b*e^3)
*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2
 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) - 2*(240*a*c^
7*e^3*x^6 + 384*a*c^7*d*e^2*x^4 + 48*a*c^7*d^2*e*x^2 - 96*a*c^7*d^3 + 48*(5
*b*c^7*e^3*x^6 + 8*b*c^7*d*e^2*x^4 + b*c^7*d^2*e*x^2 - 2*b*c^7*d^3)*arcsec(
c*x) - (40*b*c^5*e^3*x^4 + 57*b*c^5*d^2*e + 164*b*c^3*d*e^2 + 75*b*c*e^3 +
2*(53*b*c^5*d*e^2 + 25*b*c^3*e^3)*x^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/
(c^7*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(e*x**2+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2+d\right)^{\frac{3}{2}}(b\,\mathrm{arcsec}\,(cx)+a)x^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)*x^3, x)
```

3.122 $\int x\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=262

$$\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}-\frac{bx\left(15c^4d^2+10c^2de+3e^2\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{40c^4\sqrt{e}\sqrt{c^2x^2}}+\frac{bcd^{5/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{5e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2}}{}$$

```
[Out] -(b*(7*c^2*d + 3*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(40*c^3*Sqrt[c^2*
x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*Sqrt[c^2*x^2]) + (
(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*e) + (b*c*d^(5/2)*x*ArcTan[Sqrt[d
 + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(5*e*Sqrt[c^2*x^2]) - (b*(15*c^4*d
^2 + 10*c^2*d*e + 3*e^2)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d +
 e*x^2])])/(40*c^4*Sqrt[e]*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.270425, antiderivative size = 262, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 10, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.476, Rules used = {5236, 446, 102, 154, 157, 63, 217, 206, 93, 204}

$$\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}-\frac{bx\left(15c^4d^2+10c^2de+3e^2\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{40c^4\sqrt{e}\sqrt{c^2x^2}}+\frac{bcd^{5/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{5e\sqrt{c^2x^2}}-\frac{bx\sqrt{c^2}}{}$$

Antiderivative was successfully verified.

```
[In] Int[x*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```


```
[Out] -(b*(7*c^2*d + 3*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(40*c^3*Sqrt[c^2*
x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*Sqrt[c^2*x^2]) + (
(d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*e) + (b*c*d^(5/2)*x*ArcTan[Sqrt[d
 + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(5*e*Sqrt[c^2*x^2]) - (b*(15*c^4*d
^2 + 10*c^2*d*e + 3*e^2)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d +
 e*x^2])])/(40*c^4*Sqrt[e]*Sqrt[c^2*x^2])
```


Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 102

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_
))^(p_.), x_Symbol] :> Simp[(b*(a + b*x)^(m - 1)*(c + d*x)^(n + 1)*(e + f*x
)^(p + 1))/(d*f*(m + n + p + 1)), x] + Dist[1/(d*f*(m + n + p + 1)), Int[(a
 + b*x)^(m - 2)*(c + d*x)^n*(e + f*x)^p*Simp[a^2*d*f*(m + n + p + 1) - b*(b
*c*e*(m - 1) + a*(d*e*(n + 1) + c*f*(p + 1))) + b*(a*d*f*(2*m + n + p) - b*
(d*e*(m + n) + c*f*(m + p)))*x, x], x], x] /; FreeQ[{a, b, c, d, e, f, n, p
```

```
}, x] && GtQ[m, 1] && NeQ[m + n + p + 1, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int x\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx=\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}-\frac{(bcx)\int\frac{\left(d+ex^2\right)^{5/2}}{x\sqrt{-1+c^2x^2}}\,dx}{5e\sqrt{c^2x^2}}$$

$$=\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}-\frac{(bcx)\,\mathrm{Subst}\left(\int\frac{(d+ex)^{5/2}}{x\sqrt{-1+c^2x}}\,dx,x,x^2\right)}{10e\sqrt{c^2x^2}}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e}-\frac{(bx)\,\mathrm{Subst}\left(\int\right.}{}$$

$$=-\frac{b\left(7c^2d+3e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{40c^3\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right.}{}$$

$$=-\frac{b\left(7c^2d+3e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{40c^3\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right.}{}$$

$$=-\frac{b\left(7c^2d+3e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{40c^3\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right.}{}$$

$$=-\frac{b\left(7c^2d+3e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{40c^3\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right.}{}$$

$$=-\frac{b\left(7c^2d+3e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{40c^3\sqrt{c^2x^2}}-\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20c\sqrt{c^2x^2}}+\frac{\left(d+ex^2\right.}{}$$

Mathematica [A] time = 0.714011, size = 305, normalized size = 1.16

$$\frac{\sqrt{d+ex^2}\left(8ac^3\left(d+ex^2\right)^2-bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(9d+2ex^2\right)+3e\right)+8bc^3\sec^{-1}(cx)\left(d+ex^2\right)^2\right)}{40c^3e}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(\sqrt{c^2}\sqrt{e}\sqrt{\right.}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(8*a*c^3*(d + e*x^2)^2 - b*e*Sqrt[1 - 1/(c^2*x^2)]*x*(3*e
+ c^2*(9*d + 2*e*x^2)) + 8*b*c^3*(d + e*x^2)^2*ArcSec[c*x]))/(40*c^3*e) - (
b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[c^2]*Sqrt[e]*Sqrt[c^2*d + e]*(15*c^4*d^2 +
10*c^2*d*e + 3*e^2)*Sqrt[(c^2*(d + e*x^2))/(c^2*d + e)]*ArcSinh[(c*Sqrt[e]*
Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] + 8*c^7*d^(5/2)*Sqrt[d + e
*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]]))/(40*c^6*e*Sqrt
[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.191, size = 0, normalized size = 0.

$$\int x\left(ex^2+d\right)^{\frac{3}{2}}\left(a+b\,\mathrm{arcsec}\,(cx)\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int(x*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 10.902, size = 3004, normalized size = 11.47

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] [1/160*(8*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*
d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d
)*sqrt(-d) + 8*d^2)/x^4) + (15*b*c^4*d^2 + 10*b*c^2*d*e + 3*b*e^2)*sqrt(e)*
log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*
c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) +
 4*(8*a*c^5*e^2*x^4 + 16*a*c^5*d*e*x^2 + 8*a*c^5*d^2 + 8*(b*c^5*e^2*x^4 + 2
*b*c^5*d*e*x^2 + b*c^5*d^2)*arcsec(c*x) - (2*b*c^3*e^2*x^2 + 9*b*c^3*d*e +
3*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e), 1/160*(16*b*c^5*d^(
5/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*
sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (15*b*c^4*d^2 + 10*b*c
^2*d*e + 3*b*e^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*
d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e
*x^2 + d)*sqrt(e) + e^2) + 4*(8*a*c^5*e^2*x^4 + 16*a*c^5*d*e*x^2 + 8*a*c^5*
d^2 + 8*(b*c^5*e^2*x^4 + 2*b*c^5*d*e*x^2 + b*c^5*d^2)*arcsec(c*x) - (2*b*c^
3*e^2*x^2 + 9*b*c^3*d*e + 3*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c
^5*e), 1/80*(4*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*
(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^
2 + d)*sqrt(-d) + 8*d^2)/x^4) + (15*b*c^4*d^2 + 10*b*c^2*d*e + 3*b*e^2)*sqr
t(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d
)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(8*a*c^5*e^2*
x^4 + 16*a*c^5*d*e*x^2 + 8*a*c^5*d^2 + 8*(b*c^5*e^2*x^4 + 2*b*c^5*d*e*x^2 +
 b*c^5*d^2)*arcsec(c*x) - (2*b*c^3*e^2*x^2 + 9*b*c^3*d*e + 3*b*c*e^2)*sqrt(
c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e), 1/80*(8*b*c^5*d^(5/2)*arctan(-1/2*s
qrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x
^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (15*b*c^4*d^2 + 10*b*c^2*d*e + 3*b*e^2)*
sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2
+ d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(8*a*c^5*e
^2*x^4 + 16*a*c^5*d*e*x^2 + 8*a*c^5*d^2 + 8*(b*c^5*e^2*x^4 + 2*b*c^5*d*e*x^
2 + b*c^5*d^2)*arcsec(c*x) - (2*b*c^3*e^2*x^2 + 9*b*c^3*d*e + 3*b*c*e^2)*sq
rt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x**2+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2+d\right)^{\frac{3}{2}}(b\operatorname{arcsec}(cx)+a)x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)*x, x)
```

3.123 $\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x},x\right)$$

```
[Out] Unintegrable[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x, x]
```

Rubi [A] time = 0.114919, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] Defer[Int][((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x, x]
```

Rubi steps

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x}\,dx = \int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x}\,dx$$

Mathematica [A] time = 4.98366, size = 0, normalized size = 0.

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x,x]
```

```
[Out] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x, x]
```

Maple [A] time = 1.133, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}(cx)}{x}\left(ex^2+d\right)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(aex^2+ad+\left(bex^2+bd\right)\mathrm{arcsec}\,(cx)\right)\sqrt{ex^2+d}}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x, x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)^{\frac{3}{2}}(b\,\mathrm{arcsec}\,(cx)+a)}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x, x)
```

3.124 $\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3},x\right)$$

```
[Out] Unintegrable[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^3, x]
```

Rubi [A] time = 0.119155, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] Defer[Int][((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^3, x]
```

Rubi steps

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3}\,dx=\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3}\,dx$$

Mathematica [A] time = 5.33946, size = 0, normalized size = 0.

$$\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^3}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^3,x]
```

```
[Out] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^3, x]
```

Maple [A] time = 1.036, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^3}\left(ex^2+d\right)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^3,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^3,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(aex^2 + ad + \left(bex^2 + bd\right)\operatorname{arcsec}(cx)\right)\sqrt{ex^2 + d}}{x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^3,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x^3,
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x**3,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^{\frac{3}{2}}(b\operatorname{arcsec}(cx) + a)}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^3,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x^3, x)
```

3.125 $\int x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) \, dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[x^2*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.112009, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) \, dx$$

Verification is Not applicable to the result.

```
[In] Int[x^2*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][x^2*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) \, dx = \int x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) \, dx$$

Mathematica [A] time = 8.75291, size = 0, normalized size = 0.

$$\int x^2 \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) \, dx$$

Verification is Not applicable to the result.

```
[In] Integrate[x^2*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[x^2*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.458, size = 0, normalized size = 0.

$$\int x^2 \left(ex^2+d\right)^{\frac{3}{2}} \left(a+b\,\mathrm{arcsec}\,(cx)\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int(x^2*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(aex^4 + adx^2 + \left(bex^4 + bdx^2\right)\text{arcsec}\,(cx)\right)\sqrt{ex^2 + d}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e*x^4 + a*d*x^2 + (b*e*x^4 + b*d*x^2)*arcsec(c*x))*sqrt(e*x^2 +
 d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(e*x**2+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^{\frac{3}{2}}(b\,\text{arcsec}\,(cx) + a)x^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)*x^2, x)
```

3.126 $\int \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=22

$$\text{Unintegrable}\left(\left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0416049, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Int[(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx = \int \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx$$

Mathematica [A] time = 4.86423, size = 0, normalized size = 0.

$$\int \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.105, size = 0, normalized size = 0.

$$\int \left(ex^2+d\right)^{\frac{3}{2}} (a+b\,\mathrm{arcsec}\,(cx))\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(aex^2 + ad + \left(bex^2 + bd\right)\text{arcsec}\left(cx\right)\right)\sqrt{ex^2 + d}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)^{\frac{3}{2}}\left(b\,\text{arcsec}\left(cx\right) + a\right)dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a), x)
```

3.127 $\int \frac{(d+ex^2)^{3/2}(a+b\sec^{-1}(cx))}{x^2}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{(d+ex^2)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^2},x\right)$$

```
[Out] Unintegrable[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^2, x]
```

Rubi [A] time = 0.102987, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(d+ex^2)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^2,x]
```

```
[Out] Defer[Int][((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^2, x]
```

Rubi steps

$$\int \frac{(d+ex^2)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx=\int \frac{(d+ex^2)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Mathematica [A] time = 8.08922, size = 0, normalized size = 0.

$$\int \frac{(d+ex^2)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^2,x]
```

```
[Out] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^2, x]
```

Maple [A] time = 1.031, size = 0, normalized size = 0.

$$\int \frac{a+b\operatorname{arcsec}(cx)}{x^2}\left(ex^2+d\right)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^2,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^2,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(aex^2 + ad + \left(bex^2 + bd\right)\text{arcsec}\,(cx)\right)\sqrt{ex^2 + d}}{x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^2,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x^2,
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x**2,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^{\frac{3}{2}}(b\,\text{arcsec}\,(cx) + a)}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^2,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x^2, x)
```

3.128 $\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4},x\right)$$

```
[Out] Unintegrable[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^4, x]
```

Rubi [A] time = 0.104226, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] Defer[Int][((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^4, x]
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx=\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$$

Mathematica [A] time = 10.6745, size = 0, normalized size = 0.

$$\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^4}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^4,x]
```

```
[Out] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^4, x]
```

Maple [A] time = 1.447, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\left(cx\right)}{x^4}\left(ex^2+d\right)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^4,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^4,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(aex^2 + ad + \left(bex^2 + bd\right)\text{arcsec}\left(cx\right)\right)\sqrt{ex^2 + d}}{x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^4,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x^4,
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x**4,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2 + d\right)^{\frac{3}{2}}\left(b\,\text{arcsec}\left(cx\right) + a\right)}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^4,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x^4, x)
```

3.129 $\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx$

Optimal. Leaf size=416

$$\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\left(8c^4d^2+19c^2de+15e^2\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{75d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+ bc$$

```
[Out] (b*c*(8*c^4*d^2 + 23*c^2*d*e + 23*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/
(75*d*Sqrt[c^2*x^2]) + (4*b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x
^2])/(75*x^2*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(2
5*x^4*Sqrt[c^2*x^2]) - ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*d*x^5) -
(b*c^2*(8*c^4*d^2 + 23*c^2*d*e + 23*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2
]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(75*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x
^2]*Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(8*c^4*d^2 + 19*c^2*d*e + 15*e^2)
*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d)
)])/(75*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.539278, antiderivative size = 416, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {264, 5238, 12, 474, 580, 583, 524, 427, 426, 424, 421, 419}

$$-\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{bc\sqrt{c^2x^2-1}\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}}+\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\left(8c^4d^2+19c^2d\right.}{75d\sqrt{c^2x^2}\sqrt{c^2}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^6,x]
```


```
[Out] (b*c*(8*c^4*d^2 + 23*c^2*d*e + 23*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/
(75*d*Sqrt[c^2*x^2]) + (4*b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x
^2])/(75*x^2*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(2
5*x^4*Sqrt[c^2*x^2]) - ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(5*d*x^5) -
(b*c^2*(8*c^4*d^2 + 23*c^2*d*e + 23*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2
]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(75*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x
^2]*Sqrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*(8*c^4*d^2 + 19*c^2*d*e + 15*e^2)
*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d)
)])/(75*d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```


Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
```

```
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 474

```
Int[((e_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)
)^(q_), x_Symbol] :> Simp[(c*(e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n)^
(q - 1))/(a*e*(m + 1)), x] - Dist[1/(a*e^n*(m + 1)), Int[(e*x)^(m + n)*(a +
 b*x^n)^p*(c + d*x^n)^(q - 2)*Simp[c*(c*b - a*d)*(m + 1) + c*n*(b*c*(p + 1)
 + a*d*(q - 1)) + d*((c*b - a*d)*(m + 1) + c*b*n*(p + q))*x^n, x], x], x] /
; FreeQ[{a, b, c, d, e, p}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && GtQ[q,
 1] && LtQ[m, -1] && IntBinomialQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 580

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^q)/(a*g*(m + 1)), x] - Dist[1/(a*g^n*(m + 1)), I
nt[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^(q - 1)*Simp[c*(b*e - a*f)*(m +
1) + e*n*(b*c*(p + 1) + a*d*q) + d*((b*e - a*f)*(m + 1) + b*e*n*(p + q + 1)
)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p}, x] && IGtQ[n, 0] && Gt
Q[q, 0] && LtQ[m, -1] && !(EqQ[q, 1] && SimplerQ[e + f*x^n, c + d*x^n])
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] && !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^6}\,dx = -\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5} - \frac{(bcx)\int -\frac{\left(d+ex^2\right)^{5/2}}{5dx^6\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5} + \frac{(bcx)\int \frac{\left(d+ex^2\right)^{5/2}}{x^6\sqrt{-1+c^2x^2}}\,dx}{5d\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{25x^4\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5} - \frac{(bcx)\int \frac{\sqrt{d+ex^2}\left(-4d\left(c^2d\right.\right.}{x^4\sqrt{-}}}{25d\sqrt{c}}$$

$$= \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75x^2\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{25x^4\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{5/2}\left(a\right.}{5d}$$

$$= \frac{bc\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}} + \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+}}{75x^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}} + \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+}}{75x^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}} + \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+}}{75x^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}} + \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+}}{75x^2\sqrt{c^2x^2}}$$

$$= \frac{bc\left(8c^4d^2+23c^2de+23e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{75d\sqrt{c^2x^2}} + \frac{4bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d+}}{75x^2\sqrt{c^2x^2}}$$

Mathematica [C] time = 0.641723, size = 303, normalized size = 0.73

$$\frac{\sqrt{d+ex^2}\left(-15a\left(d+ex^2\right)^2+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(d^2\left(8c^4x^4+4c^2x^2+3\right)+dex^2\left(23c^2x^2+11\right)+23e^2x^4\right)-15b\sec^{-1}(cx)\left(d+e\right.\right.}{75dx^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^6,x]
```

```
[Out] (Sqrt[d + e*x^2]*(-15*a*(d + e*x^2)^2 + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(23*e^2
*x^4 + d*e*x^2*(11 + 23*c^2*x^2) + d^2*(3 + 4*c^2*x^2 + 8*c^4*x^4)) - 15*b*
(d + e*x^2)^2*ArcSec[c*x]))/(75*d*x^5) - ((I/75)*b*c*Sqrt[1 - 1/(c^2*x^2)]*
x*Sqrt[1 + (e*x^2)/d]*(c^2*d*(8*c^4*d^2 + 23*c^2*d*e + 23*e^2)*EllipticE[I*
ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] - (8*c^6*d^3 + 27*c^4*d^2*e + 34*c^2*d
*e^2 + 15*e^3)*EllipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^
2]*d*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.676, size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{arcsec}\,(cx)}{x^6} \left(e x^2 + d\right)^{\frac{3}{2}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^6,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^6,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(aex^2 + ad + \left(bex^2 + bd\right)\mathrm{arcsec}\,(cx)\right)\sqrt{ex^2 + d}}{x^6}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^6,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x^6,
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x**6,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)^{\frac{3}{2}}\left(b\operatorname{arcsec}\left(cx\right)+a\right)}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^6,x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x^6, x)
```

3.130 $\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^8}\,dx$

Optimal. Leaf size=554

$$\frac{2bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\left(204c^4d^2e+120c^6d^3+17c^2de^2-105e^3\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{3675d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{2e\left(d+ex^2\right)^{5/2}}{35}$$

```
[Out] (b*c*(240*c^6*d^3 + 528*c^4*d^2*e + 193*c^2*d*e^2 - 247*e^3)*Sqrt[-1 + c^2*
x^2]*Sqrt[d + e*x^2])/(3675*d^2*Sqrt[c^2*x^2]) + (b*c*(120*c^4*d^2 + 159*c^
2*d*e - 37*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(3675*d*x^2*Sqrt[c^2*x^
2]) + (b*c*(30*c^2*d + 11*e)*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(1225*d*
x^4*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(5/2))/(49*d*x^6*S
qrt[c^2*x^2]) - ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(7*d*x^7) + (2*e*(d
 + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(35*d^2*x^5) - (b*c^2*(240*c^6*d^3 + 5
28*c^4*d^2*e + 193*c^2*d*e^2 - 247*e^3)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]
*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3675*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^
2*x^2]*Sqrt[1 + (e*x^2)/d]) + (2*b*(c^2*d + e)*(120*c^6*d^3 + 204*c^4*d^2*e
 + 17*c^2*d*e^2 - 105*e^3)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*Elliptic
F[ArcSin[c*x], -(e/(c^2*d))])/(3675*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sq
rt[d + e*x^2])
```

Rubi [A] time = 0.777962, antiderivative size = 554, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {271, 264, 5238, 12, 580, 583, 524, 427, 426, 424, 421, 419}

$$\frac{2e\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{35d^2x^5}-\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{7dx^7}+\frac{bc\sqrt{c^2x^2-1}\left(528c^4d^2e+240c^6d^3+193c^2de^2-24\right.}{3675d^2\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^8,x]
```


```
[Out] (b*c*(240*c^6*d^3 + 528*c^4*d^2*e + 193*c^2*d*e^2 - 247*e^3)*Sqrt[-1 + c^2*
x^2]*Sqrt[d + e*x^2])/(3675*d^2*Sqrt[c^2*x^2]) + (b*c*(120*c^4*d^2 + 159*c^
2*d*e - 37*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(3675*d*x^2*Sqrt[c^2*x^
2]) + (b*c*(30*c^2*d + 11*e)*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(1225*d*
x^4*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(5/2))/(49*d*x^6*S
qrt[c^2*x^2]) - ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(7*d*x^7) + (2*e*(d
 + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/(35*d^2*x^5) - (b*c^2*(240*c^6*d^3 + 5
28*c^4*d^2*e + 193*c^2*d*e^2 - 247*e^3)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]
*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3675*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^
2*x^2]*Sqrt[1 + (e*x^2)/d]) + (2*b*(c^2*d + e)*(120*c^6*d^3 + 204*c^4*d^2*e
 + 17*c^2*d*e^2 - 105*e^3)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*Elliptic
F[ArcSin[c*x], -(e/(c^2*d))])/(3675*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sq
rt[d + e*x^2])
```


Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 580

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^q)/(a*g*(m + 1)), x] - Dist[1/(a*g^n*(m + 1)), I
nt[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^(q - 1)*Simp[c*(b*e - a*f)*(m +
1) + e*n*(b*c*(p + 1) + a*d*q) + d*((b*e - a*f)*(m + 1) + b*e*n*(p + q + 1)
)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p}, x] && IGtQ[n, 0] && Gt
Q[q, 0] && LtQ[m, -1] &&  !(EqQ[q, 1] && SimplerQ[e + f*x^n, c + d*x^n])
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
```

```
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{x^8}dx = -\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{7dx^7} + \frac{2e\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{35d^2x^5} - \frac{(bcx)\int \frac{(d+ex^2)}{35d^2}}{\sqrt{c}}$$

$$= -\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{7dx^7} + \frac{2e\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{35d^2x^5} - \frac{(bcx)\int \frac{(d+ex^2)}{x^8}}{35d^2}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{49dx^6\sqrt{c^2x^2}} - \frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{7dx^7} + \frac{2e\left(d+ex^2\right)^{5/2}\left(a+b\right.}{35d^2x^5}$$

$$= \frac{bc\left(30c^2d+11e\right)\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{1225dx^4\sqrt{c^2x^2}} + \frac{bc\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{5/2}}{49dx^6\sqrt{c^2x^2}} - \left(d+ex^2\right)$$

$$= \frac{bc\left(120c^4d^2+159c^2de-37e^2\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675dx^2\sqrt{c^2x^2}} + \frac{bc\left(30c^2d+11e\right)\sqrt{-1+c^2x^2}}{1225dx^4\sqrt{c^2x^2}}$$

$$= \frac{bc\left(240c^6d^3+528c^4d^2e+193c^2de^2-247e^3\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675d^2\sqrt{c^2x^2}} + bc\left(120c^4d^2+\right.$$

$$= \frac{bc\left(240c^6d^3+528c^4d^2e+193c^2de^2-247e^3\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675d^2\sqrt{c^2x^2}} + bc\left(120c^4d^2+\right.$$

$$= \frac{bc\left(240c^6d^3+528c^4d^2e+193c^2de^2-247e^3\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675d^2\sqrt{c^2x^2}} + bc\left(120c^4d^2+\right.$$

$$= \frac{bc\left(240c^6d^3+528c^4d^2e+193c^2de^2-247e^3\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675d^2\sqrt{c^2x^2}} + bc\left(120c^4d^2+\right.$$

$$= \frac{bc\left(240c^6d^3+528c^4d^2e+193c^2de^2-247e^3\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3675d^2\sqrt{c^2x^2}} + bc\left(120c^4d^2+\right.$$

Mathematica [C] time = 0.834749, size = 383, normalized size = 0.69

$$\frac{\sqrt{d+ex^2}\left(-105a\left(5d-2ex^2\right)\left(d+ex^2\right)^2+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3d^2ex^2\left(176c^4x^4+83c^2x^2+61\right)+15d^3\left(16c^6x^6+8c^4x^4+6c^2x^2\right.\right.}{3675d^2x^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/x^8,x]
```

```
[Out] (Sqrt[d + e*x^2]*(-105*a*(5*d - 2*e*x^2)*(d + e*x^2)^2 + b*c*Sqrt[1 - 1/(c^
2*x^2)]*x*(-247*e^3*x^6 + d*e^2*x^4*(71 + 193*c^2*x^2) + 3*d^2*e*x^2*(61 +
83*c^2*x^2 + 176*c^4*x^4) + 15*d^3*(5 + 6*c^2*x^2 + 8*c^4*x^4 + 16*c^6*x^6)
) - 105*b*(5*d - 2*e*x^2)*(d + e*x^2)^2*ArcSec[c*x]))/(3675*d^2*x^7) - ((I/
3675)*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d*(240*c^6*d^3 +
 528*c^4*d^2*e + 193*c^2*d*e^2 - 247*e^3)*EllipticE[I*ArcSinh[Sqrt[-c^2]*x]
, -(e/(c^2*d))] - 2*(120*c^8*d^4 + 324*c^6*d^3*e + 221*c^4*d^2*e^2 - 88*c^2
*d*e^3 - 105*e^4)*EllipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[
-c^2]*d^2*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 2.136, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^8}\left(ex^2+d\right)^{\frac{3}{2}}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^8,x)
```

```
[Out] int((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^8,x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^8,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(aex^2+ad+\left(bex^2+bd\right)\mathrm{arcsec}\,(cx)\right)\sqrt{ex^2+d}}{x^8},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^8,x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)/x^8,
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x**2+d)**(3/2)*(a+b*asec(c*x))/x**8,x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(ex^2+d\right)^{\frac{3}{2}}\left(b\,\mathrm{arcsec}\,(cx)+a\right)}{x^8}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x^2+d)^(3/2)*(a+b*arcsec(c*x))/x^8,x, algorithm="giac")

[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)/x^8, x)
```

3.131 $\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=321

$$\frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}-\frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3}+\frac{8bcd^{5/2}x\tan^{-1}\left(\right.}{15e^3\sqrt{c^2x^2}}$$

```
[Out] (b*(19*c^2*d - 9*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(120*c^3*e^2*Sqrt
[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*e^2*Sqrt[c^2*
x^2]) + (d^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e^3 - (2*d*(d + e*x^2)^(3
/2)*(a + b*ArcSec[c*x]))/(3*e^3) + ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/
(5*e^3) + (8*b*c*d^(5/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^
2])])/(15*e^3*Sqrt[c^2*x^2]) - (b*(45*c^4*d^2 - 10*c^2*d*e + 9*e^2)*x*ArcTa
nh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(120*c^4*e^(5/2)*Sqrt
[c^2*x^2])
```

Rubi [A] time = 1.01209, antiderivative size = 321, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {266, 43, 5238, 12, 1615, 154, 157, 63, 217, 206, 93, 204}

$$\frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}-\frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}+\frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{5e^3}+\frac{8bcd^{5/2}x\tan^{-1}\left(\right.}{15e^3\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^5*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```


```
[Out] (b*(19*c^2*d - 9*e)*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(120*c^3*e^2*Sqrt
[c^2*x^2]) - (b*x*Sqrt[-1 + c^2*x^2]*(d + e*x^2)^(3/2))/(20*c*e^2*Sqrt[c^2*
x^2]) + (d^2*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e^3 - (2*d*(d + e*x^2)^(3
/2)*(a + b*ArcSec[c*x]))/(3*e^3) + ((d + e*x^2)^(5/2)*(a + b*ArcSec[c*x]))/
(5*e^3) + (8*b*c*d^(5/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^
2])])/(15*e^3*Sqrt[c^2*x^2]) - (b*(45*c^4*d^2 - 10*c^2*d*e + 9*e^2)*x*ArcTa
nh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(120*c^4*e^(5/2)*Sqrt
[c^2*x^2])
```


Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
```

```
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1615

```
Int[(Px_)*((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f
_.)*(x_))^(p_.), x_Symbol] :> With[{q = Expon[Px, x], k = Coeff[Px, x, Expo
n[Px, x]]}, Simp[(k*(a + b*x)^(m + q - 1)*(c + d*x)^(n + 1)*(e + f*x)^(p +
1))/(d*f*b^(q - 1)*(m + n + p + q + 1)), x] + Dist[1/(d*f*b^q*(m + n + p +
q + 1)), Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^p*ExpandToSum[d*f*b^q*(m + n
 + p + q + 1)*Px - d*f*k*(m + n + p + q + 1)*(a + b*x)^q + k*(a + b*x)^(q -
 2)*(a^2*d*f*(m + n + p + q + 1) - b*(b*c*e*(m + q - 1) + a*(d*e*(n + 1) +
c*f*(p + 1))) + b*(a*d*f*(2*(m + q) + n + p) - b*(d*e*(m + q + n) + c*f*(m
+ q + p)))*x), x], x], x] /; NeQ[m + n + p + q + 1, 0]] /; FreeQ[{a, b, c,
d, e, f, m, n, p}, x] && PolyQ[Px, x] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
```

```
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx = \frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} + \frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec\right.}{5e^3}$$

$$= \frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} + \frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec\right.}{5e^3}$$

$$= \frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3} + \frac{\left(d+ex^2\right)^{5/2}\left(a+b\sec\right.}{5e^3}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{2d\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-}\right.}{3e^3}$$

$$= \frac{b\left(19c^2d-9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\,\mathrm{s}\right.}{e^3}$$

$$= \frac{b\left(19c^2d-9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\,\mathrm{s}\right.}{e^3}$$

$$= \frac{b\left(19c^2d-9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\,\mathrm{s}\right.}{e^3}$$

$$= \frac{b\left(19c^2d-9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\,\mathrm{s}\right.}{e^3}$$

$$= \frac{b\left(19c^2d-9e\right)x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{120c^3e^2\sqrt{c^2x^2}} - \frac{bx\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}{20ce^2\sqrt{c^2x^2}} + \frac{d^2\sqrt{d+ex^2}\left(a+b\,\mathrm{s}\right.}{e^3}$$

Mathematica [A] time = 0.718303, size = 328, normalized size = 1.02

$$\frac{\sqrt{d+ex^2}\left(8ac^3\left(8d^2-4dex^2+3e^2x^4\right)+8bc^3\sec^{-1}(cx)\left(8d^2-4dex^2+3e^2x^4\right)+bex\sqrt{1-\frac{1}{c^2x^2}}\left(c^2\left(13d-6ex^2\right)-9e\right)\right)}{120c^3e^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^5*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] (Sqrt[d + e*x^2]*(8*a*c^3*(8*d^2 - 4*d*e*x^2 + 3*e^2*x^4) + b*e*Sqrt[1 - 1/
(c^2*x^2)]*x*(-9*e + c^2*(13*d - 6*e*x^2)) + 8*b*c^3*(8*d^2 - 4*d*e*x^2 + 3
*e^2*x^4)*ArcSec[c*x]))/(120*c^3*e^3) - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[c^
2]*Sqrt[e]*Sqrt[c^2*d + e]*(45*c^4*d^2 - 10*c^2*d*e + 9*e^2)*Sqrt[(c^2*(d +
 e*x^2))/(c^2*d + e)]*ArcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqr
t[c^2*d + e])] + 64*c^7*d^(5/2)*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c
^2*x^2])/Sqrt[d + e*x^2]]))/(120*c^6*e^3*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2]
)
```

Maple [F] time = 2.826, size = 0, normalized size = 0.

$$\int x^{5} \left(a + b\,\mathrm{arcsec}\left(cx\right)\right) \frac{1}{\sqrt{e x^{2} + d}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

```
[Out] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 11.8402, size = 3060, normalized size = 9.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/480*(64*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2
*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 +
d)*sqrt(-d) + 8*d^2)/x^4) + (45*b*c^4*d^2 - 10*b*c^2*d*e + 9*b*e^2)*sqrt(e)
*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2
*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2)
+ 4*(24*a*c^5*e^2*x^4 - 32*a*c^5*d*e*x^2 + 64*a*c^5*d^2 + 8*(3*b*c^5*e^2*x^
4 - 4*b*c^5*d*e*x^2 + 8*b*c^5*d^2)*arcsec(c*x) - (6*b*c^3*e^2*x^2 - 13*b*c^
3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e^3), 1/480*(12
8*b*c^5*d^(5/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(
```

```
e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (45*b*c^4*d
^2 - 10*b*c^2*d*e + 9*b*e^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*
e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2
- 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(24*a*c^5*e^2*x^4 - 32*a*c^5*d*e*x^
2 + 64*a*c^5*d^2 + 8*(3*b*c^5*e^2*x^4 - 4*b*c^5*d*e*x^2 + 8*b*c^5*d^2)*arcs
ec(c*x) - (6*b*c^3*e^2*x^2 - 13*b*c^3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*s
qrt(e*x^2 + d))/(c^5*e^3), 1/240*(32*b*c^5*sqrt(-d)*d^2*log(((c^4*d^2 - 6*c
^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e
)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + (45*b*c^4*d^2 - 10*b*
c^2*d*e + 9*b*e^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x
^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x
^2)) + 2*(24*a*c^5*e^2*x^4 - 32*a*c^5*d*e*x^2 + 64*a*c^5*d^2 + 8*(3*b*c^5*e
^2*x^4 - 4*b*c^5*d*e*x^2 + 8*b*c^5*d^2)*arcsec(c*x) - (6*b*c^3*e^2*x^2 - 13
*b*c^3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^5*e^3), 1/24
0*(64*b*c^5*d^(5/2)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*s
qrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (45*b*c
^4*d^2 - 10*b*c^2*d*e + 9*b*e^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d -
 e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*
d*e - c*e^2)*x^2)) + 2*(24*a*c^5*e^2*x^4 - 32*a*c^5*d*e*x^2 + 64*a*c^5*d^2
+ 8*(3*b*c^5*e^2*x^4 - 4*b*c^5*d*e*x^2 + 8*b*c^5*d^2)*arcsec(c*x) - (6*b*c^
3*e^2*x^2 - 13*b*c^3*d*e + 9*b*c*e^2)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(
c^5*e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^5}{\sqrt{ex^2 + d}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5/sqrt(e*x^2 + d), x)
```

3.132 $\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=225

$$-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\frac{2bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e^2\sqrt{c^2x^2}}+\frac{bx\left(3c^2d-e\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{6c^2e^{3/2}\sqrt{c^2x^2}}$$

```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*e*Sqrt[c^2*x^2]) - (d*Sqrt[d
 + e*x^2]*(a + b*ArcSec[c*x]))/e^2 + ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x])
)/(3*e^2) - (2*b*c*d^(3/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*
x^2])])/(3*e^2*Sqrt[c^2*x^2]) + (b*(3*c^2*d - e)*x*ArcTanh[(Sqrt[e]*Sqrt[-1
 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(6*c^2*e^(3/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.307533, antiderivative size = 225, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {266, 43, 5238, 12, 573, 154, 157, 63, 217, 206, 93, 204}

$$-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\frac{2bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e^2\sqrt{c^2x^2}}+\frac{bx\left(3c^2d-e\right)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{6c^2e^{3/2}\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*e*Sqrt[c^2*x^2]) - (d*Sqrt[d
 + e*x^2]*(a + b*ArcSec[c*x]))/e^2 + ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x])
)/(3*e^2) - (2*b*c*d^(3/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*
x^2])])/(3*e^2*Sqrt[c^2*x^2]) + (b*(3*c^2*d - e)*x*ArcTanh[(Sqrt[e]*Sqrt[-1
 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(6*c^2*e^(3/2)*Sqrt[c^2*x^2])
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 573

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
)*((e_) + (f_.)*(x_)^(n_))^(r_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simpl
ify[(m + 1)/n] - 1)*(a + b*x)^p*(c + d*x)^q*(e + f*x)^r, x], x, x^n], x] /;
 FreeQ[{a, b, c, d, e, f, m, n, p, q, r}, x] && IntegerQ[Simplify[(m + 1)/n
]]
```

Rule 154

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[(h*(a + b*x)^m*(c + d*x)^(n
+ 1)*(e + f*x)^(p + 1))/(d*f*(m + n + p + 2)), x] + Dist[1/(d*f*(m + n + p
+ 2)), Int[(a + b*x)^(m - 1)*(c + d*x)^n*(e + f*x)^p*Simp[a*d*f*g*(m + n +
p + 2) - h*(b*c*e*m + a*(d*e*(n + 1) + c*f*(p + 1))) + (b*d*f*g*(m + n + p
+ 2) + h*(a*d*f*m - b*(d*e*(m + n + 1) + c*f*(m + p + 1))))*x, x], x], x] /
; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && GtQ[m, 0] && NeQ[m + n + p +
2, 0] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx = -\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\frac{(bcx)\int \frac{\left(-2d+ex^2\right)\sqrt{d+ex^2}}{3e^2x\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\frac{(bcx)\int \frac{\left(-2d+ex^2\right)\sqrt{d+ex^2}}{x\sqrt{-1+c^2x^2}}\,dx}{3e^2\sqrt{c^2x^2}}$$

$$= -\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{(-2d+ex)\sqrt{d+e\cdots}}{x\sqrt{-1+c^2x}}\cdots\right.}{6e^2\sqrt{c^2x^2}}$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce\sqrt{c^2x^2}}-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\cdots$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce\sqrt{c^2x^2}}-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\cdots$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce\sqrt{c^2x^2}}-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}+\cdots$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce\sqrt{c^2x^2}}-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\cdots$$

$$= -\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce\sqrt{c^2x^2}}-\frac{d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^2}-\cdots$$

Mathematica [A] time = 0.50679, size = 272, normalized size = 1.21

$$\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(4c^5d^{3/2}\sqrt{d+ex^2}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)+\sqrt{c^2}\sqrt{e}\left(3c^2d-e\right)\sqrt{c^2d+e}\sqrt{\frac{c^2\left(d+ex^2\right)}{c^2d+e}}\sinh^{-1}\left(\frac{c\sqrt{e}\sqrt{c^2x^2-1}}{\sqrt{c^2}\sqrt{c^2d+e}}\right)\right)}{6c^4e^2\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{\sqrt{d+ex^2}\cdots}{\cdots}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] -(Sqrt[d + e*x^2]*(4*a*c*d + b*e*Sqrt[1 - 1/(c^2*x^2)]*x - 2*a*c*e*x^2 + 2*
b*c*(2*d - e*x^2)*ArcSec[c*x]))/(6*c*e^2) + (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqr
t[c^2]*(3*c^2*d - e)*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[(c^2*(d + e*x^2))/(c^2*d
+ e)]*ArcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] +
 4*c^5*d^(3/2)*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d +
 e*x^2]]))/(6*c^4*e^2*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 2.027, size = 0, normalized size = 0.

$$\int x^3 (a + b\text{arcsec}\,(cx)) \frac{1}{\sqrt{ex^2 + d}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

```
[Out] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.05855, size = 2452, normalized size = 10.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/24*(4*b*c^3*sqrt(-d)*d*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2
 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*s
qrt(-d) + 8*d^2)/x^4) - (3*b*c^2*d - b*e)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d
^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*
sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(2*a*c^3*e*x^2 - 4*a*c
^3*d - sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 - 2*b*c^3*d)*arcsec(c*x))*s
qrt(e*x^2 + d))/(c^3*e^2), -1/24*(8*b*c^3*d^(3/2)*arctan(-1/2*sqrt(c^2*x^2
- 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^
2 - d*e)*x^2 - d^2)) + (3*b*c^2*d - b*e)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^
2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*s
qrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) - 4*(2*a*c^3*e*x^2 - 4*a*c^
3*d - sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 - 2*b*c^3*d)*arcsec(c*x))*sq
rt(e*x^2 + d))/(c^3*e^2), 1/12*(2*b*c^3*sqrt(-d)*d*log(((c^4*d^2 - 6*c^2*d*
e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2
 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) - (3*b*c^2*d - b*e)*sqrt(-e)
*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqr
t(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(2*a*c^3*e*x^2 - 4
*a*c^3*d - sqrt(c^2*x^2 - 1)*b*c*e + 2*(b*c^3*e*x^2 - 2*b*c^3*d)*arcsec(c*x
))*sqrt(e*x^2 + d))/(c^3*e^2), -1/12*(4*b*c^3*d^(3/2)*arctan(-1/2*sqrt(c^2*
x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^
2*d^2 - d*e)*x^2 - d^2)) + (3*b*c^2*d - b*e)*sqrt(-e)*arctan(1/2*(2*c^2*e*x
^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c
*d*e + (c^3*d*e - c*e^2)*x^2)) - 2*(2*a*c^3*e*x^2 - 4*a*c^3*d - sqrt(c^2*x^
2 - 1)*b*c*e + 2*(b*c^3*e*x^2 - 2*b*c^3*d)*arcsec(c*x))*sqrt(e*x^2 + d))/(c
```

```
^3*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^3}{\sqrt{ex^2 + d}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/sqrt(e*x^2 + d), x)
```

3.133 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=132

$$\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{e\sqrt{c^2x^2}}-\frac{bx\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{\sqrt{e}\sqrt{c^2x^2}}$$

```
[Out] (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e + (b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*
x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(e*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[
e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(Sqrt[e]*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.145577, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.381, Rules used = {5236, 446, 105, 63, 217, 206, 93, 204}

$$\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{e\sqrt{c^2x^2}}-\frac{bx\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{\sqrt{e}\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e + (b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*
x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(e*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[
e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[d + e*x^2])])/(Sqrt[e]*Sqrt[c^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 105

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> Dist[b/f, Int[(a + b*x)^(m - 1)*(c + d*x)^n, x], x] - Dis
t[(b*e - a*f)/f, Int[((a + b*x)^(m - 1)*(c + d*x)^n)/(e + f*x), x], x] /; F
reeQ[{a, b, c, d, e, f, m, n}, x] && IGtQ[Simplify[m + n + 1], 0] && (GtQ[m
, 0] || ( !RationalQ[m] && (SumSimplerQ[m, -1] ||  !SumSimplerQ[n, -1])))
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
```

```
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{(bcx)\int\frac{\sqrt{d+ex^2}}{x\sqrt{-1+c^2x^2}}\,dx}{e\sqrt{c^2x^2}}$$

$$=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{(bcx)\,\text{Subst}\left(\int\frac{\sqrt{d+ex}}{x\sqrt{-1+c^2x}}\,dx,x,x^2\right)}{2e\sqrt{c^2x^2}}$$

$$=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{(bcx)\,\text{Subst}\left(\int\frac{1}{\sqrt{-1+c^2x}\sqrt{d+ex}}\,dx,x,x^2\right)}{2\sqrt{c^2x^2}}-\frac{(bcdx)\,\text{Subst}\left(\int\frac{}{x\sqrt{-1+}}\right.}{2e\sqrt{c^2}}$$

$$=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{(bx)\,\text{Subst}\left(\int\frac{1}{\sqrt{d+\frac{e}{c^2}+\frac{ex^2}{c^2}}}\,dx,x,\sqrt{-1+c^2x^2}\right)}{c\sqrt{c^2x^2}}-\frac{(bcdx)\,\text{Subst}\left(\int\right.}{e}$$

$$=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{e\sqrt{c^2x^2}}-\frac{(bx)\,\text{Subst}\left(\int\frac{1}{1-\frac{ex^2}{c^2}}\,dx,x,\frac{\sqrt{-1+c^2x}}{\sqrt{d+ex^2}}\right.}{c\sqrt{c^2x^2}}$$

$$=\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}+\frac{bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{e\sqrt{c^2x^2}}-\frac{bx\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{-1+c^2x^2}}{c\sqrt{d+ex^2}}\right)}{\sqrt{e}\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.219815, size = 211, normalized size = 1.6

$$\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e}-\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(c^3\sqrt{d}\sqrt{d+ex^2}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)+\sqrt{c^2}\sqrt{e}\sqrt{c^2d+e}\sqrt{\frac{c^2(d+ex^2)}{c^2d+e}}\sinh^{-1}\left(\frac{c\sqrt{e}\sqrt{c^2x}}{\sqrt{c^2}\sqrt{c^2}}\right.\right.}{c^2e\sqrt{c^2x^2-1}\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e - (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[
c^2]*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[(c^2*(d + e*x^2))/(c^2*d + e)]*ArcSinh[(c
*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] + c^3*Sqrt[d]*Sqr
t[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]]))/(c^2*e*
Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.591, size = 0, normalized size = 0.

$$\int x\left(a + b\operatorname{arcsec}\left(cx\right)\right)\frac{1}{\sqrt{ex^2 + d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

```
[Out] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.59961, size = 1925, normalized size = 14.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] [1/4*(b*c*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)
*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d)
 + 8*d^2)/x^4) + b*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4
*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(
e*x^2 + d)*sqrt(e) + e^2) + 4*sqrt(e*x^2 + d)*(b*c*arcsec(c*x) + a*c))/(c*e
), 1/4*(2*b*c*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)
*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + b*sqr
t(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 -
4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e
^2) + 4*sqrt(e*x^2 + d)*(b*c*arcsec(c*x) + a*c))/(c*e), 1/4*(b*c*sqrt(-d)*l
og(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^
2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + 2*b
```

```
*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2
 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 4*sqrt(e*x^
2 + d)*(b*c*arcsec(c*x) + a*c))/(c*e), 1/2*(b*c*sqrt(d)*arctan(-1/2*sqrt(c^
2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (
c^2*d^2 - d*e)*x^2 - d^2)) + b*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e
)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*
e - c*e^2)*x^2)) + 2*sqrt(e*x^2 + d)*(b*c*arcsec(c*x) + a*c))/(c*e)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\,(a+b\operatorname{asec}(cx))}{\sqrt{d+ex^2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Integral(x*(a + b*asec(c*x))/sqrt(d + e*x**2), x)
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)x}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/sqrt(e*x^2 + d), x)
```

3.134 $\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x*Sqrt[d + e*x^2]), x]
```

Rubi [A] time = 0.0968381, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x*Sqrt[d + e*x^2]),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x*Sqrt[d + e*x^2]), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}}\,dx = \int \frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}}\,dx$$

Mathematica [A] time = 1.42194, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*Sqrt[d + e*x^2]),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*Sqrt[d + e*x^2]), x]
```

Maple [A] time = 1.52, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x}\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{ex^3+dx},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e*x^3 + d*x), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\,\text{asec}\,(cx)}{x\sqrt{d+ex^2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d)**(1/2),x)
```

```
[Out] Integral((a + b*asec(c*x))/(x*sqrt(d + e*x**2)), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{ex^2+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(e*x^2 + d)*x), x)
```

3.135 $\int \frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x^3*Sqrt[d + e*x^2]), x]
```

Rubi [A] time = 0.10804, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x^3*Sqrt[d + e*x^2]),x]

[Out] Defer[Int][(a + b*ArcSec[c*x])/(x^3*Sqrt[d + e*x^2]), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}}\,dx = \int \frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}}\,dx$$

Mathematica [A] time = 11.0061, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^3*Sqrt[d + e*x^2]),x]

[Out] Integrate[(a + b*ArcSec[c*x])/(x^3*Sqrt[d + e*x^2]), x]
```

Maple [A] time = 1.239, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^3}\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(1/2),x)

[Out] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{ex^5+dx^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e*x^5 + d*x^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**3/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{ex^2+d}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(e*x^2 + d)*x^3), x)
```

3.136 $\int \frac{x^2(a+b\sec^{-1}(cx))}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}},x\right)$$

```
[Out] Unintegrable[(x^2*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Rubi [A] time = 0.0905409, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]

[Out] Defer[Int][(x^2*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Rubi steps

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx=\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Mathematica [A] time = 8.70336, size = 0, normalized size = 0.

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]

[Out] Integrate[(x^2*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Maple [A] time = 1.276, size = 0, normalized size = 0.

$$\int x^2\left(a+b\,\mathrm{arcsec}\,(cx)\right)\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)

[Out] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx^2 \operatorname{arcsec}(cx) + ax^2}{\sqrt{ex^2 + d}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)/sqrt(e*x^2 + d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^2}{\sqrt{ex^2 + d}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/sqrt(e*x^2 + d), x)
```

3.137 $\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=22

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/Sqrt[d + e*x^2], x]
```

Rubi [A] time = 0.0299236, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/Sqrt[d + e*x^2],x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/Sqrt[d + e*x^2], x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}}\,dx = \int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}}\,dx$$

Mathematica [A] time = 0.79469, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/Sqrt[d + e*x^2],x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/Sqrt[d + e*x^2], x]
```

Maple [A] time = 1.261, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{ex^2+d}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)/sqrt(e*x^2 + d), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\,\text{asec}\,(cx)}{\sqrt{d+ex^2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Integral((a + b*asec(c*x))/sqrt(d + e*x**2), x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/sqrt(e*x^2 + d), x)
```

3.138 $\int \frac{a+b\sec^{-1}(cx)}{x^2\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=246

$$\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx}+\frac{bc\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}}-\frac{bc}{}$$

```
[Out] (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d*Sqrt[c^2*x^2]) - (Sqrt[d + e*x^
2]*(a + b*ArcSec[c*x]))/(d*x) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*
EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*S
qrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d
]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]
*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.255063, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {264, 5238, 12, 475, 21, 423, 427, 426, 424, 421, 419}

$$-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx}+\frac{bc\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}}+\frac{bx\sqrt{1-c^2x^2}\left(c^2d+e\right)\sqrt{\frac{ex^2}{d}+1}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{bc^2x\sqrt{1}}{}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^2*Sqrt[d + e*x^2]),x]
```


```
[Out] (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d*Sqrt[c^2*x^2]) - (Sqrt[d + e*x^
2]*(a + b*ArcSec[c*x]))/(d*x) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*
EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*S
qrt[1 + (e*x^2)/d]) + (b*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d
]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]
*Sqrt[d + e*x^2])
```


Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 475

```
Int[((e_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)
)^(q_), x_Symbol] :> Simp[((e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n)^q)
/(a*e*(m + 1)), x] - Dist[1/(a*e^n*(m + 1)), Int[(e*x)^(m + n)*(a + b*x^n)^
p*(c + d*x^n)^(q - 1)*Simp[c*b*(m + 1) + n*(b*c*(p + 1) + a*d*q) + d*(b*(m
+ 1) + b*n*(p + q + 1))*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, p}, x] &&
NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[0, q, 1] && LtQ[m, -1] && IntBinomia
lQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 21

```
Int[(u_.)*((a_) + (b_.)*(v_))^(m_.)*((c_) + (d_.)*(v_))^(n_.), x_Symbol] :>
 Dist[(b/d)^m, Int[u*(c + d*v)^(m + n), x], x] /; FreeQ[{a, b, c, d, n}, x]
 && EqQ[b*c - a*d, 0] && IntegerQ[m] && ( !IntegerQ[n] || SimplerQ[c + d*x,
 a + b*x])
```

Rule 423

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
b/d, Int[Sqrt[c + d*x^2]/Sqrt[a + b*x^2], x], x] - Dist[(b*c - a*d)/d, Int[
1/(Sqrt[a + b*x^2]*Sqrt[c + d*x^2]), x], x] /; FreeQ[{a, b, c, d}, x] && Po
sQ[d/c] && NegQ[b/a]
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^2\sqrt{d+ex^2}}dx = -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} + \frac{(bcx)\int \frac{\sqrt{d+ex^2}}{dx^2\sqrt{-1+c^2x^2}}dx}{\sqrt{c^2x^2}}$$

$$= -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} + \frac{(bcx)\int \frac{\sqrt{d+ex^2}}{x^2\sqrt{-1+c^2x^2}}dx}{d\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{(bcx)\int \frac{-e+c^2ex^2}{\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}dx}{d\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{(bcex)\int \frac{\sqrt{-1+c^2x^2}}{\sqrt{d+ex^2}}dx}{d\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{\left(bc^3x\right)\int \frac{\sqrt{d+ex^2}}{\sqrt{-1+c^2x^2}}dx}{d\sqrt{c^2x^2}} + \frac{\left(bc\left(c^2d+e\right)x\right.}{}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\right)\int \frac{\sqrt{d+ex^2}}{\sqrt{1-c^2x^2}}dx}{d\sqrt{c^2x^2}\sqrt{-1+c^2x^2}} + \frac{\left(bc\left(\right.\right.}{}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\sqrt{d+ex^2}\right)\int \frac{\sqrt{1+\frac{ex^2}{d}}}{\sqrt{1-c^2x^2}}d}{d\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{1+\frac{ex^2}{d}}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d\sqrt{c^2x^2}} - \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{dx} - \frac{bc^2x\sqrt{1-c^2x^2}\sqrt{d+ex^2}E\left(\sin^{-1}(cx)\right| -}{d\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{1+\frac{ex^2}{d}}}$$

Mathematica [A] time = 0.194181, size = 143, normalized size = 0.58

$$\frac{\sqrt{d+ex^2}\left(-a+bcx\sqrt{1-\frac{1}{c^2x^2}}-b\sec^{-1}(cx)\right)}{dx} - \frac{bcex\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}E\left(\sin^{-1}\left(\sqrt{-\frac{e}{d}}x\right)\middle|-\frac{c^2d}{e}\right)}{d\sqrt{1-c^2x^2}\sqrt{-\frac{e}{d}}\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^2*Sqrt[d + e*x^2]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(-a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x - b*ArcSec[c*x]))/(d*x)
- (b*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*EllipticE[ArcSin[Sqrt[
-(e/d)]*x], -((c^2*d)/e)])/(d*Sqrt[-(e/d)]*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2
])
```

Maple [F] time = 1.273, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^2}\frac{1}{\sqrt{ex^2+d}}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{ex^4+dx^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e*x^4 + d*x^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{ex^2+dx^2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(e*x^2 + d)*x^2), x)
```

3.139 $\int \frac{a+b\sec^{-1}(cx)}{x^4\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=362

$$\frac{2bx\sqrt{1-c^2x^2}\left(c^2d-3e\right)\left(c^2d+e\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{9d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{2e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3d^2x}-\frac{\sqrt{d+ex^2}\left(a\right.}{3\ldots}$$

```
[Out] (b*c*(2*c^2*d - 5*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^2*Sqrt[c^2*x^
2]) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d*x^2*Sqrt[c^2*x^2]) - (S
qrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(3*d*x^3) + (2*e*Sqrt[d + e*x^2]*(a + b
*ArcSec[c*x]))/(3*d^2*x) - (b*c^2*(2*c^2*d - 5*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[
d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(9*d^2*Sqrt[c^2*x^2]*Sqrt[
-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (2*b*(c^2*d - 3*e)*(c^2*d + e)*x*Sqrt[
1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(9*d
^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.446629, antiderivative size = 362, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 12, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.522, Rules used = {271, 264, 5238, 12, 580, 583, 524, 427, 426, 424, 421, 419}

$$\frac{2e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3d^2x}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{bc\sqrt{c^2x^2-1}\left(2c^2d-5e\right)\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{2bx\sqrt{1-c^2x^2}\left(c^2d\ldots\right.}{9d\ldots}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^4*Sqrt[d + e*x^2]),x]
```


```
[Out] (b*c*(2*c^2*d - 5*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^2*Sqrt[c^2*x^
2]) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d*x^2*Sqrt[c^2*x^2]) - (S
qrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(3*d*x^3) + (2*e*Sqrt[d + e*x^2]*(a + b
*ArcSec[c*x]))/(3*d^2*x) - (b*c^2*(2*c^2*d - 5*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[
d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(9*d^2*Sqrt[c^2*x^2]*Sqrt[
-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (2*b*(c^2*d - 3*e)*(c^2*d + e)*x*Sqrt[
1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(9*d
^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```


Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
```

```
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 580

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^q)/(a*g*(m + 1)), x] - Dist[1/(a*g^n*(m + 1)), I
nt[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^(q - 1)*Simp[c*(b*e - a*f)*(m +
1) + e*n*(b*c*(p + 1) + a*d*q) + d*((b*e - a*f)*(m + 1) + b*e*n*(p + q + 1)
)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p}, x] && IGtQ[n, 0] && Gt
Q[q, 0] && LtQ[m, -1] &&  !(EqQ[q, 1] && SimplerQ[e + f*x^n, c + d*x^n])
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^4\sqrt{d+ex^2}}\,dx = -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{2e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3d^2x}-\frac{(bcx)\int\frac{\sqrt{d+ex^2}\left(-d+2ex^2\right)}{3d^2x^4\sqrt{-1+c^2x^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{2e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3d^2x}-\frac{(bcx)\int\frac{\sqrt{d+ex^2}\left(-d+2ex^2\right)}{x^4\sqrt{-1+c^2x^2}}\,dx}{3d^2\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+\frac{2e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3d^2x}+\frac{(bcx)}{}$$

$$= \frac{bc\left(2c^2d-5e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+$$

$$= \frac{bc\left(2c^2d-5e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+$$

$$= \frac{bc\left(2c^2d-5e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+$$

$$= \frac{bc\left(2c^2d-5e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+$$

$$= \frac{bc\left(2c^2d-5e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9dx^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{3dx^3}+$$

Mathematica [C] time = 0.635467, size = 249, normalized size = 0.69

$$\frac{\sqrt{d+ex^2}\left(-3a\left(d-2ex^2\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^2dx^2+d-5ex^2\right)-3b\sec^{-1}(cx)\left(d-2ex^2\right)\right)}{9d^2x^3}-\frac{ibcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}\Big(2}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^4*Sqrt[d + e*x^2]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(d + 2*c^2*d*x^2 - 5*e*x^2) -
 3*a*(d - 2*e*x^2) - 3*b*(d - 2*e*x^2)*ArcSec[c*x]))/(9*d^2*x^3) - ((I/9)*b
*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d*(2*c^2*d - 5*e)*Ellip
```

```
ticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] + 2*(-(c^4*d^2) + 2*c^2*d*e + 3
*e^2)*EllipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d^2*Sq
rt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.717, size = 0, normalized size = 0.

$$\int \frac{a+b\operatorname{arcsec}(cx)}{x^4}\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex^2+d}(b\operatorname{arcsec}(cx)+a)}{ex^6+dx^4},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e*x^6 + d*x^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**4/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\sqrt{ex^2 + d}x^4} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(e*x^2 + d)*x^4), x)
```

3.140 $\int \frac{a+b\sec^{-1}(cx)}{x^6\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=1006

$$-\frac{8be^2x\sqrt{1-c^2x^2}\sqrt{ex^2+d}E\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)c^2}{15d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{\frac{ex^2}{d}+1}}+\frac{4be\left(2dc^2+e\right)x\sqrt{1-c^2x^2}\sqrt{ex^2+d}E\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)c^2}{45d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{\frac{ex^2}{d}+1}}-\frac{b\left(8d^2c^4+\right.}{}$$

```
[Out] (8*b*c*e^2*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(15*d^3*Sqrt[c^2*x^2]) - (4*
b*c*e*(2*c^2*d + e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(45*d^3*Sqrt[c^2*x^
2]) + (b*c*(8*c^4*d^2 + 3*c^2*d*e - 2*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^
2])/(75*d^3*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(25*d
*x^4*Sqrt[c^2*x^2]) - (4*b*c*e*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(45*d^2*
x^2*Sqrt[c^2*x^2]) + (b*c*(4*c^2*d + e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(75*d^2*x^2*Sqrt[c^2*x^2]) - (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(5*d*x^
5) + (4*e*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(15*d^2*x^3) - (8*e^2*Sqrt[d
 + e*x^2]*(a + b*ArcSec[c*x]))/(15*d^3*x) - (8*b*c^2*e^2*x*Sqrt[1 - c^2*x^2
]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(15*d^3*Sqrt[c^2*x^
2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (4*b*c^2*e*(2*c^2*d + e)*x*Sqr
t[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(45*d^
3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*c^2*(8*c^4*d^2
 + 3*c^2*d*e - 2*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[
c*x], -(e/(c^2*d))])/(75*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x
^2)/d]) + (b*c^2*(8*c^2*d - e)*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*
x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(75*d^2*Sqrt[c^2*x^2]*Sqrt[-1
 + c^2*x^2]*Sqrt[d + e*x^2]) - (8*b*c^2*e*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*S
qrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(45*d^2*Sqrt[c^2*x
^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2]) + (8*b*e^2*(c^2*d + e)*x*Sqrt[1 - c
^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(15*d^3*S
qrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 1.7803, antiderivative size = 1006, normalized size of antiderivative = 1., number of steps used = 32, number of rules used = 15, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.652, Rules used = {271, 264, 5238, 12, 6742, 475, 583, 524, 427, 426, 424, 421, 419, 21, 423}

$$-\frac{8be^2x\sqrt{1-c^2x^2}\sqrt{ex^2+d}E\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)c^2}{15d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{\frac{ex^2}{d}+1}}+\frac{4be\left(2dc^2+e\right)x\sqrt{1-c^2x^2}\sqrt{ex^2+d}E\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)c^2}{45d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{\frac{ex^2}{d}+1}}-\frac{b\left(8d^2c^4+\right.}{}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^6*Sqrt[d + e*x^2]),x]
```

```
[Out] (8*b*c*e^2*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(15*d^3*Sqrt[c^2*x^2]) - (4*
b*c*e*(2*c^2*d + e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(45*d^3*Sqrt[c^2*x^
2]) + (b*c*(8*c^4*d^2 + 3*c^2*d*e - 2*e^2)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^
2])/(75*d^3*Sqrt[c^2*x^2]) + (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(25*d
*x^4*Sqrt[c^2*x^2]) - (4*b*c*e*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(45*d^2*
x^2*Sqrt[c^2*x^2]) + (b*c*(4*c^2*d + e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
/(75*d^2*x^2*Sqrt[c^2*x^2]) - (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(5*d*x^
5) + (4*e*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/(15*d^2*x^3) - (8*e^2*Sqrt[d
 + e*x^2]*(a + b*ArcSec[c*x]))/(15*d^3*x) - (8*b*c^2*e^2*x*Sqrt[1 - c^2*x^2
]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(15*d^3*Sqrt[c^2*x^
2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (4*b*c^2*e*(2*c^2*d + e)*x*Sqr
```

```
t[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))]])/(45*d^
3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*c^2*(8*c^4*d^2
 + 3*c^2*d*e - 2*e^2)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[
c*x], -(e/(c^2*d))]])/(75*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x
^2)/d]) + (b*c^2*(8*c^2*d - e)*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*
x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))]])/(75*d^2*Sqrt[c^2*x^2]*Sqrt[-1
 + c^2*x^2]*Sqrt[d + e*x^2]) - (8*b*c^2*e*(c^2*d + e)*x*Sqrt[1 - c^2*x^2]*S
qrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))]])/(45*d^2*Sqrt[c^2*x
^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2]) + (8*b*e^2*(c^2*d + e)*x*Sqrt[1 - c
^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))]])/(15*d^3*S
qrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 475

```
Int[((e_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)
)^(q_), x_Symbol] :> Simp[((e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n)^q)
/(a*e*(m + 1)), x] - Dist[1/(a*e^n*(m + 1)), Int[(e*x)^(m + n)*(a + b*x^n)^
p*(c + d*x^n)^(q - 1)*Simp[c*b*(m + 1) + n*(b*c*(p + 1) + a*d*q) + d*(b*(m
+ 1) + b*n*(p + q + 1))*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, p}, x] &&
NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[0, q, 1] && LtQ[m, -1] && IntBinomia
lQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
```

```
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 21

```
Int[(u_.)*((a_) + (b_.)*(v_))^(m_.)*((c_) + (d_.)*(v_))^(n_.), x_Symbol] :>
 Dist[(b/d)^m, Int[u*(c + d*v)^(m + n), x], x] /; FreeQ[{a, b, c, d, n}, x]
 && EqQ[b*c - a*d, 0] && IntegerQ[m] && ( !IntegerQ[n] || SimplerQ[c + d*x,
 a + b*x])
```

Rule 423

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
b/d, Int[Sqrt[c + d*x^2]/Sqrt[a + b*x^2], x], x] - Dist[(b*c - a*d)/d, Int[
1/(Sqrt[a + b*x^2]*Sqrt[c + d*x^2]), x], x] /; FreeQ[{a, b, c, d}, x] && Po
```

sQ[d/c] && NegQ[b/a]

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^6\sqrt{d+ex^2}}\,dx = -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{4e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{8e^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^3x}$$

$$= -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{4e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{8e^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^3x}$$

$$= -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{4e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{8e^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^3x}$$

$$= -\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{5dx^5}+\frac{4e\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^2x^3}-\frac{8e^2\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{15d^3x}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{25dx^4\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^2x^2\sqrt{c^2x^2}}-\frac{\sqrt{d+ex^2}}{}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{25dx^4\sqrt{c^2x^2}}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\left(8c^4d^2+3c^2de-2e^2\right)}{75d^3\sqrt{c}}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\left(8c^4d^2+3c^2de-2e^2\right)}{75d^3\sqrt{c}}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\left(8c^4d^2+3c^2de-2e^2\right)}{75d^3\sqrt{c}}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\left(8c^4d^2+3c^2de-2e^2\right)}{75d^3\sqrt{c}}$$

$$= \frac{8bce^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{15d^3\sqrt{c^2x^2}}-\frac{4bce\left(2c^2d+e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{45d^3\sqrt{c^2x^2}}+\frac{bc\left(8c^4d^2+3c^2de-2e^2\right)}{75d^3\sqrt{c}}$$

Mathematica [C] time = 0.806296, size = 329, normalized size = 0.33

$$\frac{\sqrt{d+ex^2}\left(-15a\left(3d^2-4dex^2+8e^2x^4\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(3d^2\left(8c^4x^4+4c^2x^2+3\right)-dex^2\left(31c^2x^2+17\right)+94e^2x^4\right)-15b\right.}{225d^3x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^6*Sqrt[d + e*x^2]),x]
```

```
[Out] (Sqrt[d + e*x^2]*(-15*a*(3*d^2 - 4*d*e*x^2 + 8*e^2*x^4) + b*c*Sqrt[1 - 1/(c
^2*x^2)]*x*(94*e^2*x^4 - d*e*x^2*(17 + 31*c^2*x^2) + 3*d^2*(3 + 4*c^2*x^2 +
 8*c^4*x^4)) - 15*b*(3*d^2 - 4*d*e*x^2 + 8*e^2*x^4)*ArcSec[c*x]))/(225*d^3*
```

```
x^5) - ((I/225)*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d*(24*
c^4*d^2 - 31*c^2*d*e + 94*e^2)*EllipticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*
d))] - (24*c^6*d^3 - 19*c^4*d^2*e + 77*c^2*d*e^2 + 120*e^3)*EllipticF[I*Arc
Sinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d^3*Sqrt[1 - c^2*x^2]*Sqrt[
d + e*x^2])
```

Maple [F] time = 1.97, size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{arcsec}\,(cx)}{x^6} \frac{1}{\sqrt{ex^2 + d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^6/(e*x^2+d)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^6/(e*x^2+d)^(1/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex^2 + d}(b\,\mathrm{arcsec}\,(cx) + a)}{ex^8 + dx^6}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e*x^8 + d*x^6), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**6/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\sqrt{ex^2 + d}x^6} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^6/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(e*x^2 + d)*x^6), x)
```

3.141 $\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=252

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{8bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e^3\sqrt{c^2x^2}}-bx$$

```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*e^2*Sqrt[c^2*x^2]) - (d^2*(a
 + b*ArcSec[c*x]))/(e^3*Sqrt[d + e*x^2]) - (2*d*Sqrt[d + e*x^2]*(a + b*ArcS
ec[c*x]))/e^3 + ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*e^3) - (8*b*c*d^
(3/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*e^3*Sqrt[c
^2*x^2]) + (b*(9*c^2*d - e)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[
d + e*x^2])])/(6*c^2*e^(5/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 1.00626, antiderivative size = 252, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {266, 43, 5238, 12, 1615, 157, 63, 217, 206, 93, 204}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{8bcd^{3/2}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3e^3\sqrt{c^2x^2}}-bx$$

Antiderivative was successfully verified.

```
[In] Int[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```


```
[Out] -(b*x*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(6*c*e^2*Sqrt[c^2*x^2]) - (d^2*(a
 + b*ArcSec[c*x]))/(e^3*Sqrt[d + e*x^2]) - (2*d*Sqrt[d + e*x^2]*(a + b*ArcS
ec[c*x]))/e^3 + ((d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]))/(3*e^3) - (8*b*c*d^
(3/2)*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*e^3*Sqrt[c
^2*x^2]) + (b*(9*c^2*d - e)*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[
d + e*x^2])])/(6*c^2*e^(5/2)*Sqrt[c^2*x^2])
```


Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
```

```
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1615

```
Int[(Px_)*((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f
_.)*(x_))^(p_.), x_Symbol] :> With[{q = Expon[Px, x], k = Coeff[Px, x, Expo
n[Px, x]]}, Simp[(k*(a + b*x)^(m + q - 1)*(c + d*x)^(n + 1)*(e + f*x)^(p +
1))/(d*f*b^(q - 1)*(m + n + p + q + 1)), x] + Dist[1/(d*f*b^q*(m + n + p +
q + 1)), Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^p*ExpandToSum[d*f*b^q*(m + n
 + p + q + 1)*Px - d*f*k*(m + n + p + q + 1)*(a + b*x)^q + k*(a + b*x)^(q -
 2)*(a^2*d*f*(m + n + p + q + 1) - b*(b*c*e*(m + q - 1) + a*(d*e*(n + 1) +
c*f*(p + 1))) + b*(a*d*f*(2*(m + q) + n + p) - b*(d*e*(m + q + n) + c*f*(m
+ q + p)))*x), x], x], x] /; NeQ[m + n + p + q + 1, 0]] /; FreeQ[{a, b, c,
d, e, f, m, n, p}, x] && PolyQ[Px, x] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] && !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
```

```
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx=-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{(bc}{}$$

$$=-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{(bc}{}$$

$$=-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3e^3}-\frac{(bc}{}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)}{}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)}{}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)}{}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)}{}$$

$$=-\frac{bx\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{6ce^2\sqrt{c^2x^2}}-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}-\frac{2d\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}+\frac{\left(d+ex^2\right)}{}$$

Mathematica [A] time = 0.650048, size = 303, normalized size = 1.2

$$\frac{-2ac\left(8d^2+4dex^2-e^2x^4\right)-bex\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)-2bc\sec^{-1}(cx)\left(8d^2+4dex^2-e^2x^4\right)}{6ce^3\sqrt{d+ex^2}}+\frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(16c^5d^{3/2}\sqrt{d+e}\right.}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] (-(b*e*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2)) - 2*a*c*(8*d^2 + 4*d*e*x^2 - e^
2*x^4) - 2*b*c*(8*d^2 + 4*d*e*x^2 - e^2*x^4)*ArcSec[c*x])/(6*c*e^3*Sqrt[d +
 e*x^2]) + (b*Sqrt[1 - 1/(c^2*x^2)]*x*(Sqrt[c^2]*(9*c^2*d - e)*Sqrt[e]*Sqrt
[c^2*d + e]*Sqrt[(c^2*(d + e*x^2))/(c^2*d + e)]*ArcSinh[(c*Sqrt[e]*Sqrt[-1
+ c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] + 16*c^5*d^(3/2)*Sqrt[d + e*x^2]*A
rcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]]))/(6*c^4*e^3*Sqrt[-1 +
c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.828, size = 0, normalized size = 0.

$$\int x^5\left(a+b\,\mathrm{arcsec}\,(cx)\right)\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 4.99377, size = 3171, normalized size = 12.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/24*((9*b*c^2*d^2 - b*d*e + (9*b*c^2*d*e - b*e^2)*x^2)*sqrt(e)*log(8*c^4
*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2
 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) - 16*(b*c^
3*d*e*x^2 + b*c^3*d^2)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c
^2*d^2 - d*e)*x^2 + 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2
+ d)*sqrt(-d) + 8*d^2)/x^4) - 4*(2*a*c^3*e^2*x^4 - 8*a*c^3*d*e*x^2 - 16*a*c
^3*d^2 + 2*(b*c^3*e^2*x^4 - 4*b*c^3*d*e*x^2 - 8*b*c^3*d^2)*arcsec(c*x) - (b
*c*e^2*x^2 + b*c*d*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^3*e^4*x^2 + c^
3*d*e^3), -1/24*(32*(b*c^3*d*e*x^2 + b*c^3*d^2)*sqrt(d)*arctan(-1/2*sqrt(c^
2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (
c^2*d^2 - d*e)*x^2 - d^2)) + (9*b*c^2*d^2 - b*d*e + (9*b*c^2*d*e - b*e^2)*x
^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)
*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt
(e) + e^2) - 4*(2*a*c^3*e^2*x^4 - 8*a*c^3*d*e*x^2 - 16*a*c^3*d^2 + 2*(b*c^3
*e^2*x^4 - 4*b*c^3*d*e*x^2 - 8*b*c^3*d^2)*arcsec(c*x) - (b*c*e^2*x^2 + b*c*
d*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^3*e^4*x^2 + c^3*d*e^3), -1/12*(
(9*b*c^2*d^2 - b*d*e + (9*b*c^2*d*e - b*e^2)*x^2)*sqrt(-e)*arctan(1/2*(2*c^
2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^
4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) - 8*(b*c^3*d*e*x^2 + b*c^3*d^2)*sqrt(-d
)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 + 4*sqrt(c^2
*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) -
2*(2*a*c^3*e^2*x^4 - 8*a*c^3*d*e*x^2 - 16*a*c^3*d^2 + 2*(b*c^3*e^2*x^4 - 4*
b*c^3*d*e*x^2 - 8*b*c^3*d^2)*arcsec(c*x) - (b*c*e^2*x^2 + b*c*d*e)*sqrt(c^2
*x^2 - 1))*sqrt(e*x^2 + d))/(c^3*e^4*x^2 + c^3*d*e^3), -1/12*(16*(b*c^3*d*e
*x^2 + b*c^3*d^2)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 -
2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (
9*b*c^2*d^2 - b*d*e + (9*b*c^2*d*e - b*e^2)*x^2)*sqrt(-e)*arctan(1/2*(2*c^2
*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4
 - c*d*e + (c^3*d*e - c*e^2)*x^2)) - 2*(2*a*c^3*e^2*x^4 - 8*a*c^3*d*e*x^2 -
 16*a*c^3*d^2 + 2*(b*c^3*e^2*x^4 - 4*b*c^3*d*e*x^2 - 8*b*c^3*d^2)*arcsec(c*
```

```
x) - (b*c*e^2*x^2 + b*c*d*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^3*e^4*x
^2 + c^3*d*e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^5}{(ex^2 + d)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5/(e*x^2 + d)^(3/2), x)
```

3.142 $\int \frac{x^3(a+b\sec^{-1}(cx))}{(d+ex^2)^{3/2}}\,dx$

Optimal. Leaf size=157

$$\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}}+\frac{2bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{e^2\sqrt{c^2x^2}}-\frac{bx\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{e^{3/2}\sqrt{c^2x^2}}$$

```
[Out] (d*(a + b*ArcSec[c*x]))/(e^2*Sqrt[d + e*x^2]) + (Sqrt[d + e*x^2]*(a + b*Arc
Sec[c*x]))/e^2 + (2*b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 +
 c^2*x^2])])/(e^2*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2]
)/(c*Sqrt[d + e*x^2])])/(e^(3/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.259138, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {266, 43, 5238, 12, 573, 157, 63, 217, 206, 93, 204}

$$\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2}+\frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}}+\frac{2bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{e^2\sqrt{c^2x^2}}-\frac{bx\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{c^2x^2-1}}{c\sqrt{d+ex^2}}\right)}{e^{3/2}\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] (d*(a + b*ArcSec[c*x]))/(e^2*Sqrt[d + e*x^2]) + (Sqrt[d + e*x^2]*(a + b*Arc
Sec[c*x]))/e^2 + (2*b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 +
 c^2*x^2])])/(e^2*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2]
)/(c*Sqrt[d + e*x^2])])/(e^(3/2)*Sqrt[c^2*x^2])
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 573

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
)*((e_) + (f_.)*(x_)^(n_))^(r_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simpl
ify[(m + 1)/n] - 1)*(a + b*x)^p*(c + d*x)^q*(e + f*x)^r, x], x, x^n], x] /;
 FreeQ[{a, b, c, d, e, f, m, n, p, q, r}, x] && IntegerQ[Simplify[(m + 1)/n
]]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx = \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{(bcx)\int \frac{2d+ex^2}{e^2x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}dx}{\sqrt{c^2x^2}}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{(bcx)\int \frac{2d+ex^2}{x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}dx}{e^2\sqrt{c^2x^2}}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{(bcx)\,\text{Subst}\left(\int \frac{2d+ex}{x\sqrt{-1+c^2x}\sqrt{d+ex}}dx, x, x^{\cdots}\right.}{2e^2\sqrt{c^2x^2}}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{(bcdx)\,\text{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}\sqrt{d+ex}}dx, x, \cdots\right.}{e^2\sqrt{c^2x^2}}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} - \frac{(2bcdx)\,\text{Subst}\left(\int \frac{1}{-d-x^2}dx, x, \frac{\sqrt{d+ex^2}}{\sqrt{-1+c^2x\cdots}}\right.}{e^2\sqrt{c^2x^2}}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} + \frac{2bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{e^2\sqrt{c^2x^2}} - \frac{(bx)\,\text{S}\cdots}{\cdots}$$

$$= \frac{d\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^2} + \frac{2bc\sqrt{d}x\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{e^2\sqrt{c^2x^2}} - \frac{bx\tan\cdots}{\cdots}$$

Mathematica [A] time = 0.351763, size = 221, normalized size = 1.41

$$\frac{\left(2d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)}{e^2\sqrt{d+ex^2}} - \frac{bx\sqrt{1-\frac{1}{c^2x^2}}\left(2c^3\sqrt{d}\sqrt{d+ex^2}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)+\sqrt{c^2}\sqrt{e}\sqrt{c^2d+e}\sqrt{\frac{c^2\left(d+ex^2\right)}{c^2d+e}}\sinh^{-1}\left(\cdots\right.\right.}{c^2e^2\sqrt{c^2x^2-1}\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] ((2*d + e*x^2)*(a + b*ArcSec[c*x]))/(e^2*Sqrt[d + e*x^2]) - (b*Sqrt[1 - 1/(
c^2*x^2)]*x*(Sqrt[c^2]*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[(c^2*(d + e*x^2))/(c^2*
d + e)]*ArcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])]
 + 2*c^3*Sqrt[d]*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d
 + e*x^2]]))/(c^2*e^2*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.589, size = 0, normalized size = 0.

$$\int x^3\left(a+b\,\text{arcsec}\,(cx)\right)\left(ex^2+d\right)^{-\frac{3}{2}}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 3.33937, size = 2360, normalized size = 15.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/4*((b*e*x^2 + b*d)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(
c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sq
rt(e*x^2 + d)*sqrt(e) + e^2) + 2*(b*c*e*x^2 + b*c*d)*sqrt(-d)*log(((c^4*d^2
 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2
*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + 4*(a*c*e*x^2 +
2*a*c*d + (b*c*e*x^2 + 2*b*c*d)*arcsec(c*x))*sqrt(e*x^2 + d))/(c*e^3*x^2 +
c*d*e^2), 1/4*(4*(b*c*e*x^2 + b*c*d)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*
((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d
*e)*x^2 - d^2)) + (b*e*x^2 + b*d)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c
^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2
*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(a*c*e*x^2 + 2*a*c*d + (b*c*e*
x^2 + 2*b*c*d)*arcsec(c*x))*sqrt(e*x^2 + d))/(c*e^3*x^2 + c*d*e^2), 1/2*((b
*e*x^2 + b*d)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 -
1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2))
+ (b*c*e*x^2 + b*c*d)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^
2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 +
 d)*sqrt(-d) + 8*d^2)/x^4) + 2*(a*c*e*x^2 + 2*a*c*d + (b*c*e*x^2 + 2*b*c*d)
*arcsec(c*x))*sqrt(e*x^2 + d))/(c*e^3*x^2 + c*d*e^2), 1/2*(2*(b*c*e*x^2 + b
*c*d)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*
x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (b*e*x^2 + b*
d)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x
^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(a*c*e*
x^2 + 2*a*c*d + (b*c*e*x^2 + 2*b*c*d)*arcsec(c*x))*sqrt(e*x^2 + d))/(c*e^3*
x^2 + c*d*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

<u>Giac</u> [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx) + a)x^3}{\left(ex^2 + d\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/(e*x^2 + d)^(3/2), x)
```

3.143 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=80

$$-\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{\sqrt{d}e\sqrt{c^2x^2}}$$

```
[Out] -((a + b*ArcSec[c*x])/(e*Sqrt[d + e*x^2])) - (b*c*x*ArcTan[Sqrt[d + e*x^2]/
(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(Sqrt[d]*e*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.101998, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.19, Rules used = {5236, 446, 93, 204}

$$-\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{\sqrt{d}e\sqrt{c^2x^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] -((a + b*ArcSec[c*x])/(e*Sqrt[d + e*x^2])) - (b*c*x*ArcTan[Sqrt[d + e*x^2]/
(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(Sqrt[d]*e*Sqrt[c^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\begin{aligned}
\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx &= -\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}+\frac{(bcx)\int \frac{1}{x\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{e\sqrt{c^2x^2}}\\
&= -\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}+\frac{(bcx)\,\text{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}\sqrt{d+ex}}\,dx,x,x^2\right)}{2e\sqrt{c^2x^2}}\\
&= -\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}+\frac{(bcx)\,\text{Subst}\left(\int \frac{1}{-d-x^2}\,dx,x,\frac{\sqrt{d+ex^2}}{\sqrt{-1+c^2x^2}}\right)}{e\sqrt{c^2x^2}}\\
&= -\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{\sqrt{d}e\sqrt{c^2x^2}}
\end{aligned}$$

Mathematica [A] time = 0.145414, size = 95, normalized size = 1.19

$$\frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)}{\sqrt{d}e\sqrt{c^2x^2-1}}-\frac{a+b\sec^{-1}(cx)}{e\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] -((a + b*ArcSec[c*x])/(e*Sqrt[d + e*x^2])) + (b*c*Sqrt[1 - 1/(c^2*x^2)]*x*A
rcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]])/(Sqrt[d]*e*Sqrt[-1 + c
^2*x^2])
```

Maple [F] time = 1.233, size = 0, normalized size = 0.

$$\int x\left(a+b\text{arcsec}\left(cx\right)\right)\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.35462, size = 626, normalized size = 7.82

$$\left[-\frac{\left(bex^2+bd\right)\sqrt{-d}\log\left(\frac{\left(c^4d^2-6c^2de+e^2\right)x^4-8\left(c^2d^2-de\right)x^2-4\sqrt{c^2x^2-1}\left(\left(c^2d-e\right)x^2-2d\right)\sqrt{ex^2+d}\sqrt{-d}+8d^2}{x^4}\right)+4\sqrt{ex^2+d}(bd\operatorname{arcsec}(cx)+ad)}{4\left(de^2x^2+d^2e\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/4*((b*e*x^2 + b*d)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c
^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2
+ d)*sqrt(-d) + 8*d^2)/x^4) + 4*sqrt(e*x^2 + d)*(b*d*arcsec(c*x) + a*d))/(d
*e^2*x^2 + d^2*e), -1/2*((b*e*x^2 + b*d)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 -
 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2
 - d*e)*x^2 - d^2)) + 2*sqrt(e*x^2 + d)*(b*d*arcsec(c*x) + a*d))/(d*e^2*x^2
 + d^2*e)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)x}{\left(ex^2+d\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/(e*x^2 + d)^(3/2), x)
```

3.144 $\int \frac{a+b\sec^{-1}(cx)}{x(d+ex^2)^{3/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{3/2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(3/2)), x]
```

Rubi [A] time = 0.110316, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(3/2)),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(3/2)), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{3/2}}\,dx=\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{3/2}}\,dx$$

Mathematica [A] time = 15.0886, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(3/2)),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(3/2)), x]
```

Maple [A] time = 1.081, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x}\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(3/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{e^2x^5+2\,dex^3+d^2x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^2*x^5 + 2*d*e*x^3 + d^2*x),
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\text{arcsec}\,(cx)+a}{\left(ex^2+d\right)^{\frac{3}{2}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(3/2)*x), x)
```

3.145 $\int \frac{a+b\sec^{-1}(cx)}{x^3(d+ex^2)^{3/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{3/2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(3/2)), x]
```

Rubi [A] time = 0.122635, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(3/2)),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(3/2)), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{3/2}}\,dx=\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{3/2}}\,dx$$

Mathematica [A] time = 21.0656, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(3/2)),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(3/2)), x]
```

Maple [A] time = 1.079, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^3}\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(3/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{e^2x^7+2\,dex^5+d^2x^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^2*x^7 + 2*d*e*x^5 + d^2*x^3
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**3/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\text{arcsec}\,(cx)+a}{\left(ex^2+d\right)^{\frac{3}{2}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(3/2)*x^3), x)
```

3.146 $\int \frac{x^4(a+b\sec^{-1}(cx))}{(d+ex^2)^{3/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}},x\right)$$

```
[Out] Unintegrable[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi [A] time = 0.106456, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Defer[Int][(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi steps

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx=\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Mathematica [A] time = 7.66293, size = 0, normalized size = 0.

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Maple [A] time = 1.148, size = 0, normalized size = 0.

$$\int x^4\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(bx^4\operatorname{arcsec}(cx)+ax^4\right)\sqrt{ex^2+d}}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^4*arcsec(c*x) + a*x^4)*sqrt(e*x^2 + d)/(e^2*x^4 + 2*d*e*x^2 +
 d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)x^4}{\left(ex^2+d\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^4/(e*x^2 + d)^(3/2), x)
```

3.147 $\int \frac{x^2\left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{x^2 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}},x\right)$$

```
[Out] Unintegrable[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi [A] time = 0.0986639, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x^2 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Defer[Int][(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi steps

$$\int \frac{x^2 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx=\int \frac{x^2 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Mathematica [A] time = 3.64117, size = 0, normalized size = 0.

$$\int \frac{x^2 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Maple [A] time = 1.159, size = 0, normalized size = 0.

$$\int x^2 \left(a+b\,\mathrm{arcsec}\,(cx)\right) \left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(bx^2\operatorname{arcsec}(cx)+ax^2\right)\sqrt{ex^2+d}}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)*sqrt(e*x^2 + d)/(e^2*x^4 + 2*d*e*x^2 +
 d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)x^2}{\left(ex^2+d\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/(e*x^2 + d)^(3/2), x)
```

3.148 $\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=109

$$\frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}$$

```
[Out] (x*(a + b*ArcSec[c*x]))/(d*Sqrt[d + e*x^2]) - (b*x*Sqrt[1 - c^2*x^2]*Sqrt[1
 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-
1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.0877321, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25, Rules used = {191, 5228, 12, 421, 419}

$$\frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{d\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x^2)^(3/2),x]
```

```
[Out] (x*(a + b*ArcSec[c*x]))/(d*Sqrt[d + e*x^2]) - (b*x*Sqrt[1 - c^2*x^2]*Sqrt[1
 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(d*Sqrt[c^2*x^2]*Sqrt[-
1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rule 5228

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_)^2)^(p_.), x_Symb
ol] :> With[{u = IntHide[(d + e*x^2)^p, x]}, Dist[a + b*ArcSec[c*x], u, x]
- Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegrand[u/(x*Sqrt[c^2*x^2 - 1])
, x], x], x]] /; FreeQ[{a, b, c, d, e}, x] && (IGtQ[p, 0] || ILtQ[p + 1/2,
0])
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
```

```
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\begin{aligned}
\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^{3/2}}\,dx &= \frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{(bcx)\int \frac{1}{d\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{\sqrt{c^2x^2}}\\
&= \frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{(bcx)\int \frac{1}{\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{d\sqrt{c^2x^2}}\\
&= \frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{\left(bcx\sqrt{1+\frac{ex^2}{d}}\right)\int \frac{1}{\sqrt{-1+c^2x^2}\sqrt{1+\frac{ex^2}{d}}}\,dx}{d\sqrt{c^2x^2}\sqrt{d+ex^2}}\\
&= \frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{\left(bcx\sqrt{1-c^2x^2}\sqrt{1+\frac{ex^2}{d}}\right)\int \frac{1}{\sqrt{1-c^2x^2}\sqrt{1+\frac{ex^2}{d}}}\,dx}{d\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\\
&= \frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{bx\sqrt{1-c^2x^2}\sqrt{1+\frac{ex^2}{d}}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{d\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}
\end{aligned}$$

Mathematica [A] time = 0.187569, size = 113, normalized size = 1.04

$$\frac{x\left(a+b\sec^{-1}(cx)\right)}{d\sqrt{d+ex^2}}-\frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\,\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{d\left(c^3x^2-c\right)\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x^2)^(3/2),x]
```

```
[Out] (x*(a + b*ArcSec[c*x]))/(d*Sqrt[d + e*x^2]) - (b*c*Sqrt[1 - 1/(c^2*x^2)]*x*
Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])
/(d*(-c + c^3*x^2)*Sqrt[d + e*x^2])
```

Maple [F] time = 1.088, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\operatorname{arcsec}(cx)+a)}{e^2x^4+2\,dex^2+d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^2*x^4 + 2*d*e*x^2 + d^2), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}(cx)+a}{\left(ex^2+d\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x^2 + d)^(3/2), x)
```

3.149 $\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=274

$$\frac{bx\sqrt{1-c^2x^2}\left(c^2d+2e\right)\sqrt{\frac{ex^2}{d}+1}\,\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}}+\frac{bc\sqrt{c^2x^2-1}\sqrt{d\cdots}}{d^2\sqrt{c^2x^2}}$$

```
[Out] (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d^2*Sqrt[c^2*x^2]) - (a + b*ArcSe
c[c*x])/(d*x*Sqrt[d + e*x^2]) - (2*e*x*(a + b*ArcSec[c*x]))/(d^2*Sqrt[d + e
*x^2]) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x],
-(e/(c^2*d))])/(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) +
 (b*(c^2*d + 2*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[
c*x], -(e/(c^2*d))])/(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.310369, antiderivative size = 274, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {271, 191, 5238, 12, 583, 524, 427, 426, 424, 421, 419}

$$-\frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}}+\frac{bc\sqrt{c^2x^2-1}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}}+\frac{bx\sqrt{1-c^2x^2}\left(c^2d+2e\right)\sqrt{\frac{ex^2}{d}+1}\,F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^(3/2)),x]
```

```
[Out] (b*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d^2*Sqrt[c^2*x^2]) - (a + b*ArcSe
c[c*x])/(d*x*Sqrt[d + e*x^2]) - (2*e*x*(a + b*ArcSec[c*x]))/(d^2*Sqrt[d + e
*x^2]) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x],
-(e/(c^2*d))])/(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) +
 (b*(c^2*d + 2*e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[
c*x], -(e/(c^2*d))])/(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
```

```
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^{3/2}}\,dx = -\frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{-d-2ex^2}{d^2x^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{\sqrt{c^2x^2}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{-d-2ex^2}{x^2\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{d^2\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}} - \frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{-2de+c^2dex^2}{\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{d^3\sqrt{c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}} - \frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{\left(bc^3x\right)\int \frac{\sqrt{d+ex^2}}{\sqrt{-1+c^2x^2}}\,dx}{d^2\sqrt{c^2x^2}} + \frac{(bc(\ldots}{\ldots}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}} - \frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\right)\int \frac{\sqrt{d+ex^2}}{\sqrt{1-c^2x^2}}\,d\ldots}{d^2\sqrt{c^2x^2}\sqrt{-1+c^2x^2}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}} - \frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\sqrt{d+ex^2}\right)\int \ldots}{d^2\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{1\ldots}}$$

$$= \frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{d^2\sqrt{c^2x^2}} - \frac{a+b\sec^{-1}(cx)}{dx\sqrt{d+ex^2}} - \frac{2ex\left(a+b\sec^{-1}(cx)\right)}{d^2\sqrt{d+ex^2}} - \frac{bc^2x\sqrt{1-c^2x^2}\sqrt{d+ex^2}E\left(\mathrm{si}\ldots\right.}{d^2\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\ldots}$$

Mathematica [C] time = 0.475286, size = 212, normalized size = 0.77

$$\frac{-a\left(d+2ex^2\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)-b\sec^{-1}(cx)\left(d+2ex^2\right)}{d^2x\sqrt{d+ex^2}} - \frac{ibcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}\left(c^2dE\left(i\sinh^{-1}\left(\sqrt{-c^2}x\right)|-\frac{e}{c^2d}\ldots\right.\right.}{\sqrt{-c^2}d^2\sqrt{1-c^2\ldots}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^(3/2)),x]
```

```
[Out] (b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2) - a*(d + 2*e*x^2) - b*(d + 2*e*x^2
)*ArcSec[c*x])/(d^2*x*Sqrt[d + e*x^2]) - (I*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqr
t[1 + (e*x^2)/d]*(c^2*d*EllipticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] -
(c^2*d + 2*e)*EllipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2
]*d^2*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.032, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^2}\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(3/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\,\text{arcsec}\,(cx)+a)}{e^2x^6+2\,dex^4+d^2x^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^2*x^6 + 2*d*e*x^4 + d^2*x^2
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\left(ex^2+d\right)^{\frac{3}{2}}x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(3/2)*x^2), x)
```

3.150 $\int \frac{a+b\sec^{-1}(cx)}{x^4(d+ex^2)^{3/2}}\,dx$

Optimal. Leaf size=701

$$-\frac{8be^2x\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{3d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{bc^2x\sqrt{1-c^2x^2}\left(2c^2d-e\right)\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{9d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-$$

```
[Out] (2*b*c*(c^2*d - e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^3*Sqrt[c^2*x^2]
) - (4*b*c*e*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(3*d^3*Sqrt[c^2*x^2]) + (b
*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^2*x^2*Sqrt[c^2*x^2]) - (a + b*A
rcSec[c*x])/(3*d*x^3*Sqrt[d + e*x^2]) + (4*e*(a + b*ArcSec[c*x]))/(3*d^2*x*
Sqrt[d + e*x^2]) + (8*e^2*x*(a + b*ArcSec[c*x]))/(3*d^3*Sqrt[d + e*x^2]) -
(2*b*c^2*(c^2*d - e)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c
*x], -(e/(c^2*d))])/(9*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2
)/d]) + (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x
], -(e/(c^2*d))])/(3*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/
d]) + (b*c^2*(2*c^2*d - e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*Elliptic
F[ArcSin[c*x], -(e/(c^2*d))])/(9*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[
d + e*x^2]) - (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[
ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d
+ e*x^2]) - (8*b*e^2*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcS
in[c*x], -(e/(c^2*d))])/(3*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*
x^2])
```

Rubi [A] time = 1.39178, antiderivative size = 701, normalized size of antiderivative = 1., number of steps used = 25, number of rules used = 14, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.609, Rules used = {271, 191, 5238, 12, 6742, 421, 419, 480, 583, 524, 427, 426, 424, 493}

$$\frac{8e^2x\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}-\frac{8be^2x\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{3d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{2bc\sqrt{c^2}}{}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^4*(d + e*x^2)^(3/2)),x]
```


```
[Out] (2*b*c*(c^2*d - e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^3*Sqrt[c^2*x^2]
) - (4*b*c*e*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(3*d^3*Sqrt[c^2*x^2]) + (b
*c*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(9*d^2*x^2*Sqrt[c^2*x^2]) - (a + b*A
rcSec[c*x])/(3*d*x^3*Sqrt[d + e*x^2]) + (4*e*(a + b*ArcSec[c*x]))/(3*d^2*x*
Sqrt[d + e*x^2]) + (8*e^2*x*(a + b*ArcSec[c*x]))/(3*d^3*Sqrt[d + e*x^2]) -
(2*b*c^2*(c^2*d - e)*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c
*x], -(e/(c^2*d))])/(9*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2
)/d]) + (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x
], -(e/(c^2*d))])/(3*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/
d]) + (b*c^2*(2*c^2*d - e)*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*Elliptic
F[ArcSin[c*x], -(e/(c^2*d))])/(9*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[
d + e*x^2]) - (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[
ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d
+ e*x^2]) - (8*b*e^2*x*Sqrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcS
in[c*x], -(e/(c^2*d))])/(3*d^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*
x^2])
```


Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 480

```
Int[((e_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_)
)^(q_), x_Symbol] :> Simp[((e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n)^(q
 + 1))/(a*c*e*(m + 1)), x] - Dist[1/(a*c*e^n*(m + 1)), Int[(e*x)^(m + n)*(a
 + b*x^n)^p*(c + d*x^n)^q*Simp[(b*c + a*d)*(m + n + 1) + n*(b*c*p + a*d*q)
+ b*d*(m + n*(p + q + 2) + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, p, q
}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[m, -1] && IntBinomialQ[a, b
, c, d, e, m, n, p, q, x]
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
```

```
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 493

```
Int[(x_)^(n_)/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.)*(x_)^(n_)]),
x_Symbol] :> Dist[1/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n], x], x] - Dist[a
/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x] /; FreeQ[{a, b, c, d},
x] && NeQ[b*c - a*d, 0] && (EqQ[n, 2] || EqQ[n, 4]) &&  !(EqQ[n, 2] && Simp
lerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^4\left(d+ex^2\right)^{3/2}}\,dx = -\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}+\frac{8e^2x\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\frac{-d^2+4dex^2+8e^2x^4}{3d^3x^4\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}}{\sqrt{c^2x^2}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}+\frac{8e^2x\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\frac{-d^2+4dex^2+8e^2x^4}{x^4\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}d}{3d^3\sqrt{c^2x^2}}$$

$$= -\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}+\frac{8e^2x\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\left(\frac{8e^2}{\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}-\right.}{}$$

$$= -\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}+\frac{8e^2x\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}+\frac{(bcx)\int\frac{1}{x^4\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}d}{3d\sqrt{c^2x^2}}$$

$$= -\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a+b\sec^{-1}(cx)}{3dx^3\sqrt{d+ex^2}}+\frac{4e\left(a+b\sec^{-1}(cx)\right)}{3d^2x\sqrt{d+ex^2}}$$

$$= \frac{2bc\left(c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^3\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a}{3}$$

$$= \frac{2bc\left(c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^3\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a}{3}$$

$$= \frac{2bc\left(c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^3\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a}{3}$$

$$= \frac{2bc\left(c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^3\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a}{3}$$

$$= \frac{2bc\left(c^2d-e\right)\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^3\sqrt{c^2x^2}}-\frac{4bce\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{3d^3\sqrt{c^2x^2}}+\frac{bc\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}{9d^2x^2\sqrt{c^2x^2}}-\frac{a}{3}$$

Mathematica [C] time = 0.71654, size = 292, normalized size = 0.42

$$\frac{-3a\left(d^2-4dex^2-8e^2x^4\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(d^2\left(2c^2x^2+1\right)+dex^2\left(2c^2x^2-13\right)-14e^2x^4\right)-3b\sec^{-1}(cx)\left(d^2-4dex^2-8\right.}{9d^3x^3\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^4*(d + e*x^2)^(3/2)),x]
```

```
[Out] (-3*a*(d^2 - 4*d*e*x^2 - 8*e^2*x^4) + b*c*Sqrt[1 - 1/(c^2*x^2)]*x*(-14*e^2*
x^4 + d*e*x^2*(-13 + 2*c^2*x^2) + d^2*(1 + 2*c^2*x^2)) - 3*b*(d^2 - 4*d*e*x
^2 - 8*e^2*x^4)*ArcSec[c*x])/(9*d^3*x^3*Sqrt[d + e*x^2]) - ((I/9)*b*c*Sqrt[
1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(2*c^2*d*(c^2*d - 7*e)*EllipticE[I*A
rcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] + (-2*c^4*d^2 + 13*c^2*d*e + 24*e^2)*El
lipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d^3*Sqrt[1 - c
^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.481, size = 0, normalized size = 0.

$$\int \frac{a + b\,\mathrm{arcsec}\,(cx)}{x^4} \left(e x^2 + d\right)^{-\frac{3}{2}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(3/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(3/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{e x^2 + d}(b\,\mathrm{arcsec}\,(cx) + a)}{e^2 x^8 + 2\,d e x^6 + d^2 x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^2*x^8 + 2*d*e*x^6 + d^2*x^4
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**4/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\,\mathrm{arcsec}\,(cx) + a}{\left(e x^2 + d\right)^{\frac{3}{2}} x^4}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^4/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(3/2)*x^4), x)
```

3.151 $\int \frac{x^5\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=244

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}}+\frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}+\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}-\frac{bcdx\sqrt{c^2x^2-1}}{3e^2\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}+\frac{8bc\sqrt{d}x\tan}{3e^3}$$

```
[Out] -(b*c*d*x*Sqrt[-1 + c^2*x^2])/(3*e^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x
^2]) - (d^2*(a + b*ArcSec[c*x]))/(3*e^3*(d + e*x^2)^(3/2)) + (2*d*(a + b*Ar
cSec[c*x]))/(e^3*Sqrt[d + e*x^2]) + (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e
^3 + (8*b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])
/(3*e^3*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[
d + e*x^2])])/(e^(5/2)*Sqrt[c^2*x^2])
```

Rubi [A] time = 1.06304, antiderivative size = 244, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 11, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.478, Rules used = {266, 43, 5238, 12, 1614, 157, 63, 217, 206, 93, 204}

$$-\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}}+\frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}}+\frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3}-\frac{bcdx\sqrt{c^2x^2-1}}{3e^2\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}+\frac{8bc\sqrt{d}x\tan}{3e^3}$$

Antiderivative was successfully verified.

```
[In] Int[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] -(b*c*d*x*Sqrt[-1 + c^2*x^2])/(3*e^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x
^2]) - (d^2*(a + b*ArcSec[c*x]))/(3*e^3*(d + e*x^2)^(3/2)) + (2*d*(a + b*Ar
cSec[c*x]))/(e^3*Sqrt[d + e*x^2]) + (Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]))/e
^3 + (8*b*c*Sqrt[d]*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])
/(3*e^3*Sqrt[c^2*x^2]) - (b*x*ArcTanh[(Sqrt[e]*Sqrt[-1 + c^2*x^2])/(c*Sqrt[
d + e*x^2])])/(e^(5/2)*Sqrt[c^2*x^2])
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
```

```
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1614

```
Int[(Px_)*((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_
.)*(x_))^(p_.), x_Symbol] :> With[{Qx = PolynomialQuotient[Px, a + b*x, x],
 R = PolynomialRemainder[Px, a + b*x, x]}, Simp[(b*R*(a + b*x)^(m + 1)*(c +
 d*x)^(n + 1)*(e + f*x)^(p + 1))/((m + 1)*(b*c - a*d)*(b*e - a*f)), x] + Di
st[1/((m + 1)*(b*c - a*d)*(b*e - a*f)), Int[(a + b*x)^(m + 1)*(c + d*x)^n*(
e + f*x)^p*ExpandToSum[(m + 1)*(b*c - a*d)*(b*e - a*f)*Qx + a*d*f*R*(m + 1)
 - b*R*(d*e*(m + n + 2) + c*f*(m + p + 2)) - b*d*f*R*(m + n + p + 3)*x, x],
 x], x]] /; FreeQ[{a, b, c, d, e, f, n, p}, x] && PolyQ[Px, x] && LtQ[m, -1
] && IntegersQ[2*m, 2*n, 2*p]
```

Rule 157

```
Int[(((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_))^(p_)*((g_.) + (h_.)*(x_
)))/((a_.) + (b_.)*(x_)), x_Symbol] :> Dist[h/b, Int[(c + d*x)^n*(e + f*x)^
p, x], x] + Dist[(b*g - a*h)/b, Int[((c + d*x)^n*(e + f*x)^p)/(a + b*x), x]
, x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 217

```
Int[1/Sqrt[(a_) + (b_.)*(x_)^2], x_Symbol] :> Subst[Int[1/(1 - b*x^2), x],
x, x/Sqrt[a + b*x^2]] /; FreeQ[{a, b}, x] &&  !GtQ[a, 0]
```

Rule 206

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(1*ArcTanh[(Rt[-b, 2]*x)/
Rt[a, 2]])/(Rt[a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && NegQ[a/b] && (Gt
Q[a, 0] || LtQ[b, 0])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
```

```
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^5 \left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx = -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{(bcx)\int \frac{8d^2+}{3e^3x\sqrt{-1}}}{\sqrt{}}$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{(bcx)\int \frac{8d^2+12}{x\sqrt{-1+c}}}{3e^3\sqrt{}}$$

$$= -\frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a+b\sec^{-1}(cx)\right)}{e^3} - \frac{(bcx)\,\mathrm{Subst}\left(\int\right.}{}$$

$$= -\frac{bcdx\sqrt{-1+c^2x^2}}{3e^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a\right.}{}$$

$$= -\frac{bcdx\sqrt{-1+c^2x^2}}{3e^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a\right.}{}$$

$$= -\frac{bcdx\sqrt{-1+c^2x^2}}{3e^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a\right.}{}$$

$$= -\frac{bcdx\sqrt{-1+c^2x^2}}{3e^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a\right.}{}$$

$$= -\frac{bcdx\sqrt{-1+c^2x^2}}{3e^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} - \frac{d^2\left(a+b\sec^{-1}(cx)\right)}{3e^3\left(d+ex^2\right)^{3/2}} + \frac{2d\left(a+b\sec^{-1}(cx)\right)}{e^3\sqrt{d+ex^2}} + \frac{\sqrt{d+ex^2}\left(a\right.}{}$$

Mathematica [A] time = 0.522331, size = 312, normalized size = 1.28

$$\frac{a\left(c^2d+e\right)\left(8d^2+12dex^2+3e^2x^4\right)+b\left(c^2d+e\right)\sec^{-1}(cx)\left(8d^2+12dex^2+3e^2x^4\right)-bcdex\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)}{3e^3\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}} - \frac{bx\sqrt{1-}}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^5*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] (-(b*c*d*e*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2)) + a*(c^2*d + e)*(8*d^2 + 12
*d*e*x^2 + 3*e^2*x^4) + b*(c^2*d + e)*(8*d^2 + 12*d*e*x^2 + 3*e^2*x^4)*ArcS
ec[c*x])/(3*e^3*(c^2*d + e)*(d + e*x^2)^(3/2)) - (b*Sqrt[1 - 1/(c^2*x^2)]*x
*(3*Sqrt[c^2]*Sqrt[e]*Sqrt[c^2*d + e]*Sqrt[(c^2*(d + e*x^2))/(c^2*d + e)]*A
rcSinh[(c*Sqrt[e]*Sqrt[-1 + c^2*x^2])/(Sqrt[c^2]*Sqrt[c^2*d + e])] + 8*c^3*
Sqrt[d]*Sqrt[d + e*x^2]*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]
]))/(3*c^2*e^3*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.862, size = 0, normalized size = 0.

$$\int x^5 (a + b\operatorname{arcsec}(cx)) \left(ex^2 + d\right)^{-\frac{5}{2}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [B] time = 5.14562, size = 4483, normalized size = 18.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/12*(3*(b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b*d^2*e + 2*(b*c^2*d^2*e
+ b*d*e^2)*x^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2 - 6*c^2*d*e + 8*(c^4*d*
e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sqrt(c^2*x^2 - 1)*sqrt(e*x
^2 + d)*sqrt(e) + e^2) + 8*(b*c^3*d^3 + b*c*d^2*e + (b*c^3*d*e^2 + b*c*e^3)
*x^4 + 2*(b*c^3*d^2*e + b*c*d*e^2)*x^2)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e
+ e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 -
 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + 4*(8*a*c^3*d^3 + 8*a*c*d^2*e
 + 3*(a*c^3*d*e^2 + a*c*e^3)*x^4 + 12*(a*c^3*d^2*e + a*c*d*e^2)*x^2 + (8*b*
c^3*d^3 + 8*b*c*d^2*e + 3*(b*c^3*d*e^2 + b*c*e^3)*x^4 + 12*(b*c^3*d^2*e + b
*c*d*e^2)*x^2)*arcsec(c*x) - (b*c*d*e^2*x^2 + b*c*d^2*e)*sqrt(c^2*x^2 - 1))
*sqrt(e*x^2 + d))/(c^3*d^3*e^3 + c*d^2*e^4 + (c^3*d*e^5 + c*e^6)*x^4 + 2*(c
^3*d^2*e^4 + c*d*e^5)*x^2), 1/12*(16*(b*c^3*d^3 + b*c*d^2*e + (b*c^3*d*e^2
+ b*c*e^3)*x^4 + 2*(b*c^3*d^2*e + b*c*d*e^2)*x^2)*sqrt(d)*arctan(-1/2*sqrt(
c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 +
 (c^2*d^2 - d*e)*x^2 - d^2)) + 3*(b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b
*d^2*e + 2*(b*c^2*d^2*e + b*d*e^2)*x^2)*sqrt(e)*log(8*c^4*e^2*x^4 + c^4*d^2
 - 6*c^2*d*e + 8*(c^4*d*e - c^2*e^2)*x^2 - 4*(2*c^3*e*x^2 + c^3*d - c*e)*sq
rt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(e) + e^2) + 4*(8*a*c^3*d^3 + 8*a*c*d^2
*e + 3*(a*c^3*d*e^2 + a*c*e^3)*x^4 + 12*(a*c^3*d^2*e + a*c*d*e^2)*x^2 + (8*
b*c^3*d^3 + 8*b*c*d^2*e + 3*(b*c^3*d*e^2 + b*c*e^3)*x^4 + 12*(b*c^3*d^2*e +
 b*c*d*e^2)*x^2)*arcsec(c*x) - (b*c*d*e^2*x^2 + b*c*d^2*e)*sqrt(c^2*x^2 - 1
))*sqrt(e*x^2 + d))/(c^3*d^3*e^3 + c*d^2*e^4 + (c^3*d*e^5 + c*e^6)*x^4 + 2*
(c^3*d^2*e^4 + c*d*e^5)*x^2), 1/6*(3*(b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4
 + b*d^2*e + 2*(b*c^2*d^2*e + b*d*e^2)*x^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x^
```

```
2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c*
d*e + (c^3*d*e - c*e^2)*x^2)) + 4*(b*c^3*d^3 + b*c*d^2*e + (b*c^3*d*e^2 + b
*c*e^3)*x^4 + 2*(b*c^3*d^2*e + b*c*d*e^2)*x^2)*sqrt(-d)*log(((c^4*d^2 - 6*c
^2*d*e + e^2)*x^4 - 8*(c^2*d^2 - d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e
)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(-d) + 8*d^2)/x^4) + 2*(8*a*c^3*d^3 + 8*a*
c*d^2*e + 3*(a*c^3*d*e^2 + a*c*e^3)*x^4 + 12*(a*c^3*d^2*e + a*c*d*e^2)*x^2
+ (8*b*c^3*d^3 + 8*b*c*d^2*e + 3*(b*c^3*d*e^2 + b*c*e^3)*x^4 + 12*(b*c^3*d^
2*e + b*c*d*e^2)*x^2)*arcsec(c*x) - (b*c*d*e^2*x^2 + b*c*d^2*e)*sqrt(c^2*x^
2 - 1))*sqrt(e*x^2 + d))/(c^3*d^3*e^3 + c*d^2*e^4 + (c^3*d*e^5 + c*e^6)*x^4
 + 2*(c^3*d^2*e^4 + c*d*e^5)*x^2), 1/6*(8*(b*c^3*d^3 + b*c*d^2*e + (b*c^3*d
*e^2 + b*c*e^3)*x^4 + 2*(b*c^3*d^2*e + b*c*d*e^2)*x^2)*sqrt(d)*arctan(-1/2*
sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*
x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + 3*(b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^
4 + b*d^2*e + 2*(b*c^2*d^2*e + b*d*e^2)*x^2)*sqrt(-e)*arctan(1/2*(2*c^2*e*x
^2 + c^2*d - e)*sqrt(c^2*x^2 - 1)*sqrt(e*x^2 + d)*sqrt(-e)/(c^3*e^2*x^4 - c
*d*e + (c^3*d*e - c*e^2)*x^2)) + 2*(8*a*c^3*d^3 + 8*a*c*d^2*e + 3*(a*c^3*d*
e^2 + a*c*e^3)*x^4 + 12*(a*c^3*d^2*e + a*c*d*e^2)*x^2 + (8*b*c^3*d^3 + 8*b*
c*d^2*e + 3*(b*c^3*d*e^2 + b*c*e^3)*x^4 + 12*(b*c^3*d^2*e + b*c*d*e^2)*x^2)
*arcsec(c*x) - (b*c*d*e^2*x^2 + b*c*d^2*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 +
d))/(c^3*d^3*e^3 + c*d^2*e^4 + (c^3*d*e^5 + c*e^6)*x^4 + 2*(c^3*d^2*e^4 + c
*d*e^5)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**5*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx) + a)x^5}{\left(ex^2 + d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^5/(e*x^2 + d)^(5/2), x)
```

3.152 $\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=163

$$-\frac{a+b\sec^{-1}(cx)}{e^2\sqrt{d+ex^2}}+\frac{d\left(a+b\sec^{-1}(cx)\right)}{3e^2\left(d+ex^2\right)^{3/2}}-\frac{2bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3\sqrt{d}e^2\sqrt{c^2x^2}}+\frac{bcx\sqrt{c^2x^2-1}}{3e\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}$$

```
[Out] (b*c*x*Sqrt[-1 + c^2*x^2])/(3*e*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2])
+ (d*(a + b*ArcSec[c*x]))/(3*e^2*(d + e*x^2)^(3/2)) - (a + b*ArcSec[c*x])/(
e^2*Sqrt[d + e*x^2]) - (2*b*c*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c
^2*x^2])])/(3*Sqrt[d]*e^2*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.242974, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 8, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.348, Rules used = {266, 43, 5238, 12, 573, 152, 93, 204}

$$-\frac{a+b\sec^{-1}(cx)}{e^2\sqrt{d+ex^2}}+\frac{d\left(a+b\sec^{-1}(cx)\right)}{3e^2\left(d+ex^2\right)^{3/2}}-\frac{2bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3\sqrt{d}e^2\sqrt{c^2x^2}}+\frac{bcx\sqrt{c^2x^2-1}}{3e\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] (b*c*x*Sqrt[-1 + c^2*x^2])/(3*e*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2])
+ (d*(a + b*ArcSec[c*x]))/(3*e^2*(d + e*x^2)^(3/2)) - (a + b*ArcSec[c*x])/(
e^2*Sqrt[d + e*x^2]) - (2*b*c*x*ArcTan[Sqrt[d + e*x^2]/(Sqrt[d]*Sqrt[-1 + c
^2*x^2])])/(3*Sqrt[d]*e^2*Sqrt[c^2*x^2])
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 573

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
)*((e_) + (f_.)*(x_)^(n_))^(r_.), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simpl
ify[(m + 1)/n] - 1)*(a + b*x)^p*(c + d*x)^q*(e + f*x)^r, x], x, x^n], x] /;
 FreeQ[{a, b, c, d, e, f, m, n, p, q, r}, x] && IntegerQ[Simplify[(m + 1)/n
]]
```

Rule 152

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_)*((e_.) + (f_.)*(x_)
)^(p_)*((g_.) + (h_.)*(x_)), x_Symbol] :> Simp[((b*g - a*h)*(a + b*x)^(m +
1)*(c + d*x)^(n + 1)*(e + f*x)^(p + 1))/((m + 1)*(b*c - a*d)*(b*e - a*f)),
x] + Dist[1/((m + 1)*(b*c - a*d)*(b*e - a*f)), Int[(a + b*x)^(m + 1)*(c + d
*x)^n*(e + f*x)^p*Simp[(a*d*f*g - b*(d*e + c*f)*g + b*c*e*h)*(m + 1) - (b*g
 - a*h)*(d*e*(n + 1) + c*f*(p + 1)) - d*f*(b*g - a*h)*(m + n + p + 3)*x, x]
, x], x] /; FreeQ[{a, b, c, d, e, f, g, h, n, p}, x] && LtQ[m, -1] && Integ
ersQ[2*m, 2*n, 2*p]
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\int \frac{x^3 \left(a+b \sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}} dx = \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} - \frac{(bcx) \int \frac{-2d-3ex^2}{3e^2 x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}} dx}{\sqrt{c^2x^2}}$$

$$= \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} - \frac{(bcx) \int \frac{-2d-3ex^2}{x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}} dx}{3e^2\sqrt{c^2x^2}}$$

$$= \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} - \frac{(bcx) \text{Subst}\left(\int \frac{-2d-3ex}{x\sqrt{-1+c^2x}(d+ex)^{3/2}} dx, x, x^2\right)}{6e^2\sqrt{c^2x^2}}$$

$$= \frac{bcx\sqrt{-1+c^2x^2}}{3e\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} + \frac{(bcx) \text{Subst}\left(\int \frac{}{x\sqrt{}}\right.}{3de^2\left(c^2d\right.}$$

$$= \frac{bcx\sqrt{-1+c^2x^2}}{3e\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} + \frac{(bcx) \text{Subst}\left(\int \frac{}{x\sqrt{}}\right.}{3e^2}$$

$$= \frac{bcx\sqrt{-1+c^2x^2}}{3e\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} + \frac{(2bcx) \text{Subst}\left(\int\right.}{3e^2}$$

$$= \frac{bcx\sqrt{-1+c^2x^2}}{3e\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{d \left(a+b \sec^{-1}(cx)\right)}{3e^2 \left(d+ex^2\right)^{3/2}} - \frac{a+b \sec^{-1}(cx)}{e^2 \sqrt{d+ex^2}} - \frac{2bcx \tan^{-1}\left(\frac{\sqrt{d+}}{\sqrt{d}\sqrt{-}}\right.}{3\sqrt{d}e^2\sqrt{c^2x^2}}$$

Mathematica [A] time = 0.256064, size = 172, normalized size = 1.06

$$\frac{-a\left(c^2d+e\right)\left(2d+3ex^2\right)+bcex\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)-b\left(c^2d+e\right)\sec^{-1}(cx)\left(2d+3ex^2\right)}{3e^2\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}} + \frac{2bcx\sqrt{1-\frac{1}{c^2x^2}}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2}}{\sqrt{d+e}}\right.}{3\sqrt{d}e^2\sqrt{c^2x^2-1}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] (b*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2) - a*(c^2*d + e)*(2*d + 3*e*x^2)
- b*(c^2*d + e)*(2*d + 3*e*x^2)*ArcSec[c*x])/(3*e^2*(c^2*d + e)*(d + e*x^2)
^(3/2)) + (2*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2]
)/Sqrt[d + e*x^2]])/(3*Sqrt[d]*e^2*Sqrt[-1 + c^2*x^2])
```

Maple [F] time = 1.631, size = 0, normalized size = 0.

$$\int x^3 \left(a+b\,\text{arcsec}\,(cx)\right)\left(ex^2+d\right)^{-\frac{5}{2}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [B] time = 3.34775, size = 1380, normalized size = 8.47

$$\left[-\frac{\left(bc^2d^3+\left(bc^2de^2+be^3\right)x^4+bd^2e+2\left(bc^2d^2e+bde^2\right)x^2\right)\sqrt{-d}\log\left(\frac{\left(c^4d^2-6c^2de+e^2\right)x^4-8\left(c^2d^2-de\right)x^2-4\sqrt{c^2x^2-1}\left(\left(c^2d-e\right)x^2-2d\right)\sqrt{ex^2-}}{x^4}\right.}{6\left(c^2d^4e^2+d^3e\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/6*((b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b*d^2*e + 2*(b*c^2*d^2*e +
b*d*e^2)*x^2)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 -
d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqrt
(-d) + 8*d^2)/x^4) + 2*(2*a*c^2*d^3 + 2*a*d^2*e + 3*(a*c^2*d^2*e + a*d*e^2)
*x^2 + (2*b*c^2*d^3 + 2*b*d^2*e + 3*(b*c^2*d^2*e + b*d*e^2)*x^2)*arcsec(c*x
) - (b*d*e^2*x^2 + b*d^2*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^2*d^4*e^
2 + d^3*e^3 + (c^2*d^2*e^4 + d*e^5)*x^4 + 2*(c^2*d^3*e^3 + d^2*e^4)*x^2), -
1/3*((b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b*d^2*e + 2*(b*c^2*d^2*e + b*
d*e^2)*x^2)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*s
qrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + (2*a*c^
2*d^3 + 2*a*d^2*e + 3*(a*c^2*d^2*e + a*d*e^2)*x^2 + (2*b*c^2*d^3 + 2*b*d^2*
e + 3*(b*c^2*d^2*e + b*d*e^2)*x^2)*arcsec(c*x) - (b*d*e^2*x^2 + b*d^2*e)*sq
rt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^2*d^4*e^2 + d^3*e^3 + (c^2*d^2*e^4 + d
*e^5)*x^4 + 2*(c^2*d^3*e^3 + d^2*e^4)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx)+a)x^3}{\left(ex^2+d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/(e*x^2 + d)^(5/2), x)
```

3.153 $\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=138

$$-\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3d^{3/2}e\sqrt{c^2x^2}}-\frac{bcx\sqrt{c^2x^2-1}}{3d\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}$$

```
[Out] -(b*c*x*Sqrt[-1 + c^2*x^2])/(3*d*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2])
 - (a + b*ArcSec[c*x])/(3*e*(d + e*x^2)^(3/2)) - (b*c*x*ArcTan[Sqrt[d + e*x
^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*d^(3/2)*e*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.131406, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.238, Rules used = {5236, 446, 96, 93, 204}

$$-\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{c^2x^2-1}}\right)}{3d^{3/2}e\sqrt{c^2x^2}}-\frac{bcx\sqrt{c^2x^2-1}}{3d\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Int[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] -(b*c*x*Sqrt[-1 + c^2*x^2])/(3*d*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2])
 - (a + b*ArcSec[c*x])/(3*e*(d + e*x^2)^(3/2)) - (b*c*x*ArcTan[Sqrt[d + e*x
^2]/(Sqrt[d]*Sqrt[-1 + c^2*x^2])])/(3*d^(3/2)*e*Sqrt[c^2*x^2])
```

Rule 5236

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(x_)*((d_.) + (e_.)*(x_)^2)^(p_.), x
_Symbol] :> Simp[((d + e*x^2)^(p + 1)*(a + b*ArcSec[c*x]))/(2*e*(p + 1)), x
] - Dist[(b*c*x)/(2*e*(p + 1)*Sqrt[c^2*x^2]), Int[(d + e*x^2)^(p + 1)/(x*Sq
rt[c^2*x^2 - 1]), x], x] /; FreeQ[{a, b, c, d, e, p}, x] && NeQ[p, -1]
```

Rule 446

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_))^(q_.
), x_Symbol] :> Dist[1/n, Subst[Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p
*(c + d*x)^q, x], x, x^n], x] /; FreeQ[{a, b, c, d, m, n, p, q}, x] && NeQ[
b*c - a*d, 0] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 96

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_.)*((e_.) + (f_.)*(x_
))^(p_.), x_Symbol] :> Simp[(b*(a + b*x)^(m + 1)*(c + d*x)^(n + 1)*(e + f*x
)^(p + 1))/((m + 1)*(b*c - a*d)*(b*e - a*f)), x] + Dist[(a*d*f*(m + 1) + b*
c*f*(n + 1) + b*d*e*(p + 1))/((m + 1)*(b*c - a*d)*(b*e - a*f)), Int[(a + b*
x)^(m + 1)*(c + d*x)^n*(e + f*x)^p, x], x] /; FreeQ[{a, b, c, d, e, f, m, n
, p}, x] && EqQ[Simplify[m + n + p + 3], 0] && (LtQ[m, -1] || SumSimplerQ[m
, 1])
```

Rule 93

```
Int[(((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_))/((e_.) + (f_.)*(x
_)), x_Symbol] :> With[{q = Denominator[m]}, Dist[q, Subst[Int[x^(q*(m + 1)
 - 1)/(b*e - a*f - (d*e - c*f)*x^q), x], x, (a + b*x)^(1/q)/(c + d*x)^(1/q)
], x]] /; FreeQ[{a, b, c, d, e, f}, x] && EqQ[m + n + 1, 0] && RationalQ[n]
 && LtQ[-1, m, 0] && SimplerQ[a + b*x, c + d*x]
```

Rule 204

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> -Simp[ArcTan[(Rt[-b, 2]*x)/Rt[
-a, 2]]/(Rt[-a, 2]*Rt[-b, 2]), x] /; FreeQ[{a, b}, x] && PosQ[a/b] && (LtQ[
a, 0] || LtQ[b, 0])
```

Rubi steps

$$\begin{aligned}
\int \frac{x\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx &= -\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}+\frac{(bcx)\int \frac{1}{x\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}\,dx}{3e\sqrt{c^2x^2}}\\
&= -\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}+\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}(d+ex)^{3/2}}\,dx,x,x^2\right)}{6e\sqrt{c^2x^2}}\\
&= -\frac{bcx\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}+\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{1}{x\sqrt{-1+c^2x}\sqrt{d+ex}}\,dx,x,x^2\right)}{6de\sqrt{c^2x^2}}\\
&= -\frac{bcx\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}+\frac{(bcx)\,\mathrm{Subst}\left(\int \frac{1}{-d-x^2}\,dx,x,\frac{\sqrt{d+ex^2}}{\sqrt{-1+c^2x^2}}\right)}{3de\sqrt{c^2x^2}}\\
&= -\frac{bcx\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{3e\left(d+ex^2\right)^{3/2}}-\frac{bcx\tan^{-1}\left(\frac{\sqrt{d+ex^2}}{\sqrt{d}\sqrt{-1+c^2x^2}}\right)}{3d^{3/2}e\sqrt{c^2x^2}}
\end{aligned}$$

Mathematica [A] time = 0.204507, size = 158, normalized size = 1.14

$$\frac{-ad\left(c^2d+e\right)-bcex\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)-bd\left(c^2d+e\right)\sec^{-1}(cx)}{3de\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}}+\frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\tan^{-1}\left(\frac{\sqrt{d}\sqrt{c^2x^2-1}}{\sqrt{d+ex^2}}\right)}{3d^{3/2}e\sqrt{c^2x^2-1}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] (-(a*d*(c^2*d + e)) - b*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2) - b*d*(c^2*
d + e)*ArcSec[c*x])/(3*d*e*(c^2*d + e)*(d + e*x^2)^(3/2)) + (b*c*Sqrt[1 - 1
/(c^2*x^2)]*x*ArcTan[(Sqrt[d]*Sqrt[-1 + c^2*x^2])/Sqrt[d + e*x^2]])/(3*d^(3
/2)*e*Sqrt[-1 + c^2*x^2])
```

Maple [F] time = 1.233, size = 0, normalized size = 0.

$$\int x\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [B] time = 3.09071, size = 1189, normalized size = 8.62

$$\left[-\frac{\left(bc^2d^3+\left(bc^2de^2+be^3\right)x^4+bd^2e+2\left(bc^2d^2e+bde^2\right)x^2\right)\sqrt{-d}\log\left(\frac{\left(c^4d^2-6c^2de+e^2\right)x^4-8\left(c^2d^2-de\right)x^2-4\sqrt{c^2x^2-1}\left(\left(c^2d-e\right)x^2-2d\right)\sqrt{ex^2-}}{x^4}\right.}{12\left(c^2d^5e+d^4e^2+\left(c^2d^3e^3+d^2e^4\right)x^4+2\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/12*((b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b*d^2*e + 2*(b*c^2*d^2*e +
 b*d*e^2)*x^2)*sqrt(-d)*log(((c^4*d^2 - 6*c^2*d*e + e^2)*x^4 - 8*(c^2*d^2 -
 d*e)*x^2 - 4*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*d)*sqrt(e*x^2 + d)*sqr
t(-d) + 8*d^2)/x^4) + 4*(a*c^2*d^3 + a*d^2*e + (b*c^2*d^3 + b*d^2*e)*arcsec
(c*x) + (b*d*e^2*x^2 + b*d^2*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^2*d^
5*e + d^4*e^2 + (c^2*d^3*e^3 + d^2*e^4)*x^4 + 2*(c^2*d^4*e^2 + d^3*e^3)*x^2
), -1/6*((b*c^2*d^3 + (b*c^2*d*e^2 + b*e^3)*x^4 + b*d^2*e + 2*(b*c^2*d^2*e
+ b*d*e^2)*x^2)*sqrt(d)*arctan(-1/2*sqrt(c^2*x^2 - 1)*((c^2*d - e)*x^2 - 2*
d)*sqrt(e*x^2 + d)*sqrt(d)/(c^2*d*e*x^4 + (c^2*d^2 - d*e)*x^2 - d^2)) + 2*(
a*c^2*d^3 + a*d^2*e + (b*c^2*d^3 + b*d^2*e)*arcsec(c*x) + (b*d*e^2*x^2 + b*
d^2*e)*sqrt(c^2*x^2 - 1))*sqrt(e*x^2 + d))/(c^2*d^5*e + d^4*e^2 + (c^2*d^3*
e^3 + d^2*e^4)*x^4 + 2*(c^2*d^4*e^2 + d^3*e^3)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x}{\left(ex^2 + d\right)^{\frac{5}{2}}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x/(e*x^2 + d)^(5/2), x)
```

3.154 $\int \frac{a+b\sec^{-1}(cx)}{x(d+ex^2)^{5/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{5/2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(5/2)), x]
```

Rubi [A] time = 0.119785, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(5/2)),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(5/2)), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{5/2}}\,dx=\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{5/2}}\,dx$$

Mathematica [A] time = 25.4522, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(5/2)),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*(d + e*x^2)^(5/2)), x]
```

Maple [A] time = 1.078, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x}\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(5/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{\sqrt{ex^2+d}(b\operatorname{arcsec}(cx)+a)}{e^3x^7+3\,de^2x^5+3\,d^2ex^3+d^3x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^3*x^7 + 3*d*e^2*x^5 + 3*d^2
*e*x^3 + d^3*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}(cx)+a}{\left(ex^2+d\right)^{\frac{5}{2}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(5/2)*x), x)
```

3.155 $\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(5/2)), x]
```

Rubi [A] time = 0.138226, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(5/2)),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(5/2)), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}}\,dx=\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}}\,dx$$

Mathematica [A] time = 31.5868, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x^3\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(5/2)),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x^3*(d + e*x^2)^(5/2)), x]
```

Maple [A] time = 1.08, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^3}\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(5/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2+d}(b\operatorname{arcsec}(cx)+a)}{e^3x^9+3\,de^2x^7+3\,d^2ex^5+d^3x^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^3*x^9 + 3*d*e^2*x^7 + 3*d^2
*e*x^5 + d^3*x^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**3/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{b\operatorname{arcsec}(cx)+a}{\left(ex^2+d\right)^{\frac{5}{2}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^3/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(5/2)*x^3), x)
```

3.156 $\int \frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}},x\right)$$

```
[Out] Unintegrable[(x^6*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Rubi [A] time = 0.115888, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(x^6*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]

[Out] Defer[Int][(x^6*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Rubi steps

$$\int \frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx=\int \frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Mathematica [A] time = 9.90544, size = 0, normalized size = 0.

$$\int \frac{x^6\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(x^6*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]

[Out] Integrate[(x^6*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Maple [A] time = 1.224, size = 0, normalized size = 0.

$$\int x^6\left(a+b\operatorname{arcsec}(cx)\right)\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^6*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x^6*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(bx^6\,\text{arcsec}\,(cx)+ax^6\right)\sqrt{ex^2+d}}{e^3x^6+3\,de^2x^4+3\,d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^6*arcsec(c*x) + a*x^6)*sqrt(e*x^2 + d)/(e^3*x^6 + 3*d*e^2*x^4
 + 3*d^2*e*x^2 + d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**6*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{(b\,\text{arcsec}\,(cx)+a)x^6}{\left(ex^2+d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^6/(e*x^2 + d)^(5/2), x)
```

3.157 $\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}},x\right)$$

```
[Out] Unintegrable[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Rubi [A] time = 0.106308, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] Defer[Int][(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Rubi steps

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx=\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Mathematica [A] time = 9.37756, size = 0, normalized size = 0.

$$\int \frac{x^4\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] Integrate[(x^4*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2), x]
```

Maple [A] time = 1.169, size = 0, normalized size = 0.

$$\int x^4\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(bx^4\,\mathrm{arcsec}\,(cx)+ax^4\right)\sqrt{ex^2+d}}{e^3x^6+3\,de^2x^4+3\,d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^4*arcsec(c*x) + a*x^4)*sqrt(e*x^2 + d)/(e^3*x^6 + 3*d*e^2*x^4
 + 3*d^2*e*x^2 + d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\,\mathrm{arcsec}\,(cx)+a)x^4}{\left(ex^2+d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^4/(e*x^2 + d)^(5/2), x)
```

3.158 $\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=276

$$-\frac{bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{3de\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}}-\frac{bcx^2\sqrt{c^2x^2-1}}{3d\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}+\frac{bc^2x\sqrt{1-c^2x^2}}{3de\sqrt{c^2x^2}\sqrt{}}$$

```
[Out] -(b*c*x^2*Sqrt[-1 + c^2*x^2])/(3*d*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2
]) + (x^3*(a + b*ArcSec[c*x]))/(3*d*(d + e*x^2)^(3/2)) + (b*c^2*x*Sqrt[1 -
c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d*e*(c^2*
d + e)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*x*Sqrt[1
- c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d*e
*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.276225, antiderivative size = 276, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 10, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.435, Rules used = {264, 5238, 12, 471, 423, 427, 426, 424, 421, 419}

$$\frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}}-\frac{bcx^2\sqrt{c^2x^2-1}}{3d\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}-\frac{bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{3de\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{bc^2x\sqrt{1-c^2x^2}\sqrt{d+ex^2}}{3de\sqrt{c^2x^2}\sqrt{c^2x^2-1}\left(\right.}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] -(b*c*x^2*Sqrt[-1 + c^2*x^2])/(3*d*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2
]) + (x^3*(a + b*ArcSec[c*x]))/(3*d*(d + e*x^2)^(3/2)) + (b*c^2*x*Sqrt[1 -
c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d*e*(c^2*
d + e)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*x*Sqrt[1
- c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d*e
*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rule 264

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[((c
*x)^(m + 1)*(a + b*x^n)^(p + 1))/(a*c*(m + 1)), x] /; FreeQ[{a, b, c, m, n,
 p}, x] && EqQ[(m + 1)/n + p + 1, 0] && NeQ[m, -1]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 471

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_
))^(q_), x_Symbol] :> Simp[(e^(n - 1)*(e*x)^(m - n + 1)*(a + b*x^n)^(p + 1)
*(c + d*x^n)^(q + 1))/(n*(b*c - a*d)*(p + 1)), x] - Dist[e^n/(n*(b*c - a*d)
*(p + 1)), Int[(e*x)^(m - n)*(a + b*x^n)^(p + 1)*(c + d*x^n)^q*Simp[c*(m -
n + 1) + d*(m + n*(p + q + 1) + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e,
 q}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[p, -1] && GeQ[n, m - n +
1] && GtQ[m - n + 1, 0] && IntBinomialQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 423

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
b/d, Int[Sqrt[c + d*x^2]/Sqrt[a + b*x^2], x], x] - Dist[(b*c - a*d)/d, Int[
1/(Sqrt[a + b*x^2]*Sqrt[c + d*x^2]), x], x] /; FreeQ[{a, b, c, d}, x] && Po
sQ[d/c] && NegQ[b/a]
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{x^2\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{5/2}}\,dx = \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} - \frac{(bcx)\int \frac{x^2}{3d\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}\,dx}{\sqrt{c^2x^2}}$$

$$= \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} - \frac{(bcx)\int \frac{x^2}{\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}\,dx}{3d\sqrt{c^2x^2}}$$

$$= -\frac{bcx^2\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{(bcx)\int \frac{\sqrt{-1+c^2x^2}}{\sqrt{d+ex^2}}\,dx}{3d\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$= -\frac{bcx^2\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} - \frac{(bcx)\int \frac{1}{\sqrt{-1+c^2x^2}\sqrt{d+ex^2}}\,dx}{3de\sqrt{c^2x^2}} + \frac{\left(bc^3x\right)\int}{3de\left(c^2d\right.}$$

$$= -\frac{bcx^2\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{\left(bc^3x\sqrt{1-c^2x^2}\right)\int \frac{\sqrt{d+ex^2}}{\sqrt{1-c^2x^2}}\,dx}{3de\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{-1+c^2x^2}} - $$

$$= -\frac{bcx^2\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{\left(bc^3x\sqrt{1-c^2x^2}\sqrt{d+ex^2}\right)\int \frac{\sqrt{1+\frac{ex^2}{d}}}{\sqrt{1-c^2x^2}}}{3de\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{1+}}$$

$$= -\frac{bcx^2\sqrt{-1+c^2x^2}}{3d\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{bc^2x\sqrt{1-c^2x^2}\sqrt{d+ex^2}E\left(\sin^{-1}(cx)\right|}{3de\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{-1+c^2x^2}\sqrt{1}}$$

Mathematica [A] time = 0.284973, size = 186, normalized size = 0.67

$$\frac{x^2\left(ax\left(c^2d+e\right)-bc\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)+bx\left(c^2d+e\right)\sec^{-1}(cx)\right)}{3d\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}} + \frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}E\left(\sin^{-1}\left(\sqrt{-\frac{e}{d}}x\right)\middle|-\frac{c^2d}{e}\right)}{3d\sqrt{1-c^2x^2}\sqrt{-\frac{e}{d}}\left(c^2d+e\right)\sqrt{d+ex^2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^2*(a + b*ArcSec[c*x]))/(d + e*x^2)^(5/2),x]
```

```
[Out] (x^2*(a*(c^2*d + e)*x - b*c*Sqrt[1 - 1/(c^2*x^2)]*(d + e*x^2) + b*(c^2*d +
e)*x*ArcSec[c*x]))/(3*d*(c^2*d + e)*(d + e*x^2)^(3/2)) + (b*c*Sqrt[1 - 1/(c
^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*EllipticE[ArcSin[Sqrt[-(e/d)]*x], -((c^2*d)/
e)])/(3*d*Sqrt[-(e/d)]*(c^2*d + e)*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.157, size = 0, normalized size = 0.

$$\int x^2\left(a+b\mathrm{arcsec}\left(cx\right)\right)\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{3}a\left(\frac{x}{\left(ex^2+d\right)^{\frac{3}{2}}e}-\frac{x}{\sqrt{ex^2+d}de}\right)+b\int\frac{x^2\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{\left(e^2x^4+2\,dex^2+d^2\right)\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] -1/3*a*(x/((e*x^2 + d)^(3/2)*e) - x/(sqrt(e*x^2 + d)*d*e)) + b*integrate(x^
2*arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/((e^2*x^4 + 2*d*e*x^2 + d^2)*sqrt(e*x
^2 + d)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(bx^2\operatorname{arcsec}(cx)+ax^2\right)\sqrt{ex^2+d}}{e^3x^6+3\,de^2x^4+3\,d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((b*x^2*arcsec(c*x) + a*x^2)*sqrt(e*x^2 + d)/(e^3*x^6 + 3*d*e^2*x^4
 + 3*d^2*e*x^2 + d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(b\operatorname{arcsec}(cx)+a)x^2}{\left(ex^2+d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2*(a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^2/(e*x^2 + d)^(5/2), x)
```

3.159 $\int \frac{a+b\sec^{-1}(cx)}{(d+ex^2)^{5/2}}\,dx$

Optimal. Leaf size=296

$$-\frac{2bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{3d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}}+\frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}}+\frac{bcex^2\sqrt{c^2x^2-1}}{3d^2\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{}}$$

```
[Out] (b*c*e*x^2*Sqrt[-1 + c^2*x^2])/(3*d^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*
x^2]) + (x*(a + b*ArcSec[c*x]))/(3*d*(d + e*x^2)^(3/2)) + (2*x*(a + b*ArcSe
c[c*x]))/(3*d^2*Sqrt[d + e*x^2]) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^
2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*(c^2*d + e)*Sqrt[c^2*x^2]*S
qrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (2*b*x*Sqrt[1 - c^2*x^2]*Sqrt[1 +
(e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*Sqrt[c^2*x^2]*Sqrt[
-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 0.23508, antiderivative size = 296, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 11, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.55, Rules used = {192, 191, 5228, 12, 527, 524, 427, 426, 424, 421, 419}

$$\frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}}+\frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}}+\frac{bcex^2\sqrt{c^2x^2-1}}{3d^2\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}-\frac{2bx\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}F\left(\sin^{-1}(cx)|-\frac{e}{c^2d}\right)}{3d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(d + e*x^2)^(5/2),x]
```


```
[Out] (b*c*e*x^2*Sqrt[-1 + c^2*x^2])/(3*d^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*
x^2]) + (x*(a + b*ArcSec[c*x]))/(3*d*(d + e*x^2)^(3/2)) + (2*x*(a + b*ArcSe
c[c*x]))/(3*d^2*Sqrt[d + e*x^2]) - (b*c^2*x*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^
2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*(c^2*d + e)*Sqrt[c^2*x^2]*S
qrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (2*b*x*Sqrt[1 - c^2*x^2]*Sqrt[1 +
(e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d^2*Sqrt[c^2*x^2]*Sqrt[
-1 + c^2*x^2]*Sqrt[d + e*x^2])
```


Rule 192

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Simp[(x*(a + b*x^n)^(p + 1
))/(a*n*(p + 1)), x] + Dist[(n*(p + 1) + 1)/(a*n*(p + 1)), Int[(a + b*x^n)^
(p + 1), x], x] /; FreeQ[{a, b, n, p}, x] && ILtQ[Simplify[1/n + p + 1], 0]
 && NeQ[p, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rule 5228

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((d_.) + (e_.)*(x_)^2)^(p_.), x_Symb
ol] :> With[{u = IntHide[(d + e*x^2)^p, x]}, Dist[a + b*ArcSec[c*x], u, x]
- Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegrand[u/(x*Sqrt[c^2*x^2 - 1])
, x], x], x]] /; FreeQ[{a, b, c, d, e}, x] && (IGtQ[p, 0] || ILtQ[p + 1/2,
```

```
0])
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 527

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_))^(q_.)*((e_) + (f
_.)*(x_)^(n_)), x_Symbol] :> -Simp[((b*e - a*f)*x*(a + b*x^n)^(p + 1)*(c +
d*x^n)^(q + 1))/(a*n*(b*c - a*d)*(p + 1)), x] + Dist[1/(a*n*(b*c - a*d)*(p
+ 1)), Int[(a + b*x^n)^(p + 1)*(c + d*x^n)^q*Simp[c*(b*e - a*f) + e*n*(b*c
- a*d)*(p + 1) + d*(b*e - a*f)*(n*(p + q + 2) + 1)*x^n, x], x], x] /; FreeQ
[{a, b, c, d, e, f, n, q}, x] && LtQ[p, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{\left(d+ex^2\right)^{5/2}}\,dx = \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{3d+2ex^2}{3d^2\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}\,dx}{\sqrt{c^2x^2}}$$

$$= \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{3d+2ex^2}{\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}\,dx}{3d^2\sqrt{c^2x^2}}$$

$$= \frac{bcex^2\sqrt{-1+c^2x^2}}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{(bcx)\int \frac{d\left(3c^2d+2e\right)+c^2}{\sqrt{-1+c^2x^2}\sqrt{d+}}}{3d^3\left(c^2d+e\right)\sqrt{c}}$$

$$= \frac{bcex^2\sqrt{-1+c^2x^2}}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{(2bcx)\int \frac{1}{\sqrt{-1+c^2x^2}\sqrt{d}}}{3d^2\sqrt{c^2x^2}}$$

$$= \frac{bcex^2\sqrt{-1+c^2x^2}}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\right)\int}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$= \frac{bcex^2\sqrt{-1+c^2x^2}}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{\left(bc^3x\sqrt{1-c^2x^2}\sqrt{d}\right.}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$= \frac{bcex^2\sqrt{-1+c^2x^2}}{3d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}} + \frac{x\left(a+b\sec^{-1}(cx)\right)}{3d\left(d+ex^2\right)^{3/2}} + \frac{2x\left(a+b\sec^{-1}(cx)\right)}{3d^2\sqrt{d+ex^2}} - \frac{bc^2x\sqrt{1-c^2x^2}\sqrt{d+}}{3d^2\left(c^2d+e\right)\sqrt{c^2x}}$$

Mathematica [C] time = 0.556276, size = 248, normalized size = 0.84

$$\frac{x\left(a\left(c^2d+e\right)\left(3d+2ex^2\right)+bcex\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)+b\left(c^2d+e\right)\sec^{-1}(cx)\left(3d+2ex^2\right)\right)}{3d^2\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}} - \frac{ibcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{\frac{ex^2}{d}+1}\left(2\left(c^2\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(d + e*x^2)^(5/2),x]
```

```
[Out] (x*(b*c*e*Sqrt[1 - 1/(c^2*x^2)]*x*(d + e*x^2) + a*(c^2*d + e)*(3*d + 2*e*x^
2) + b*(c^2*d + e)*(3*d + 2*e*x^2)*ArcSec[c*x]))/(3*d^2*(c^2*d + e)*(d + e*
x^2)^(3/2)) - ((I/3)*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d
*EllipticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] + 2*(c^2*d + e)*EllipticF
[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))]))/(Sqrt[-c^2]*d^2*(c^2*d + e)*Sqrt[
1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.08, size = 0, normalized size = 0.

$$\int (a+b\,\mathrm{arcsec}\,(cx))\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{3}a\left(\frac{2x}{\sqrt{ex^2+d}d^2}+\frac{x}{\left(ex^2+d\right)^{\frac{3}{2}}d}\right)+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{\left(e^2x^4+2dex^2+d^2\right)\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/3*a*(2*x/(sqrt(e*x^2 + d)*d^2) + x/((e*x^2 + d)^(3/2)*d)) + b*integrate(a
rctan(sqrt(c*x + 1)*sqrt(c*x - 1))/((e^2*x^4 + 2*d*e*x^2 + d^2)*sqrt(e*x^2
+ d)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex^2+d}(b\,\mathrm{arcsec}\,(cx)+a)}{e^3x^6+3\,de^2x^4+3\,d^2ex^2+d^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^3*x^6 + 3*d*e^2*x^4 + 3*d^2
*e*x^2 + d^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\mathrm{arcsec}\,(cx)+a}{\left(ex^2+d\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(e*x^2 + d)^(5/2), x)
```

3.160 $\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^{5/2}}\,dx$

Optimal. Leaf size=631

$$\frac{bc^2x\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{d^2\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}+\frac{8bex\sqrt{1-c^2x^2}\sqrt{\frac{ex^2}{d}+1}\text{EllipticF}\left(\sin^{-1}(cx),-\frac{e}{c^2d}\right)}{3d^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}\sqrt{d+ex^2}}-\frac{8ex\left(a+b\sec\cdots\right.}{3d^3\sqrt{d+\cdots}}$$

```
[Out] -((b*c*e*Sqrt[-1 + c^2*x^2])/(d^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2]
)) - (4*b*c*e^2*x^2*Sqrt[-1 + c^2*x^2])/(3*d^3*(c^2*d + e)*Sqrt[c^2*x^2]*Sq
rt[d + e*x^2]) + (b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d^
3*(c^2*d + e)*Sqrt[c^2*x^2]) - (a + b*ArcSec[c*x])/(d*x*(d + e*x^2)^(3/2))
- (4*e*x*(a + b*ArcSec[c*x]))/(3*d^2*(d + e*x^2)^(3/2)) - (8*e*x*(a + b*Arc
Sec[c*x]))/(3*d^3*Sqrt[d + e*x^2]) + (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[d
+ e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d^3*(c^2*d + e)*Sqrt[c^2*
x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*c^2*(c^2*d + 2*e)*x*Sqrt[
1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(d^3*(c^
2*d + e)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (b*c^2*x*S
qrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/
(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2]) + (8*b*e*x*Sqrt[1 -
c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d^3*S
qrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```

Rubi [A] time = 1.39593, antiderivative size = 631, normalized size of antiderivative = 1., number of steps used = 26, number of rules used = 18, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.783, Rules used = {271, 192, 191, 5238, 12, 6742, 414, 21, 427, 426, 424, 472, 583, 524, 421, 419, 471, 423}

$$-\frac{8ex\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{4ex\left(a+b\sec^{-1}(cx)\right)}{3d^2\left(d+ex^2\right)^{3/2}}-\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4bce^2x^2\sqrt{c^2x^2-1}}{3d^3\sqrt{c^2x^2}\left(c^2d+e\right)\sqrt{d+ex^2}}+\frac{bc\sqrt{c^2x^2-1}\left(c^2d+2\cdots\right.}{d^3\sqrt{c^2x^2}\left(c^2d\cdots\right.}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^(5/2)),x]
```


```
[Out] -((b*c*e*Sqrt[-1 + c^2*x^2])/(d^2*(c^2*d + e)*Sqrt[c^2*x^2]*Sqrt[d + e*x^2]
)) - (4*b*c*e^2*x^2*Sqrt[-1 + c^2*x^2])/(3*d^3*(c^2*d + e)*Sqrt[c^2*x^2]*Sq
rt[d + e*x^2]) + (b*c*(c^2*d + 2*e)*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])/(d^
3*(c^2*d + e)*Sqrt[c^2*x^2]) - (a + b*ArcSec[c*x])/(d*x*(d + e*x^2)^(3/2))
- (4*e*x*(a + b*ArcSec[c*x]))/(3*d^2*(d + e*x^2)^(3/2)) - (8*e*x*(a + b*Arc
Sec[c*x]))/(3*d^3*Sqrt[d + e*x^2]) + (4*b*c^2*e*x*Sqrt[1 - c^2*x^2]*Sqrt[d
+ e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(3*d^3*(c^2*d + e)*Sqrt[c^2*
x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) - (b*c^2*(c^2*d + 2*e)*x*Sqrt[
1 - c^2*x^2]*Sqrt[d + e*x^2]*EllipticE[ArcSin[c*x], -(e/(c^2*d))])/(d^3*(c^
2*d + e)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[1 + (e*x^2)/d]) + (b*c^2*x*S
qrt[1 - c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/
(d^2*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2]) + (8*b*e*x*Sqrt[1 -
c^2*x^2]*Sqrt[1 + (e*x^2)/d]*EllipticF[ArcSin[c*x], -(e/(c^2*d))])/(3*d^3*S
qrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]*Sqrt[d + e*x^2])
```


Rule 271

```
Int[(x_)^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x^(m + 1)*(
a + b*x^n)^(p + 1))/(a*(m + 1)), x] - Dist[(b*(m + n*(p + 1) + 1))/(a*(m +
```

```
1)), Int[x^(m + n)*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, m, n, p}, x] && IL
tQ[Simplify[(m + 1)/n + p + 1], 0] && NeQ[m, -1]
```

Rule 192

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> -Simp[(x*(a + b*x^n)^(p + 1
))/(a*n*(p + 1)), x] + Dist[(n*(p + 1) + 1)/(a*n*(p + 1)), Int[(a + b*x^n)^
(p + 1), x], x] /; FreeQ[{a, b, n, p}, x] && ILtQ[Simplify[1/n + p + 1], 0]
 && NeQ[p, -1]
```

Rule 191

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(x*(a + b*x^n)^(p + 1)
)/a, x] /; FreeQ[{a, b, n, p}, x] && EqQ[1/n + p + 1, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 414

```
Int[((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_))^(q_), x_Symbol]
:> -Simp[(b*x*(a + b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*n*(p + 1)*(b*c -
a*d)), x] + Dist[1/(a*n*(p + 1)*(b*c - a*d)), Int[(a + b*x^n)^(p + 1)*(c +
d*x^n)^q*Simp[b*c + n*(p + 1)*(b*c - a*d) + d*b*(n*(p + q + 2) + 1)*x^n, x]
, x], x] /; FreeQ[{a, b, c, d, n, q}, x] && NeQ[b*c - a*d, 0] && LtQ[p, -1]
 &&  !( !IntegerQ[p] && IntegerQ[q] && LtQ[q, -1]) && IntBinomialQ[a, b, c,
 d, n, p, q, x]
```

Rule 21

```
Int[(u_.)*((a_) + (b_.)*(v_))^(m_.)*((c_) + (d_.)*(v_))^(n_.), x_Symbol] :>
 Dist[(b/d)^m, Int[u*(c + d*v)^(m + n), x], x] /; FreeQ[{a, b, c, d, n}, x]
 && EqQ[b*c - a*d, 0] && IntegerQ[m] && ( !IntegerQ[n] || SimplerQ[c + d*x,
 a + b*x])
```

Rule 427

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[Sqrt[a + b*x^2]/Sqrt[1 + (d*x^2)/c
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] &&  !GtQ[c, 0]
```

Rule 426

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
Sqrt[a + b*x^2]/Sqrt[1 + (b*x^2)/a], Int[Sqrt[1 + (b*x^2)/a]/Sqrt[c + d*x^2
], x], x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] &&  !GtQ[a, 0
]
```

Rule 424

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Simp[
(Sqrt[a]*EllipticE[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[c]*Rt[-(d/c
), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ[a, 0]
```

Rule 472

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_
))^(q_), x_Symbol] :> -Simp[(b*(e*x)^(m + 1)*(a + b*x^n)^(p + 1)*(c + d*x^n
)^(q + 1))/(a*e*n*(b*c - a*d)*(p + 1)), x] + Dist[1/(a*n*(b*c - a*d)*(p + 1
)), Int[(e*x)^m*(a + b*x^n)^(p + 1)*(c + d*x^n)^q*Simp[c*b*(m + 1) + n*(b*c
 - a*d)*(p + 1) + d*b*(m + n*(p + q + 2) + 1)*x^n, x], x], x] /; FreeQ[{a,
b, c, d, e, m, q}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[p, -1] && I
ntBinomialQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 583

```
Int[((g_.)*(x_))^(m_)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n_
))^(q_.)*((e_) + (f_.)*(x_)^(n_)), x_Symbol] :> Simp[(e*(g*x)^(m + 1)*(a +
b*x^n)^(p + 1)*(c + d*x^n)^(q + 1))/(a*c*g*(m + 1)), x] + Dist[1/(a*c*g^n*(
m + 1)), Int[(g*x)^(m + n)*(a + b*x^n)^p*(c + d*x^n)^q*Simp[a*f*c*(m + 1) -
 e*(b*c + a*d)*(m + n + 1) - e*n*(b*c*p + a*d*q) - b*e*d*(m + n*(p + q + 2)
 + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e, f, g, p, q}, x] && IGtQ[n, 0
] && LtQ[m, -1]
```

Rule 524

```
Int[((e_) + (f_.)*(x_)^(n_))/(Sqrt[(a_) + (b_.)*(x_)^(n_)]*Sqrt[(c_) + (d_.
)*(x_)^(n_)]), x_Symbol] :> Dist[f/b, Int[Sqrt[a + b*x^n]/Sqrt[c + d*x^n],
x], x] + Dist[(b*e - a*f)/b, Int[1/(Sqrt[a + b*x^n]*Sqrt[c + d*x^n]), x], x
] /; FreeQ[{a, b, c, d, e, f, n}, x] &&  !(EqQ[n, 2] && ((PosQ[b/a] && PosQ
[d/c]) || (NegQ[b/a] && (PosQ[d/c] || (GtQ[a, 0] && ( !GtQ[c, 0] || Simpler
SqrtQ[-(b/a), -(d/c)]))))))
```

Rule 421

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> D
ist[Sqrt[1 + (d*x^2)/c]/Sqrt[c + d*x^2], Int[1/(Sqrt[a + b*x^2]*Sqrt[1 + (d
*x^2)/c]), x], x] /; FreeQ[{a, b, c, d}, x] &&  !GtQ[c, 0]
```

Rule 419

```
Int[1/(Sqrt[(a_) + (b_.)*(x_)^2]*Sqrt[(c_) + (d_.)*(x_)^2]), x_Symbol] :> S
imp[(1*EllipticF[ArcSin[Rt[-(d/c), 2]*x], (b*c)/(a*d)])/(Sqrt[a]*Sqrt[c]*Rt
[-(d/c), 2]), x] /; FreeQ[{a, b, c, d}, x] && NegQ[d/c] && GtQ[c, 0] && GtQ
[a, 0] &&  !(NegQ[b/a] && SimplerSqrtQ[-(b/a), -(d/c)])
```

Rule 471

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_)*((c_) + (d_.)*(x_)^(n_
))^(q_), x_Symbol] :> Simp[(e^(n - 1)*(e*x)^(m - n + 1)*(a + b*x^n)^(p + 1)
*(c + d*x^n)^(q + 1))/(n*(b*c - a*d)*(p + 1)), x] - Dist[e^n/(n*(b*c - a*d)
*(p + 1)), Int[(e*x)^(m - n)*(a + b*x^n)^(p + 1)*(c + d*x^n)^q*Simp[c*(m -
```

```
n + 1) + d*(m + n*(p + q + 1) + 1)*x^n, x], x], x] /; FreeQ[{a, b, c, d, e,
 q}, x] && NeQ[b*c - a*d, 0] && IGtQ[n, 0] && LtQ[p, -1] && GeQ[n, m - n +
1] && GtQ[m - n + 1, 0] && IntBinomialQ[a, b, c, d, e, m, n, p, q, x]
```

Rule 423

```
Int[Sqrt[(a_) + (b_.)*(x_)^2]/Sqrt[(c_) + (d_.)*(x_)^2], x_Symbol] :> Dist[
b/d, Int[Sqrt[c + d*x^2]/Sqrt[a + b*x^2], x], x] - Dist[(b*c - a*d)/d, Int[
1/(Sqrt[a + b*x^2]*Sqrt[c + d*x^2]), x], x] /; FreeQ[{a, b, c, d}, x] && Po
sQ[d/c] && NegQ[b/a]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^2\left(d+ex^2\right)^{5/2}}\,dx = -\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4ex\left(a+b\sec^{-1}(cx)\right)}{3d^2\left(d+ex^2\right)^{3/2}}-\frac{8ex\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\frac{-3d^2-12dex^2-8e^2x^4}{3d^3x^2\sqrt{-1+c^2x^2}\left(d+ex^2\right.}}{\sqrt{c^2x^2}}$$

$$=-\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4ex\left(a+b\sec^{-1}(cx)\right)}{3d^2\left(d+ex^2\right)^{3/2}}-\frac{8ex\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\frac{-3d^2-12dex^2-8e^2x^4}{x^2\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}}{3d^3\sqrt{c^2x^2}}$$

$$=-\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4ex\left(a+b\sec^{-1}(cx)\right)}{3d^2\left(d+ex^2\right)^{3/2}}-\frac{8ex\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}-\frac{(bcx)\int\left(-\frac{12de}{\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/}}\right.}{}$$

$$=-\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4ex\left(a+b\sec^{-1}(cx)\right)}{3d^2\left(d+ex^2\right)^{3/2}}-\frac{8ex\left(a+b\sec^{-1}(cx)\right)}{3d^3\sqrt{d+ex^2}}+\frac{(bcx)\int\frac{1}{x^2\sqrt{-1+c^2x^2}\left(d+ex^2\right)^{3/2}}}{d\sqrt{c^2x^2}}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{a+b\sec^{-1}(cx)}{dx\left(d+ex^2\right)^{3/2}}-\frac{4ex\left(a+b\,\mathrm{s}\right.}{3d^2\left(d+\right.}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}+\frac{bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d\cdot}}{d^3\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}+\frac{bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d\cdot}}{d^3\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}+\frac{bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d\cdot}}{d^3\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}+\frac{bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d\cdot}}{d^3\left(c^2d+e\right)\sqrt{c^2x^2}}$$

$$=-\frac{bce\sqrt{-1+c^2x^2}}{d^2\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}-\frac{4bce^2x^2\sqrt{-1+c^2x^2}}{3d^3\left(c^2d+e\right)\sqrt{c^2x^2}\sqrt{d+ex^2}}+\frac{bc\left(c^2d+2e\right)\sqrt{-1+c^2x^2}\sqrt{d\cdot}}{d^3\left(c^2d+e\right)\sqrt{c^2x^2}}$$

Mathematica [C] time = 0.791344, size = 323, normalized size = 0.51

$$\frac{-a\left(c^2d+e\right)\left(3d^2+12dex^2+8e^2x^4\right)-b\left(c^2d+e\right)\sec^{-1}(cx)\left(3d^2+12dex^2+8e^2x^4\right)+bcx\sqrt{1-\frac{1}{c^2x^2}}\left(d+ex^2\right)\left(3c^2d\left(d+e\right.\right.}{3d^3x\left(c^2d+e\right)\left(d+ex^2\right)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^2*(d + e*x^2)^(5/2)),x]
```

```
[Out] (-(a*(c^2*d + e)*(3*d^2 + 12*d*e*x^2 + 8*e^2*x^4)) + b*c*Sqrt[1 - 1/(c^2*x^
2)]*x*(d + e*x^2)*(3*c^2*d*(d + e*x^2) + e*(3*d + 2*e*x^2)) - b*(c^2*d + e)
*(3*d^2 + 12*d*e*x^2 + 8*e^2*x^4)*ArcSec[c*x])/(3*d^3*(c^2*d + e)*x*(d + e*
x^2)^(3/2)) - ((I/3)*b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[1 + (e*x^2)/d]*(c^2*d
*(3*c^2*d + 2*e)*EllipticE[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))] - (3*c^4*
d^2 + 11*c^2*d*e + 8*e^2)*EllipticF[I*ArcSinh[Sqrt[-c^2]*x], -(e/(c^2*d))])
)/(Sqrt[-c^2]*d^3*(c^2*d + e)*Sqrt[1 - c^2*x^2]*Sqrt[d + e*x^2])
```

Maple [F] time = 1.022, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^2}\left(ex^2+d\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(5/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(5/2),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex^2+d}(b\,\mathrm{arcsec}\,(cx)+a)}{e^3x^8+3\,de^2x^6+3\,d^2ex^4+d^3x^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)/(e^3*x^8 + 3*d*e^2*x^6 + 3*d^2
*e*x^4 + d^3*x^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**2/(e*x**2+d)**(5/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b \operatorname{arcsec}(cx) + a}{\left(ex^2 + d\right)^{\frac{5}{2}} x^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^2/(e*x^2+d)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/((e*x^2 + d)^(5/2)*x^2), x)
```

3.161 $\int (fx)^m \left(d+ex^2\right)^3 \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=589

$$\frac{3d^2e(fx)^{m+3}\left(a+b\sec^{-1}(cx)\right)}{f^3(m+3)}+\frac{d^3(fx)^{m+1}\left(a+b\sec^{-1}(cx)\right)}{f(m+1)}+\frac{3de^2(fx)^{m+5}\left(a+b\sec^{-1}(cx)\right)}{f^5(m+5)}+\frac{e^3(fx)^{m+7}\left(a+b\sec^{-1}(c\right.}{f^7(m+7)}$$

```
[Out] -((b*e*(e^2*(15 + 8*m + m^2)^2 + 3*c^2*d*e*(3 + m)^2*(42 + 13*m + m^2) + 3*
c^4*d^2*(840 + 638*m + 179*m^2 + 22*m^3 + m^4))*x*(f*x)^(1 + m)*Sqrt[-1 + c
^2*x^2])/(c^5*f*(2 + m)*(3 + m)*(4 + m)*(5 + m)*(6 + m)*(7 + m)*Sqrt[c^2*x^
2])) - (b*e^2*(e*(5 + m)^2 + 3*c^2*d*(42 + 13*m + m^2))*x*(f*x)^(3 + m)*Sqr
t[-1 + c^2*x^2])/(c^3*f^3*(4 + m)*(5 + m)*(6 + m)*(7 + m)*Sqrt[c^2*x^2]) -
(b*e^3*x*(f*x)^(5 + m)*Sqrt[-1 + c^2*x^2])/(c*f^5*(6 + m)*(7 + m)*Sqrt[c^2*
x^2]) + (d^3*(f*x)^(1 + m)*(a + b*ArcSec[c*x]))/(f*(1 + m)) + (3*d^2*e*(f*x
)^(3 + m)*(a + b*ArcSec[c*x]))/(f^3*(3 + m)) + (3*d*e^2*(f*x)^(5 + m)*(a +
b*ArcSec[c*x]))/(f^5*(5 + m)) + (e^3*(f*x)^(7 + m)*(a + b*ArcSec[c*x]))/(f^
7*(7 + m)) - (b*((c^6*d^3*(2 + m)*(4 + m)*(6 + m))/(1 + m) + (e*(1 + m)*(e^
2*(15 + 8*m + m^2)^2 + 3*c^2*d*e*(3 + m)^2*(42 + 13*m + m^2) + 3*c^4*d^2*(8
40 + 638*m + 179*m^2 + 22*m^3 + m^4)))/((3 + m)*(5 + m)*(7 + m)))*x*(f*x)^(
1 + m)*Sqrt[1 - c^2*x^2]*Hypergeometric2F1[1/2, (1 + m)/2, (3 + m)/2, c^2*x
^2])/(c^5*f*(1 + m)*(2 + m)*(4 + m)*(6 + m)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2
])
```

Rubi [A] time = 2.4153, antiderivative size = 570, normalized size of antiderivative = 0.97, number of steps used = 6, number of rules used = 7, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.304, Rules used = {270, 5238, 1809, 1267, 459, 365, 364}

$$\frac{3d^2e(fx)^{m+3}\left(a+b\sec^{-1}(cx)\right)}{f^3(m+3)}+\frac{d^3(fx)^{m+1}\left(a+b\sec^{-1}(cx)\right)}{f(m+1)}+\frac{3de^2(fx)^{m+5}\left(a+b\sec^{-1}(cx)\right)}{f^5(m+5)}+\frac{e^3(fx)^{m+7}\left(a+b\sec^{-1}(c\right.}{f^7(m+7)}$$

Antiderivative was successfully verified.

```
[In] Int[(f*x)^m*(d + e*x^2)^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] -((b*e*(e^2*(15 + 8*m + m^2)^2 + 3*c^2*d*e*(3 + m)^2*(42 + 13*m + m^2) + 3*
c^4*d^2*(840 + 638*m + 179*m^2 + 22*m^3 + m^4))*x*(f*x)^(1 + m)*Sqrt[-1 + c
^2*x^2])/(c^5*f*(2 + m)*(3 + m)*(4 + m)*(5 + m)*(6 + m)*(7 + m)*Sqrt[c^2*x^
2])) - (b*e^2*(e*(5 + m)^2 + 3*c^2*d*(42 + 13*m + m^2))*x*(f*x)^(3 + m)*Sqr
t[-1 + c^2*x^2])/(c^3*f^3*(4 + m)*(5 + m)*(6 + m)*(7 + m)*Sqrt[c^2*x^2]) -
(b*e^3*x*(f*x)^(5 + m)*Sqrt[-1 + c^2*x^2])/(c*f^5*(6 + m)*(7 + m)*Sqrt[c^2*
x^2]) + (d^3*(f*x)^(1 + m)*(a + b*ArcSec[c*x]))/(f*(1 + m)) + (3*d^2*e*(f*x
)^(3 + m)*(a + b*ArcSec[c*x]))/(f^3*(3 + m)) + (3*d*e^2*(f*x)^(5 + m)*(a +
b*ArcSec[c*x]))/(f^5*(5 + m)) + (e^3*(f*x)^(7 + m)*(a + b*ArcSec[c*x]))/(f^
7*(7 + m)) - (b*c*(d^3/(1 + m)^2 + (e*(e^2*(15 + 8*m + m^2)^2 + 3*c^2*d*e*(
3 + m)^2*(42 + 13*m + m^2) + 3*c^4*d^2*(840 + 638*m + 179*m^2 + 22*m^3 + m^
4)))/(c^6*(2 + m)*(3 + m)*(4 + m)*(5 + m)*(6 + m)*(7 + m)))*x*(f*x)^(1 + m)
*Sqrt[1 - c^2*x^2]*Hypergeometric2F1[1/2, (1 + m)/2, (3 + m)/2, c^2*x^2])/(
f*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2])
```

Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
```

```
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 1809

```
Int[(Pq_)*((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^2)^(p_), x_Symbol] :> With[
{q = Expon[Pq, x], f = Coeff[Pq, x, Expon[Pq, x]]}, Simp[(f*(c*x)^(m + q -
1)*(a + b*x^2)^(p + 1))/(b*c^(q - 1)*(m + q + 2*p + 1)), x] + Dist[1/(b*(m
+ q + 2*p + 1)), Int[(c*x)^m*(a + b*x^2)^p*ExpandToSum[b*(m + q + 2*p + 1)*
Pq - b*f*(m + q + 2*p + 1)*x^q - a*f*(m + q - 1)*x^(q - 2), x], x], x] /; G
tQ[q, 1] && NeQ[m + q + 2*p + 1, 0]] /; FreeQ[{a, b, c, m, p}, x] && PolyQ[
Pq, x] && ( !IGtQ[m, 0] || IGtQ[p + 1/2, -1])
```

Rule 1267

```
Int[((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (
c_.)*(x_)^4)^(p_.), x_Symbol] :> Simp[(c^p*(f*x)^(m + 4*p - 1)*(d + e*x^2)^
(q + 1))/(e*f^(4*p - 1)*(m + 4*p + 2*q + 1)), x] + Dist[1/(e*(m + 4*p + 2*q
 + 1)), Int[(f*x)^m*(d + e*x^2)^q*ExpandToSum[e*(m + 4*p + 2*q + 1)*((a + b
*x^2 + c*x^4)^p - c^p*x^(4*p)) - d*c^p*(m + 4*p - 1)*x^(4*p - 2), x], x], x
] /; FreeQ[{a, b, c, d, e, f, m, q}, x] && NeQ[b^2 - 4*a*c, 0] && IGtQ[p, 0
] &&  !IntegerQ[q] && NeQ[m + 4*p + 2*q + 1, 0]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 365

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[(a^
IntPart[p]*(a + b*x^n)^FracPart[p])/(1 + (b*x^n)/a)^FracPart[p], Int[(c*x)^
m*(1 + (b*x^n)/a)^p, x], x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0]
 &&  !(ILtQ[p, 0] || GtQ[a, 0])
```

Rule 364

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a^
p*(c*x)^(m + 1)*Hypergeometric2F1[-p, (m + 1)/n, (m + 1)/n + 1, -((b*x^n)/a
)])/(c*(m + 1)), x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0] && (ILt
Q[p, 0] || GtQ[a, 0])
```

Rubi steps

$$\int (fx)^m \left(d+ex^2\right)^3 \left(a+b\sec^{-1}(cx)\right) dx = \frac{d^3(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)} + \frac{3d^2e(fx)^{3+m}\left(a+b\sec^{-1}(cx)\right)}{f^3(3+m)} + \frac{3de^2(fx)^{5+m}\left(\right.}{f^5(5}$$

$$= -\frac{be^3x(fx)^{5+m}\sqrt{-1+c^2x^2}}{cf^5(6+m)(7+m)\sqrt{c^2x^2}} + \frac{d^3(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)} + \frac{3d^2e(fx)^{3+m}\left(a+\right.}{f^3(3+}$$

$$= -\frac{be^2\left(e(5+m)^2+3c^2d\left(42+13m+m^2\right)\right)x(fx)^{3+m}\sqrt{-1+c^2x^2}}{c^3f^3(4+m)(5+m)(6+m)(7+m)\sqrt{c^2x^2}} - \frac{be^3x(fx)^{5+}}{cf^5(6+m)(}$$

$$= -\frac{be\left(e^2\left(15+8m+m^2\right)^2+3c^2de(3+m)^2\left(42+13m+m^2\right)+3c^4d^2\left(840+63\right.\right.}{c^5f(2+m)(3+m)(4+m)(5+m)(6+m}$$

$$= -\frac{be\left(e^2\left(15+8m+m^2\right)^2+3c^2de(3+m)^2\left(42+13m+m^2\right)+3c^4d^2\left(840+63\right.\right.}{c^5f(2+m)(3+m)(4+m)(5+m)(6+m}$$

$$= -\frac{be\left(e^2\left(15+8m+m^2\right)^2+3c^2de(3+m)^2\left(42+13m+m^2\right)+3c^4d^2\left(840+63\right.\right.}{c^5f(2+m)(3+m)(4+m)(5+m)(6+m}$$

Mathematica [F] time = 0.211972, size = 0, normalized size = 0.

$$\int (fx)^m \left(d+ex^2\right)^3 \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(f*x)^m*(d + e*x^2)^3*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(f*x)^m*(d + e*x^2)^3*(a + b*ArcSec[c*x]), x]
```

Maple [F] time = 4.007, size = 0, normalized size = 0.

$$\int (fx)^m \left(ex^2+d\right)^3 \left(a+b\,\mathrm{arcsec}\,(cx)\right) dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(e*x^2+d)^3*(a+b*arcsec(c*x)),x)
```

```
[Out] int((f*x)^m*(e*x^2+d)^3*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^3*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(ae^{3}x^{6} + 3\,ade^{2}x^{4} + 3\,ad^{2}ex^{2} + ad^{3} + \left(be^{3}x^{6} + 3\,bde^{2}x^{4} + 3\,bd^{2}ex^{2} + bd^{3}\right)\text{arcsec}\left(cx\right)\right)\left(fx\right)^{m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^3*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e^3*x^6 + 3*a*d*e^2*x^4 + 3*a*d^2*e*x^2 + a*d^3 + (b*e^3*x^6 +
3*b*d*e^2*x^4 + 3*b*d^2*e*x^2 + b*d^3)*arcsec(c*x))*(f*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(e*x**2+d)**3*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^{2} + d\right)^{3}\left(b\,\text{arcsec}\left(cx\right) + a\right)\left(fx\right)^{m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^3*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^3*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

3.162 $\int (fx)^m \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=374

$$\frac{d^2(fx)^{m+1}\left(a+b\sec^{-1}(cx)\right)}{f(m+1)}+\frac{2de(fx)^{m+3}\left(a+b\sec^{-1}(cx)\right)}{f^3(m+3)}+\frac{e^2(fx)^{m+5}\left(a+b\sec^{-1}(cx)\right)}{f^5(m+5)}-\frac{bx\sqrt{1-c^2x^2}(fx)^{m+1}\left(c^4d^2(\cdots\right.}{\cdots}$$

```
[Out] -((b*e*(e*(3 + m)^2 + 2*c^2*d*(20 + 9*m + m^2))*x*(f*x)^(1 + m)*Sqrt[-1 + c
^2*x^2])/(c^3*f*(2 + m)*(3 + m)*(4 + m)*(5 + m)*Sqrt[c^2*x^2])) - (b*e^2*x*
(f*x)^(3 + m)*Sqrt[-1 + c^2*x^2])/(c*f^3*(4 + m)*(5 + m)*Sqrt[c^2*x^2]) + (
d^2*(f*x)^(1 + m)*(a + b*ArcSec[c*x]))/(f*(1 + m)) + (2*d*e*(f*x)^(3 + m)*(
a + b*ArcSec[c*x]))/(f^3*(3 + m)) + (e^2*(f*x)^(5 + m)*(a + b*ArcSec[c*x]))
/(f^5*(5 + m)) - (b*(c^4*d^2*(2 + m)*(3 + m)*(4 + m)*(5 + m) + e*(1 + m)^2*
(e*(3 + m)^2 + 2*c^2*d*(20 + 9*m + m^2)))*x*(f*x)^(1 + m)*Sqrt[1 - c^2*x^2]
*Hypergeometric2F1[1/2, (1 + m)/2, (3 + m)/2, c^2*x^2])/(c^3*f*(1 + m)^2*(2
 + m)*(3 + m)*(4 + m)*(5 + m)*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2])
```

Rubi [A] time = 0.432381, antiderivative size = 355, normalized size of antiderivative = 0.95, number of steps used = 6, number of rules used = 7, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.304, Rules used = {270, 5238, 12, 1267, 459, 365, 364}

$$\frac{d^2(fx)^{m+1}\left(a+b\sec^{-1}(cx)\right)}{f(m+1)}+\frac{2de(fx)^{m+3}\left(a+b\sec^{-1}(cx)\right)}{f^3(m+3)}+\frac{e^2(fx)^{m+5}\left(a+b\sec^{-1}(cx)\right)}{f^5(m+5)}-\frac{bcx\sqrt{1-c^2x^2}(fx)^{m+1}\left(\frac{e(2c^2\cdots}{c^4(\cdots}\right.}{\cdots}$$

Antiderivative was successfully verified.

```
[In] Int[(f*x)^m*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] -((b*e*(e*(3 + m)^2 + 2*c^2*d*(20 + 9*m + m^2))*x*(f*x)^(1 + m)*Sqrt[-1 + c
^2*x^2])/(c^3*f*(2 + m)*(3 + m)*(4 + m)*(5 + m)*Sqrt[c^2*x^2])) - (b*e^2*x*
(f*x)^(3 + m)*Sqrt[-1 + c^2*x^2])/(c*f^3*(4 + m)*(5 + m)*Sqrt[c^2*x^2]) + (
d^2*(f*x)^(1 + m)*(a + b*ArcSec[c*x]))/(f*(1 + m)) + (2*d*e*(f*x)^(3 + m)*(
a + b*ArcSec[c*x]))/(f^3*(3 + m)) + (e^2*(f*x)^(5 + m)*(a + b*ArcSec[c*x]))
/(f^5*(5 + m)) - (b*c*(d^2/(1 + m)^2 + (e*(e*(3 + m)^2 + 2*c^2*d*(20 + 9*m
+ m^2)))/(c^4*(2 + m)*(3 + m)*(4 + m)*(5 + m)))*x*(f*x)^(1 + m)*Sqrt[1 - c^
2*x^2]*Hypergeometric2F1[1/2, (1 + m)/2, (3 + m)/2, c^2*x^2])/(f*Sqrt[c^2*x
^2]*Sqrt[-1 + c^2*x^2])
```

Rule 270

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.), x_Symbol] :> Int[Exp
andIntegrand[(c*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, m, n}, x] &&
IGtQ[p, 0]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] &&  !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] &&  !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] &&  !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1267

```
Int[((f_.)*(x_))^(m_.)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (b_.)*(x_)^2 + (
c_.)*(x_)^4)^(p_.), x_Symbol] :> Simp[(c^p*(f*x)^(m + 4*p - 1)*(d + e*x^2)^
(q + 1))/(e*f^(4*p - 1)*(m + 4*p + 2*q + 1)), x] + Dist[1/(e*(m + 4*p + 2*q
 + 1)), Int[(f*x)^m*(d + e*x^2)^q*ExpandToSum[e*(m + 4*p + 2*q + 1)*((a + b
*x^2 + c*x^4)^p - c^p*x^(4*p)) - d*c^p*(m + 4*p - 1)*x^(4*p - 2), x], x], x
] /; FreeQ[{a, b, c, d, e, f, m, q}, x] && NeQ[b^2 - 4*a*c, 0] && IGtQ[p, 0
] &&  !IntegerQ[q] && NeQ[m + 4*p + 2*q + 1, 0]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 365

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[(a^
IntPart[p]*(a + b*x^n)^FracPart[p])/(1 + (b*x^n)/a)^FracPart[p], Int[(c*x)^
m*(1 + (b*x^n)/a)^p, x], x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0]
 &&  !(ILtQ[p, 0] || GtQ[a, 0])
```

Rule 364

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a^
p*(c*x)^(m + 1)*Hypergeometric2F1[-p, (m + 1)/n, (m + 1)/n + 1, -((b*x^n)/a
)])/(c*(m + 1)), x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0] && (ILt
Q[p, 0] || GtQ[a, 0])
```

Rubi steps

$$\int (fx)^m \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right) dx = \frac{d^2(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)} + \frac{2de(fx)^{3+m}\left(a+b\sec^{-1}(cx)\right)}{f^3(3+m)} + \frac{e^2(fx)^{5+m}\left(a+\right.}{f^5(5+}$$

$$= \frac{d^2(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)} + \frac{2de(fx)^{3+m}\left(a+b\sec^{-1}(cx)\right)}{f^3(3+m)} + \frac{e^2(fx)^{5+m}\left(a+\right.}{f^5(5+}$$

$$= -\frac{be^2x(fx)^{3+m}\sqrt{-1+c^2x^2}}{cf^3(4+m)(5+m)\sqrt{c^2x^2}} + \frac{d^2(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)} + \frac{2de(fx)^{3+m}\left(a+b\right.}{f^3(3+r}$$

$$= -\frac{be\left(e(3+m)^2+2c^2d\left(20+9m+m^2\right)\right)x(fx)^{1+m}\sqrt{-1+c^2x^2}}{c^3f(2+m)(4+m)\left(15+8m+m^2\right)\sqrt{c^2x^2}} - \frac{be^2x(fx)^{3+m}\sqrt{}}{cf^3(4+m)(5}$$

$$= -\frac{be\left(e(3+m)^2+2c^2d\left(20+9m+m^2\right)\right)x(fx)^{1+m}\sqrt{-1+c^2x^2}}{c^3f(2+m)(4+m)\left(15+8m+m^2\right)\sqrt{c^2x^2}} - \frac{be^2x(fx)^{3+m}\sqrt{}}{cf^3(4+m)(5}$$

$$= -\frac{be\left(e(3+m)^2+2c^2d\left(20+9m+m^2\right)\right)x(fx)^{1+m}\sqrt{-1+c^2x^2}}{c^3f(2+m)(4+m)\left(15+8m+m^2\right)\sqrt{c^2x^2}} - \frac{be^2x(fx)^{3+m}\sqrt{}}{cf^3(4+m)(5}$$

Mathematica [F] time = 0.141186, size = 0, normalized size = 0.

$$\int (fx)^m \left(d+ex^2\right)^2 \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(f*x)^m*(d + e*x^2)^2*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(f*x)^m*(d + e*x^2)^2*(a + b*ArcSec[c*x]), x]
```

Maple [F] time = 3.049, size = 0, normalized size = 0.

$$\int (fx)^m \left(ex^2+d\right)^2 (a+b\,\mathrm{arcsec}\,(cx))\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

```
[Out] int((f*x)^m*(e*x^2+d)^2*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(ae^2x^4+2\,adex^2+ad^2+\left(be^2x^4+2\,bdex^2+bd^2\right)\text{arcsec}\left(cx\right)\right)\left(fx\right)^m,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e^2*x^4 + 2*a*d*e*x^2 + a*d^2 + (b*e^2*x^4 + 2*b*d*e*x^2 + b*d^
2)*arcsec(c*x))*(f*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(e*x**2+d)**2*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int\left(ex^2+d\right)^2\left(b\,\text{arcsec}\left(cx\right)+a\right)\left(fx\right)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^2*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^2*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

3.163 $\int (fx)^m \left(d+ex^2\right) \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=178

$$\frac{dx^{m+1}\left(a+b\sec^{-1}(cx)\right)}{m+1}+\frac{ex^{m+3}\left(a+b\sec^{-1}(cx)\right)}{m+3}+\frac{b\sqrt{c^2x^2-1}\,x^{m+2}\left(c^2d(m+2)(m+3)+e(m+1)^2\right){}_2F_1\left(1,\frac{m+2}{2};\frac{m+3}{2};\right.}{c(m+1)^2(m+2)(m+3)\sqrt{c^2x^2}}$$

```
[Out] -((b*e*x^(2 + m)*Sqrt[-1 + c^2*x^2])/(c*(6 + 5*m + m^2)*Sqrt[c^2*x^2])) + (
d*x^(1 + m)*(a + b*ArcSec[c*x]))/(1 + m) + (e*x^(3 + m)*(a + b*ArcSec[c*x])
)/(3 + m) + (b*(e*(1 + m)^2 + c^2*d*(2 + m)*(3 + m))*x^(2 + m)*Sqrt[-1 + c^
2*x^2]*Hypergeometric2F1[1, (2 + m)/2, (3 + m)/2, c^2*x^2])/(c*(1 + m)^2*(2
 + m)*(3 + m)*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.187007, antiderivative size = 204, normalized size of antiderivative = 1.15, number of steps used = 5, number of rules used = 6, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.286, Rules used = {14, 5238, 12, 459, 365, 364}

$$\frac{d(fx)^{m+1}\left(a+b\sec^{-1}(cx)\right)}{f(m+1)}+\frac{e(fx)^{m+3}\left(a+b\sec^{-1}(cx)\right)}{f^3(m+3)}-\frac{bcx\sqrt{1-c^2x^2}(fx)^{m+1}\left(\frac{e}{c^2(m+2)(m+3)}+\frac{d}{(m+1)^2}\right){}_2F_1\left(\frac{1}{2},\frac{m+1}{2};\frac{m+3}{2}\right.}{f\sqrt{c^2x^2}\sqrt{c^2x^2-1}}$$

Warning: Unable to verify antiderivative.

```
[In] Int[(f*x)^m*(d + e*x^2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] -((b*e*x*(f*x)^(1 + m)*Sqrt[-1 + c^2*x^2])/(c*f*(6 + 5*m + m^2)*Sqrt[c^2*x^
2])) + (d*(f*x)^(1 + m)*(a + b*ArcSec[c*x]))/(f*(1 + m)) + (e*(f*x)^(3 + m)
*(a + b*ArcSec[c*x]))/(f^3*(3 + m)) - (b*c*(d/(1 + m)^2 + e/(c^2*(2 + m)*(3
 + m)))*x*(f*x)^(1 + m)*Sqrt[1 - c^2*x^2]*Hypergeometric2F1[1/2, (1 + m)/2,
 (3 + m)/2, c^2*x^2])/(f*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2])
```

Rule 14

```
Int[(u_)*((c_.)*(x_))^(m_.), x_Symbol] :> Int[ExpandIntegrand[(c*x)^m*u, x]
, x] /; FreeQ[{c, m}, x] && SumQ[u] && !LinearQ[u, x] && !MatchQ[u, (a_)
+ (b_.)*(v_) /; FreeQ[{a, b}, x] && InverseFunctionQ[v]]
```

Rule 5238

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*((f_.)*(x_))^(m_.)*((d_.) + (e_.)*(x
_)^2)^(p_.), x_Symbol] :> With[{u = IntHide[(f*x)^m*(d + e*x^2)^p, x]}, Dis
t[a + b*ArcSec[c*x], u, x] - Dist[(b*c*x)/Sqrt[c^2*x^2], Int[SimplifyIntegr
and[u/(x*Sqrt[c^2*x^2 - 1]), x], x], x]] /; FreeQ[{a, b, c, d, e, f, m, p},
 x] && ((IGtQ[p, 0] && !(ILtQ[(m - 1)/2, 0] && GtQ[m + 2*p + 3, 0])) || (I
GtQ[(m + 1)/2, 0] && !(ILtQ[p, 0] && GtQ[m + 2*p + 3, 0])) || (ILtQ[(m + 2
*p + 1)/2, 0] && !ILtQ[(m - 1)/2, 0]))
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] && !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 459

```
Int[((e_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_.)*((c_) + (d_.)*(x_)^(n
_)), x_Symbol] :> Simp[(d*(e*x)^(m + 1)*(a + b*x^n)^(p + 1))/(b*e*(m + n*(p
```

```
 + 1) + 1)), x] - Dist[(a*d*(m + 1) - b*c*(m + n*(p + 1) + 1))/(b*(m + n*(p
 + 1) + 1)), Int[(e*x)^m*(a + b*x^n)^p, x], x] /; FreeQ[{a, b, c, d, e, m,
n, p}, x] && NeQ[b*c - a*d, 0] && NeQ[m + n*(p + 1) + 1, 0]
```

Rule 365

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[(a^
IntPart[p]*(a + b*x^n)^FracPart[p])/(1 + (b*x^n)/a)^FracPart[p], Int[(c*x)^
m*(1 + (b*x^n)/a)^p, x], x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0]
 &&  !(ILtQ[p, 0] || GtQ[a, 0])
```

Rule 364

```
Int[((c_.)*(x_))^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a^
p*(c*x)^(m + 1)*Hypergeometric2F1[-p, (m + 1)/n, (m + 1)/n + 1, -((b*x^n)/a
)])/(c*(m + 1)), x] /; FreeQ[{a, b, c, m, n, p}, x] &&  !IGtQ[p, 0] && (ILt
Q[p, 0] || GtQ[a, 0])
```

Rubi steps

$$\int (fx)^m \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx = \frac{d(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)}+\frac{e(fx)^{3+m}\left(a+b\sec^{-1}(cx)\right)}{f^3(3+m)}-\frac{(bcx)\int\frac{(fx)^m(d(3+\cdots}{(1+m)(3+\cdots}}{\sqrt{c^2\cdots}}$$

$$=\frac{d(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)}+\frac{e(fx)^{3+m}\left(a+b\sec^{-1}(cx)\right)}{f^3(3+m)}-\frac{(bcx)\int\frac{(fx)^m(d(3+\cdots}{\sqrt{-\cdots}}}{(3+4m+\cdots}$$

$$=-\frac{bex(fx)^{1+m}\sqrt{-1+c^2x^2}}{cf\left(6+5m+m^2\right)\sqrt{c^2x^2}}+\frac{d(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)}+\frac{e(fx)^{3+m}\left(a+b\,\mathrm{s}\cdots\right.}{f^3(3+\cdots}$$

$$=-\frac{bex(fx)^{1+m}\sqrt{-1+c^2x^2}}{cf\left(6+5m+m^2\right)\sqrt{c^2x^2}}+\frac{d(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)}+\frac{e(fx)^{3+m}\left(a+b\,\mathrm{s}\cdots\right.}{f^3(3+\cdots}$$

$$=-\frac{bex(fx)^{1+m}\sqrt{-1+c^2x^2}}{cf\left(6+5m+m^2\right)\sqrt{c^2x^2}}+\frac{d(fx)^{1+m}\left(a+b\sec^{-1}(cx)\right)}{f(1+m)}+\frac{e(fx)^{3+m}\left(a+b\,\mathrm{s}\cdots\right.}{f^3(3+\cdots}$$

Mathematica [F] time = 0.101336, size = 0, normalized size = 0.

$$\int (fx)^m \left(d+ex^2\right)\left(a+b\sec^{-1}(cx)\right)dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(f*x)^m*(d + e*x^2)*(a + b*ArcSec[c*x]),x]

[Out] Integrate[(f*x)^m*(d + e*x^2)*(a + b*ArcSec[c*x]), x]
```

Maple [F] time = 2.319, size = 0, normalized size = 0.

$$\int (fx)^m \left(ex^2+d\right)\left(a+b\,\mathrm{arcsec}\,(cx)\right)dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

```
[Out] int((f*x)^m*(e*x^2+d)*(a+b*arcsec(c*x)),x)
```

Maxima [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(aex^2 + ad + \left(bex^2 + bd\right)\operatorname{arcsec}(cx)\right)\left(fx\right)^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*(f*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(e*x**2+d)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2 + d\right)\left(b\operatorname{arcsec}(cx) + a\right)\left(fx\right)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

3.164 $\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2},x\right)$$

```
[Out] Unintegrable[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2), x]
```

Rubi [A] time = 0.0712152, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] Defer[Int][((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2), x]
```

Rubi steps

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx=\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$$

Mathematica [A] time = 1.93682, size = 0, normalized size = 0.

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{d+ex^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2),x]
```

```
[Out] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2), x]
```

Maple [A] time = 1.646, size = 0, normalized size = 0.

$$\int \frac{\left(fx\right)^m\left(a+b\,\mathrm{arcsec}\left(cx\right)\right)}{ex^2+d}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d),x)
```

```
[Out] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{ex^2 + d}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="maxima")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{ex^2 + d}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(a+b*asec(c*x))/(e*x**2+d),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{ex^2 + d}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d), x)
```

3.165 $\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$

Optimal. Leaf size=25

$$\text{Unintegrable}\left(\frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2},x\right)$$

```
[Out] Unintegrable[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^2, x]
```

Rubi [A] time = 0.0705689, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]

[Out] Defer[Int][((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^2, x]
```

Rubi steps

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx=\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$$

Mathematica [A] time = 1.91642, size = 0, normalized size = 0.

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^2}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^2,x]

[Out] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^2, x]
```

Maple [A] time = 1.95, size = 0, normalized size = 0.

$$\int \frac{(fx)^m\left(a+b\,\mathrm{arcsec}\,(cx)\right)}{\left(ex^2+d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

```
[Out] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^2,x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx) + a)\left(fx\right)^m}{\left(ex^2 + d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d)^2, x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{(b\operatorname{arcsec}(cx) + a)\left(fx\right)^m}{e^2x^4 + 2\,dex^2 + d^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)*(f*x)^m/(e^2*x^4 + 2*d*e*x^2 + d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(a+b*asec(c*x))/(e*x**2+d)**2,x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}(cx) + a)\left(fx\right)^m}{\left(ex^2 + d\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^2,x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d)^2, x)
```

3.166 $\int (fx)^m \left(d+ex^2\right)^{3/2} \left(a+b\sec^{-1}(cx)\right)\,dx$

Optimal. Leaf size=27

$$\text{Unintegrable}\left(\left(d+ex^2\right)^{3/2}(fx)^m\left(a+b\sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[(f*x)^m*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.104877, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int (fx)^m \left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(f*x)^m*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][(f*x)^m*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int (fx)^m \left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx=\int (fx)^m \left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Mathematica [A] time = 0.884753, size = 0, normalized size = 0.

$$\int (fx)^m \left(d+ex^2\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(f*x)^m*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(f*x)^m*(d + e*x^2)^(3/2)*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.532, size = 0, normalized size = 0.

$$\int (fx)^m \left(ex^2+d\right)^{\frac{3}{2}}(a+b\,\mathrm{arcsec}(cx))\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int((f*x)^m*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2+d\right)^{\frac{3}{2}}\left(b\operatorname{arcsec}\left(cx\right)+a\right)\left(fx\right)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\left(aex^2+ad+\left(bex^2+bd\right)\operatorname{arcsec}\left(cx\right)\right)\sqrt{ex^2+d}\left(fx\right)^m,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral((a*e*x^2 + a*d + (b*e*x^2 + b*d)*arcsec(c*x))*sqrt(e*x^2 + d)*(f*x
)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(e*x**2+d)**(3/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \left(ex^2+d\right)^{\frac{3}{2}}\left(b\operatorname{arcsec}\left(cx\right)+a\right)\left(fx\right)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(3/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate((e*x^2 + d)^(3/2)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

3.167 $\int (fx)^m \sqrt{d+ex^2} \left(a+b\sec^{-1}(cx)\right) dx$

Optimal. Leaf size=27

$$\text{Unintegrable}\left(\sqrt{d+ex^2}(fx)^m \left(a+b\sec^{-1}(cx)\right),x\right)$$

```
[Out] Unintegrable[(f*x)^m*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi [A] time = 0.0942094, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int (fx)^m \sqrt{d+ex^2} \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Int[(f*x)^m*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Defer[Int][(f*x)^m*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Rubi steps

$$\int (fx)^m \sqrt{d+ex^2} \left(a+b\sec^{-1}(cx)\right) dx = \int (fx)^m \sqrt{d+ex^2} \left(a+b\sec^{-1}(cx)\right) dx$$

Mathematica [A] time = 0.10799, size = 0, normalized size = 0.

$$\int (fx)^m \sqrt{d+ex^2} \left(a+b\sec^{-1}(cx)\right) dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(f*x)^m*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]),x]
```

```
[Out] Integrate[(f*x)^m*Sqrt[d + e*x^2]*(a + b*ArcSec[c*x]), x]
```

Maple [A] time = 1.655, size = 0, normalized size = 0.

$$\int \left(fx\right)^m \sqrt{ex^2+d}\,(a+b\,\mathrm{arcsec}\,(cx))\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(e*x^2+d)^(1/2)*(a+b*arcsec(c*x)),x)
```

```
[Out] int((f*x)^m*(e*x^2+d)^(1/2)*(a+b*arcsec(c*x)),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)\left(fx\right)^m dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)\left(fx\right)^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(e*x**2+d)**(1/2)*(a+b*asec(c*x)),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)\left(fx\right)^m dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(e*x^2+d)^(1/2)*(a+b*arcsec(c*x)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*(f*x)^m, x)
```

3.168 $\int \frac{(fx)^m(a+b\sec^{-1}(cx))}{\sqrt{d+ex^2}}\,dx$

Optimal. Leaf size=27

$$\text{Unintegrable}\left(\frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}},x\right)$$

```
[Out] Unintegrable[((f*x)^m*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Rubi [A] time = 0.0957872, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((f*x)^m*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] Defer[Int][((f*x)^m*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Rubi steps

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx=\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Mathematica [A] time = 1.10768, size = 0, normalized size = 0.

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\sqrt{d+ex^2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2],x]
```

```
[Out] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/Sqrt[d + e*x^2], x]
```

Maple [A] time = 2.517, size = 0, normalized size = 0.

$$\int (fx)^m\,(a+b\,\mathrm{arcsec}\,(cx))\,\frac{1}{\sqrt{ex^2+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

```
[Out] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{\sqrt{ex^2 + d}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="maxima")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/sqrt(e*x^2 + d), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{\sqrt{ex^2 + d}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="fricas")
```

```
[Out] integral((b*arcsec(c*x) + a)*(f*x)^m/sqrt(e*x^2 + d), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(a+b*asec(c*x))/(e*x**2+d)**(1/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{\sqrt{ex^2 + d}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/sqrt(e*x^2 + d), x)
```

3.169 $\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$

Optimal. Leaf size=27

$$\text{Unintegrable}\left(\frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}},x\right)$$

```
[Out] Unintegrable[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi [A] time = 0.104903, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Defer[Int][((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Rubi steps

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx=\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Mathematica [A] time = 1.36498, size = 0, normalized size = 0.

$$\int \frac{(fx)^m\left(a+b\sec^{-1}(cx)\right)}{\left(d+ex^2\right)^{3/2}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2),x]
```

```
[Out] Integrate[((f*x)^m*(a + b*ArcSec[c*x]))/(d + e*x^2)^(3/2), x]
```

Maple [A] time = 1.757, size = 0, normalized size = 0.

$$\int (fx)^m\,(a+b\,\mathrm{arcsec}\,(cx))\left(ex^2+d\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

```
[Out] int((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{(ex^2 + d)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d)^(3/2), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex^2 + d}(b \operatorname{arcsec}(cx) + a)(fx)^m}{e^2x^4 + 2\,dex^2 + d^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x^2 + d)*(b*arcsec(c*x) + a)*(f*x)^m/(e^2*x^4 + 2*d*e*x^2 +
 d^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)**m*(a+b*asec(c*x))/(e*x**2+d)**(3/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)(fx)^m}{(ex^2 + d)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x)^m*(a+b*arcsec(c*x))/(e*x^2+d)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*(f*x)^m/(e*x^2 + d)^(3/2), x)
```

3.170 $\int \frac{x^{11}\left(a+b\sec^{-1}(cx)\right)}{\sqrt{1-c^4x^4}}\,dx$

Optimal. Leaf size=401

$$-\frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{10c^{12}}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}}-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}}+\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+\right.}{90c^{13}x\sqrt{1-\frac{1}{c^2x^2}}}$$

```
[Out] (4*b*Sqrt[1 - c^2*x^2]*Sqrt[1 + c^2*x^2])/(15*c^13*Sqrt[1 - 1/(c^2*x^2)]*x)
 - (7*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(3/2))/(90*c^13*Sqrt[1 - 1/(c^2*x^2
)]*x) + (13*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(5/2))/(150*c^13*Sqrt[1 - 1/(
c^2*x^2)]*x) - (3*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(7/2))/(70*c^13*Sqrt[1
- 1/(c^2*x^2)]*x) + (b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(9/2))/(90*c^13*Sqrt
[1 - 1/(c^2*x^2)]*x) - (Sqrt[1 - c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^12) + (
(1 - c^4*x^4)^(3/2)*(a + b*ArcSec[c*x]))/(3*c^12) - ((1 - c^4*x^4)^(5/2)*(a
 + b*ArcSec[c*x]))/(10*c^12) - (4*b*Sqrt[1 - c^2*x^2]*ArcTanh[Sqrt[1 + c^2*
x^2]])/(15*c^13*Sqrt[1 - 1/(c^2*x^2)]*x)
```

Rubi [A] time = 2.4836, antiderivative size = 401, normalized size of antiderivative = 1., number of steps used = 16, number of rules used = 11, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.423, Rules used = {266, 43, 5246, 12, 6721, 6742, 848, 50, 63, 208, 783}

$$-\frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\sec^{-1}(cx)\right)}{10c^{12}}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}}-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}}+\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+\right.}{90c^{13}x\sqrt{1-\frac{1}{c^2x^2}}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^11*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```

```
[Out] (4*b*Sqrt[1 - c^2*x^2]*Sqrt[1 + c^2*x^2])/(15*c^13*Sqrt[1 - 1/(c^2*x^2)]*x)
 - (7*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(3/2))/(90*c^13*Sqrt[1 - 1/(c^2*x^2
)]*x) + (13*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(5/2))/(150*c^13*Sqrt[1 - 1/(
c^2*x^2)]*x) - (3*b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(7/2))/(70*c^13*Sqrt[1
- 1/(c^2*x^2)]*x) + (b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(9/2))/(90*c^13*Sqrt
[1 - 1/(c^2*x^2)]*x) - (Sqrt[1 - c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^12) + (
(1 - c^4*x^4)^(3/2)*(a + b*ArcSec[c*x]))/(3*c^12) - ((1 - c^4*x^4)^(5/2)*(a
 + b*ArcSec[c*x]))/(10*c^12) - (4*b*Sqrt[1 - c^2*x^2]*ArcTanh[Sqrt[1 + c^2*
x^2]])/(15*c^13*Sqrt[1 - 1/(c^2*x^2)]*x)
```

Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5246

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(u_), x_Symbol] :> With[{v = IntHide
[u, x]}, Dist[a + b*ArcSec[c*x], v, x] - Dist[b/c, Int[SimplifyIntegrand[v/
(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x], x] /; InverseFunctionFreeQ[v, x]] /; F
reeQ[{a, b, c}, x]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6721

```
Int[(u_.)*((a_.) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[(b^IntPart[p]*(
a + b*x^n)^FracPart[p])/(x^(n*FracPart[p])*(1 + a/(x^n*b))^FracPart[p]), In
t[u*x^(n*p)*(1 + a/(x^n*b))^p, x], x] /; FreeQ[{a, b, p}, x] &&  !IntegerQ[
p] && ILtQ[n, 0] &&  !RationalFunctionQ[u, x] && IntegerQ[p + 1/2]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 848

```
Int[((d_) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))^(n_)*((a_) + (c_.)*(x_)^2
)^(p_.), x_Symbol] :> Int[(d + e*x)^(m + p)*(f + g*x)^n*(a/d + (c*x)/e)^p,
x] /; FreeQ[{a, c, d, e, f, g, m, n}, x] && NeQ[e*f - d*g, 0] && EqQ[c*d^2
+ a*e^2, 0] && (IntegerQ[p] || (GtQ[a, 0] && GtQ[d, 0] && EqQ[m + p, 0]))
```

Rule 50

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^n)/(b*(m + n + 1)), x] + Dist[(n*(b*c - a*d))/
(b*(m + n + 1)), Int[(a + b*x)^m*(c + d*x)^(n - 1), x], x] /; FreeQ[{a, b,
c, d}, x] && NeQ[b*c - a*d, 0] && GtQ[n, 0] && NeQ[m + n + 1, 0] &&  !(IGtQ
[m, 0] && ( !IntegerQ[n] || (GtQ[m, 0] && LtQ[m - n, 0]))) &&  !ILtQ[m + n
+ 2, 0] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rule 783

```
Int[((d_) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p_
.), x_Symbol] :> Int[(d + e*x)^(m + p)*(f + g*x)*(a/d + (c*x)/e)^p, x] /; F
reeQ[{a, c, d, e, f, g, m}, x] && EqQ[c*d^2 + a*e^2, 0] && (IntegerQ[p] ||
(GtQ[a, 0] && GtQ[d, 0] && EqQ[m + p, 0]))
```

Rubi steps

$$\int \frac{x^{11}\left(a+b\sec^{-1}(cx)\right)}{\sqrt{1-c^4x^4}}\,dx = -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} - \frac{\left(1-c^4x^4\right)^{5/2}\left(a+b\,\mathrm{sec}\right.}{10c^{12}}$$

$$= \frac{4b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{15c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} - \frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^{12}} + \frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{3c^{12}} -$$

$$= \frac{4b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{15c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} - \frac{7b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{3/2}}{90c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} + \frac{13b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{5/2}}{150c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} - 3b\sqrt{}$$

$$= \frac{4b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{15c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} - \frac{7b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{3/2}}{90c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} + \frac{13b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{5/2}}{150c^{13}\sqrt{1-\frac{1}{c^2x^2}}\,x} - 3b\sqrt{}$$

Mathematica [A] time = 0.249254, size = 194, normalized size = 0.48

$$\frac{-105a\sqrt{1-c^4x^4}\left(3c^8x^8+4c^4x^4+8\right)+\frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{1-c^4x^4}\left(35c^8x^8+5c^6x^6+78c^4x^4+36c^2x^2+768\right)}{c^2x^2-1}+840b\tan^{-1}\left(\frac{cx\sqrt{1-\frac{1}{c^2x^2}}}{\sqrt{1-c^4x^4}}\right)-105}{3150c^{12}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^11*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```

```
[Out] (-105*a*Sqrt[1 - c^4*x^4]*(8 + 4*c^4*x^4 + 3*c^8*x^8) + (b*c*Sqrt[1 - 1/(c^
2*x^2)]*x*Sqrt[1 - c^4*x^4]*(768 + 36*c^2*x^2 + 78*c^4*x^4 + 5*c^6*x^6 + 35
*c^8*x^8))/(-1 + c^2*x^2) - 105*b*Sqrt[1 - c^4*x^4]*(8 + 4*c^4*x^4 + 3*c^8*
x^8)*ArcSec[c*x] + 840*b*ArcTan[(c*Sqrt[1 - 1/(c^2*x^2)]*x)/Sqrt[1 - c^4*x^
```

```
4]])/(3150*c^12)
```

Maple [F] time = 17.217, size = 0, normalized size = 0.

$$\int x^{11}\left(a+b\operatorname{arcsec}\left(cx\right)\right)\frac{1}{\sqrt{-c^{4}x^{4}+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^11*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

```
[Out] int(x^11*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

Maxima [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^11*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: UnboundLocalError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^11*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="fricas")
```

```
[Out] Exception raised: UnboundLocalError
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**11*(a+b*asec(c*x))/(-c**4*x**4+1)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b\operatorname{arcsec}\left(cx\right)+a)x^{11}}{\sqrt{-c^{4}x^{4}+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^11*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^11/sqrt(-c^4*x^4 + 1), x)
```

3.171 $\int \frac{x^7\left(a+b\sec^{-1}(cx)\right)}{\sqrt{1-c^4x^4}}\,dx$

Optimal. Leaf size=268

$$\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+1\right)^{5/2}}{30c^9x\sqrt{1-\frac{1}{c^2x^2}}}-\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+1\right)^{3/2}}{18c^9x\sqrt{1-\frac{1}{c^2x^2}}}+\frac{b\sqrt{}}{}$$

```
[Out] (b*Sqrt[1 - c^2*x^2]*Sqrt[1 + c^2*x^2])/(3*c^9*Sqrt[1 - 1/(c^2*x^2)]*x) - (
b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(3/2))/(18*c^9*Sqrt[1 - 1/(c^2*x^2)]*x) +
 (b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(5/2))/(30*c^9*Sqrt[1 - 1/(c^2*x^2)]*x)
 - (Sqrt[1 - c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^8) + ((1 - c^4*x^4)^(3/2)*(
a + b*ArcSec[c*x]))/(6*c^8) - (b*Sqrt[1 - c^2*x^2]*ArcTanh[Sqrt[1 + c^2*x^2
]])/(3*c^9*Sqrt[1 - 1/(c^2*x^2)]*x)
```

Rubi [A] time = 2.01752, antiderivative size = 268, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 11, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.423, Rules used = {266, 43, 5246, 12, 6721, 6742, 848, 50, 63, 208, 783}

$$\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+1\right)^{5/2}}{30c^9x\sqrt{1-\frac{1}{c^2x^2}}}-\frac{b\sqrt{1-c^2x^2}\left(c^2x^2+1\right)^{3/2}}{18c^9x\sqrt{1-\frac{1}{c^2x^2}}}+\frac{b\sqrt{}}{}$$

Antiderivative was successfully verified.

```
[In] Int[(x^7*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```


```
[Out] (b*Sqrt[1 - c^2*x^2]*Sqrt[1 + c^2*x^2])/(3*c^9*Sqrt[1 - 1/(c^2*x^2)]*x) - (
b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(3/2))/(18*c^9*Sqrt[1 - 1/(c^2*x^2)]*x) +
 (b*Sqrt[1 - c^2*x^2]*(1 + c^2*x^2)^(5/2))/(30*c^9*Sqrt[1 - 1/(c^2*x^2)]*x)
 - (Sqrt[1 - c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^8) + ((1 - c^4*x^4)^(3/2)*(
a + b*ArcSec[c*x]))/(6*c^8) - (b*Sqrt[1 - c^2*x^2]*ArcTanh[Sqrt[1 + c^2*x^2
]])/(3*c^9*Sqrt[1 - 1/(c^2*x^2)]*x)
```


Rule 266

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[1/n, Subst[
Int[x^(Simplify[(m + 1)/n] - 1)*(a + b*x)^p, x], x, x^n], x] /; FreeQ[{a, b
, m, n, p}, x] && IntegerQ[Simplify[(m + 1)/n]]
```

Rule 43

```
Int[((a_.) + (b_.)*(x_))^(m_.)*((c_.) + (d_.)*(x_))^(n_.), x_Symbol] :> Int
[ExpandIntegrand[(a + b*x)^m*(c + d*x)^n, x], x] /; FreeQ[{a, b, c, d, n},
x] && NeQ[b*c - a*d, 0] && IGtQ[m, 0] && ( !IntegerQ[n] || (EqQ[c, 0] && Le
Q[7*m + 4*n + 4, 0]) || LtQ[9*m + 5*(n + 1), 0] || GtQ[m + n + 2, 0])
```

Rule 5246

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(u_), x_Symbol] :> With[{v = IntHide
[u, x]}, Dist[a + b*ArcSec[c*x], v, x] - Dist[b/c, Int[SimplifyIntegrand[v/
(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x], x] /; InverseFunctionFreeQ[v, x]] /; F
reeQ[{a, b, c}, x]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 6721

```
Int[(u_.)*((a_.) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Dist[(b^IntPart[p]*(
a + b*x^n)^FracPart[p])/(x^(n*FracPart[p])*(1 + a/(x^n*b))^FracPart[p]), In
t[u*x^(n*p)*(1 + a/(x^n*b))^p, x], x] /; FreeQ[{a, b, p}, x] &&  !IntegerQ[
p] && ILtQ[n, 0] &&  !RationalFunctionQ[u, x] && IntegerQ[p + 1/2]
```

Rule 6742

```
Int[u_, x_Symbol] :> With[{v = ExpandIntegrand[u, x]}, Int[v, x] /; SumQ[v]
]
```

Rule 848

```
Int[((d_) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))^(n_)*((a_) + (c_.)*(x_)^2
)^(p_.), x_Symbol] :> Int[(d + e*x)^(m + p)*(f + g*x)^n*(a/d + (c*x)/e)^p,
x] /; FreeQ[{a, c, d, e, f, g, m, n}, x] && NeQ[e*f - d*g, 0] && EqQ[c*d^2
+ a*e^2, 0] && (IntegerQ[p] || (GtQ[a, 0] && GtQ[d, 0] && EqQ[m + p, 0]))
```

Rule 50

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^n)/(b*(m + n + 1)), x] + Dist[(n*(b*c - a*d))/
(b*(m + n + 1)), Int[(a + b*x)^m*(c + d*x)^(n - 1), x], x] /; FreeQ[{a, b,
c, d}, x] && NeQ[b*c - a*d, 0] && GtQ[n, 0] && NeQ[m + n + 1, 0] &&  !(IGtQ
[m, 0] && ( !IntegerQ[n] || (GtQ[m, 0] && LtQ[m - n, 0]))) &&  !ILtQ[m + n
+ 2, 0] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rule 783

```
Int[((d_) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))*((a_) + (c_.)*(x_)^2)^(p_
.), x_Symbol] :> Int[(d + e*x)^(m + p)*(f + g*x)*(a/d + (c*x)/e)^p, x] /; F
reeQ[{a, c, d, e, f, g, m}, x] && EqQ[c*d^2 + a*e^2, 0] && (IntegerQ[p] ||
(GtQ[a, 0] && GtQ[d, 0] && EqQ[m + p, 0]))
```

Rubi steps

$$\int \frac{x^7\left(a+b\sec^{-1}(cx)\right)}{\sqrt{1-c^4x^4}}\,dx = -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}-\frac{b\int \frac{\left(-2-c^4x^4\right)\sqrt{1-c^4x^4}}{6c^8\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{c}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}-\frac{b\int \frac{\left(-2-c^4x^4\right)\sqrt{1-c^4x^4}}{\sqrt{1-\frac{1}{c^2x^2}}x^2}dx}{6c^9}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}-\frac{\left(b\sqrt{1-c^2x^2}\right)\int \frac{\left(-2-c^4x^4\right)\sqrt{1-}}{x\sqrt{1-c^2x^2}}}{6c^9\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}+\frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{\sqrt{1}}{}\right.}{12c^9\sqrt{1-}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}+\frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int\left(\frac{2}{x}\right.\right.}{12c^9}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}+\frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{\sqrt{1}}{x\sqrt{}}\right.}{6c^9\sqrt{1-\frac{1}{c^2x^2}}}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}+\frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{\sqrt{1}}{}\right.}{6c^9\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{3c^9\sqrt{1-\frac{1}{c^2x^2}}x}-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^8}+\frac{\left(1-c^4x^4\right)^{3/2}\left(a+b\sec^{-1}(cx)\right)}{6c^8}+\frac{\left(b\sqrt{}\right.}{}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{3c^9\sqrt{1-\frac{1}{c^2x^2}}x}-\frac{b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{3/2}}{18c^9\sqrt{1-\frac{1}{c^2x^2}}x}+\frac{b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{5/2}}{30c^9\sqrt{1-\frac{1}{c^2x^2}}x}-\frac{\sqrt{1-c^4x^4}\left(a\right.}{2}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{3c^9\sqrt{1-\frac{1}{c^2x^2}}x}-\frac{b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{3/2}}{18c^9\sqrt{1-\frac{1}{c^2x^2}}x}+\frac{b\sqrt{1-c^2x^2}\left(1+c^2x^2\right)^{5/2}}{30c^9\sqrt{1-\frac{1}{c^2x^2}}x}-\frac{\sqrt{1-c^4x^4}\left(a\right.}{2}$$

Mathematica [A] time = 0.316417, size = 159, normalized size = 0.59

$$\frac{-15a\sqrt{1-c^4x^4}\left(c^4x^4+2\right)+\frac{bcx\sqrt{1-\frac{1}{c^2x^2}}\sqrt{1-c^4x^4}\left(3c^4x^4+c^2x^2+28\right)}{c^2x^2-1}+30b\tan^{-1}\left(\frac{cx\sqrt{1-\frac{1}{c^2x^2}}}{\sqrt{1-c^4x^4}}\right)-15b\sqrt{1-c^4x^4}\left(c^4x^4+2\right)\sec^{-1}(cx)}{90c^8}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^7*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```

```
[Out] (-15*a*Sqrt[1 - c^4*x^4]*(2 + c^4*x^4) + (b*c*Sqrt[1 - 1/(c^2*x^2)]*x*Sqrt[
1 - c^4*x^4]*(28 + c^2*x^2 + 3*c^4*x^4))/(-1 + c^2*x^2) - 15*b*Sqrt[1 - c^4
*x^4]*(2 + c^4*x^4)*ArcSec[c*x] + 30*b*ArcTan[(c*Sqrt[1 - 1/(c^2*x^2)]*x)/S
qrt[1 - c^4*x^4]])/(90*c^8)
```

Maple [F] time = 4.461, size = 0, normalized size = 0.

$$\int x^{7} \left(a+b \operatorname{arcsec}\left(c x\right)\right) \frac{1}{\sqrt{-c^{4} x^{4}+1}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^7*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

```
[Out] int(x^7*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

Maxima [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^7*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: UnboundLocalError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^7*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="fricas")
```

```
[Out] Exception raised: UnboundLocalError
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**7*(a+b*asec(c*x))/(-c**4*x**4+1)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(b \operatorname{arcsec}\left(c x\right)+a\right) x^{7}}{\sqrt{-c^{4} x^{4}+1}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^7*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="giac")

[Out] integrate((b*arcsec(c*x) + a)*x^7/sqrt(-c^4*x^4 + 1), x)
```

3.172 $\int \frac{x^3(a+b\sec^{-1}(cx))}{\sqrt{1-c^4x^4}}\,dx$

Optimal. Leaf size=126

$$-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4}+\frac{bx\sqrt{1-c^4x^4}}{2c^3\sqrt{c^2x^2}\sqrt{c^2x^2-1}}-\frac{bx\tan^{-1}\left(\frac{\sqrt{1-c^4x^4}}{\sqrt{c^2x^2-1}}\right)}{2c^3\sqrt{c^2x^2}}$$

```
[Out] (b*x*Sqrt[1 - c^4*x^4])/(2*c^3*Sqrt[c^2*x^2]*Sqrt[-1 + c^2*x^2]) - (Sqrt[1
- c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^4) - (b*x*ArcTan[Sqrt[1 - c^4*x^4]/Sqr
t[-1 + c^2*x^2]])/(2*c^3*Sqrt[c^2*x^2])
```

Rubi [A] time = 0.207959, antiderivative size = 135, normalized size of antiderivative = 1.07, number of steps used = 8, number of rules used = 9, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.346, Rules used = {261, 5246, 12, 1572, 1252, 848, 50, 63, 208}

$$-\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4}+\frac{b\sqrt{1-c^2x^2}\sqrt{c^2x^2+1}}{2c^5x\sqrt{1-\frac{1}{c^2x^2}}}-\frac{b\sqrt{1-c^2x^2}\tanh^{-1}\left(\sqrt{c^2x^2+1}\right)}{2c^5x\sqrt{1-\frac{1}{c^2x^2}}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^3*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```

```
[Out] (b*Sqrt[1 - c^2*x^2]*Sqrt[1 + c^2*x^2])/(2*c^5*Sqrt[1 - 1/(c^2*x^2)]*x) - (
Sqrt[1 - c^4*x^4]*(a + b*ArcSec[c*x]))/(2*c^4) - (b*Sqrt[1 - c^2*x^2]*ArcTa
nh[Sqrt[1 + c^2*x^2]])/(2*c^5*Sqrt[1 - 1/(c^2*x^2)]*x)
```

Rule 261

```
Int[(x_)^(m_.)*((a_) + (b_.)*(x_)^(n_))^(p_), x_Symbol] :> Simp[(a + b*x^n)
^(p + 1)/(b*n*(p + 1)), x] /; FreeQ[{a, b, m, n, p}, x] && EqQ[m, n - 1] &&
 NeQ[p, -1]
```

Rule 5246

```
Int[((a_.) + ArcSec[(c_.)*(x_)]*(b_.))*(u_), x_Symbol] :> With[{v = IntHide
[u, x]}, Dist[a + b*ArcSec[c*x], v, x] - Dist[b/c, Int[SimplifyIntegrand[v/
(x^2*Sqrt[1 - 1/(c^2*x^2)]), x], x], x] /; InverseFunctionFreeQ[v, x]] /; F
reeQ[{a, b, c}, x]
```

Rule 12

```
Int[(a_)*(u_), x_Symbol] :> Dist[a, Int[u, x], x] /; FreeQ[a, x] &&  !Match
Q[u, (b_)*(v_) /; FreeQ[b, x]]
```

Rule 1572

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^(mn_.))^(q_)*((a_) + (c_.)*(x_)^(n2_.))^(
p_.), x_Symbol] :> Dist[(e^IntPart[q]*(d + e*x^mn)^FracPart[q])/(x^(mn*Frac
Part[q])*(1 + d/(x^mn*e))^FracPart[q]), Int[x^(m + mn*q)*(1 + d/(x^mn*e))^q
*(a + c*x^n2)^p, x], x] /; FreeQ[{a, c, d, e, m, mn, p, q}, x] && EqQ[n2, -
2*mn] &&  !IntegerQ[p] &&  !IntegerQ[q] && PosQ[n2]
```

Rule 1252

```
Int[(x_)^(m_.)*((d_) + (e_.)*(x_)^2)^(q_.)*((a_) + (c_.)*(x_)^4)^(p_.), x_S
ymbol] :> Dist[1/2, Subst[Int[x^((m - 1)/2)*(d + e*x)^q*(a + c*x^2)^p, x],
x, x^2], x] /; FreeQ[{a, c, d, e, p, q}, x] && IntegerQ[(m + 1)/2]
```

Rule 848

```
Int[((d_) + (e_.)*(x_))^(m_)*((f_.) + (g_.)*(x_))^(n_)*((a_) + (c_.)*(x_)^2
)^(p_.), x_Symbol] :> Int[(d + e*x)^(m + p)*(f + g*x)^n*(a/d + (c*x)/e)^p,
x] /; FreeQ[{a, c, d, e, f, g, m, n}, x] && NeQ[e*f - d*g, 0] && EqQ[c*d^2
+ a*e^2, 0] && (IntegerQ[p] || (GtQ[a, 0] && GtQ[d, 0] && EqQ[m + p, 0]))
```

Rule 50

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> Simp[
((a + b*x)^(m + 1)*(c + d*x)^n)/(b*(m + n + 1)), x] + Dist[(n*(b*c - a*d))/
(b*(m + n + 1)), Int[(a + b*x)^m*(c + d*x)^(n - 1), x], x] /; FreeQ[{a, b,
c, d}, x] && NeQ[b*c - a*d, 0] && GtQ[n, 0] && NeQ[m + n + 1, 0] &&  !(IGtQ
[m, 0] && ( !IntegerQ[n] || (GtQ[m, 0] && LtQ[m - n, 0]))) &&  !ILtQ[m + n
+ 2, 0] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 63

```
Int[((a_.) + (b_.)*(x_))^(m_)*((c_.) + (d_.)*(x_))^(n_), x_Symbol] :> With[
{p = Denominator[m]}, Dist[p/b, Subst[Int[x^(p*(m + 1) - 1)*(c - (a*d)/b +
(d*x^p)/b)^n, x], x, (a + b*x)^(1/p)], x]] /; FreeQ[{a, b, c, d}, x] && NeQ
[b*c - a*d, 0] && LtQ[-1, m, 0] && LeQ[-1, n, 0] && LeQ[Denominator[n], Den
ominator[m]] && IntLinearQ[a, b, c, d, m, n, x]
```

Rule 208

```
Int[((a_) + (b_.)*(x_)^2)^(-1), x_Symbol] :> Simp[(Rt[-(a/b), 2]*ArcTanh[x/
Rt[-(a/b), 2]])/a, x] /; FreeQ[{a, b}, x] && NegQ[a/b]
```

Rubi steps

$$\int \frac{x^3\left(a+b\sec^{-1}(cx)\right)}{\sqrt{1-c^4x^4}}\,dx = -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} - \frac{b\int -\frac{\sqrt{1-c^4x^4}}{2c^4\sqrt{1-\frac{1}{c^2x^2}}x^2}\,dx}{c}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{b\int \frac{\sqrt{1-c^4x^4}}{\sqrt{1-\frac{1}{c^2x^2}}x^2}\,dx}{2c^5}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{\left(b\sqrt{1-c^2x^2}\right)\int \frac{\sqrt{1-c^4x^4}}{x\sqrt{1-c^2x^2}}\,dx}{2c^5\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{\sqrt{1-c^4x^2}}{x\sqrt{1-c^2x}}\,dx, x, x^2\right)}{4c^5\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= -\frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{\sqrt{1+c^2x}}{x}\,dx, x, x^2\right)}{4c^5\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{2c^5\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{1}{x\sqrt{1+c^2x}}\,dx\right.}{4c^5\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{2c^5\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} + \frac{\left(b\sqrt{1-c^2x^2}\right)\text{Subst}\left(\int \frac{1}{-\frac{1}{c^2}+\frac{x^2}{c^2}}\,dx\right.}{2c^7\sqrt{1-\frac{1}{c^2x^2}}x}$$

$$= \frac{b\sqrt{1-c^2x^2}\sqrt{1+c^2x^2}}{2c^5\sqrt{1-\frac{1}{c^2x^2}}x} - \frac{\sqrt{1-c^4x^4}\left(a+b\sec^{-1}(cx)\right)}{2c^4} - \frac{b\sqrt{1-c^2x^2}\tanh^{-1}\left(\sqrt{1+c^2x^2}\right)}{2c^5\sqrt{1-\frac{1}{c^2x^2}}x}$$

Mathematica [A] time = 0.213105, size = 118, normalized size = 0.94

$$\frac{\frac{\sqrt{1-c^4x^4}\left(-ac^2x^2+a+bcx\sqrt{1-\frac{1}{c^2x^2}}\right)}{c^2x^2-1} + b\tan^{-1}\left(\frac{cx\sqrt{1-\frac{1}{c^2x^2}}}{\sqrt{1-c^4x^4}}\right) - b\sqrt{1-c^4x^4}\sec^{-1}(cx)}{2c^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^3*(a + b*ArcSec[c*x]))/Sqrt[1 - c^4*x^4],x]
```

```
[Out] (((a + b*c*Sqrt[1 - 1/(c^2*x^2)]*x - a*c^2*x^2)*Sqrt[1 - c^4*x^4])/(-1 + c^
2*x^2) - b*Sqrt[1 - c^4*x^4]*ArcSec[c*x] + b*ArcTan[(c*Sqrt[1 - 1/(c^2*x^2)
]*x)/Sqrt[1 - c^4*x^4]])/(2*c^4)
```

Maple [F] time = 1.641, size = 0, normalized size = 0.

$$\int x^3\left(a+b\,\text{arcsec}\,(cx)\right)\frac{1}{\sqrt{-c^4x^4+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^3*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

```
[Out] int(x^3*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x)
```

Maxima [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: UnboundLocalError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="fricas")
```

```
[Out] Exception raised: UnboundLocalError
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3*(a+b*asec(c*x))/(-c**4*x**4+1)**(1/2),x)
```

```
[Out] Timed out
```

Giac [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(b \operatorname{arcsec}(cx) + a)x^3}{\sqrt{-c^4x^4 + 1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3*(a+b*arcsec(c*x))/(-c^4*x^4+1)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)*x^3/sqrt(-c^4*x^4 + 1), x)
```

3.173 $\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}}\,dx$

Optimal. Leaf size=28

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x*Sqrt[1 - c^4*x^4]), x]
```

Rubi [A] time = 0.0879369, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x*Sqrt[1 - c^4*x^4]),x]
```

```
[Out] Defer[Int][(a + b*ArcSec[c*x])/(x*Sqrt[1 - c^4*x^4]), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}}\,dx = \int \frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}}\,dx$$

Mathematica [A] time = 0.333435, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x\sqrt{1-c^4x^4}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x*Sqrt[1 - c^4*x^4]),x]
```

```
[Out] Integrate[(a + b*ArcSec[c*x])/(x*Sqrt[1 - c^4*x^4]), x]
```

Maple [A] time = 1.9, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x}\frac{1}{\sqrt{-c^4x^4+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x/(-c^4*x^4+1)^(1/2),x)
```

```
[Out] int((a+b*arcsec(c*x))/x/(-c^4*x^4+1)^(1/2),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{4}a\left(\log\left(\sqrt{-c^4x^4+1}+1\right)-\log\left(\sqrt{-c^4x^4+1}-1\right)\right)+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{\sqrt{c^2x^2+1}\sqrt{cx+1}\sqrt{-cx+1}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(-c^4*x^4+1)^(1/2),x, algorithm="maxima")
```

```
[Out] -1/4*a*(log(sqrt(-c^4*x^4 + 1) + 1) - log(sqrt(-c^4*x^4 + 1) - 1)) + b*inte
grate(arctan(sqrt(c*x + 1)*sqrt(c*x - 1))/(sqrt(c^2*x^2 + 1)*sqrt(c*x + 1)*
sqrt(-c*x + 1)*x), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{-c^4x^4+1}(b\,\text{arcsec}\,(cx)+a)}{c^4x^5-x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(-c^4*x^4+1)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(-c^4*x^4 + 1)*(b*arcsec(c*x) + a)/(c^4*x^5 - x), x)
```

Sympy [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+b\,\text{asec}\,(cx)}{x\sqrt{-(cx-1)(cx+1)\left(c^2x^2+1\right)}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x/(-c**4*x**4+1)**(1/2),x)
```

```
[Out] Integral((a + b*asec(c*x))/(x*sqrt(-(c*x - 1)*(c*x + 1)*(c**2*x**2 + 1))),
x)
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{-c^4x^4+1}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x/(-c^4*x^4+1)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(-c^4*x^4 + 1)*x), x)
```

3.174 $\int \frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}}\,dx$

Optimal. Leaf size=28

$$\text{Unintegrable}\left(\frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}},x\right)$$

```
[Out] Unintegrable[(a + b*ArcSec[c*x])/(x^5*Sqrt[1 - c^4*x^4]), x]
```

Rubi [A] time = 0.0988872, antiderivative size = 0, normalized size of antiderivative = 0., number of steps used = 0, number of rules used = 0, integrand size = 0, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0., Rules used = {}

$$\int \frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}}\,dx$$

Verification is Not applicable to the result.

```
[In] Int[(a + b*ArcSec[c*x])/(x^5*Sqrt[1 - c^4*x^4]),x]

[Out] Defer[Int][(a + b*ArcSec[c*x])/(x^5*Sqrt[1 - c^4*x^4]), x]
```

Rubi steps

$$\int \frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}}\,dx = \int \frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}}\,dx$$

Mathematica [A] time = 6.36947, size = 0, normalized size = 0.

$$\int \frac{a+b\sec^{-1}(cx)}{x^5\sqrt{1-c^4x^4}}\,dx$$

Verification is Not applicable to the result.

```
[In] Integrate[(a + b*ArcSec[c*x])/(x^5*Sqrt[1 - c^4*x^4]),x]

[Out] Integrate[(a + b*ArcSec[c*x])/(x^5*Sqrt[1 - c^4*x^4]), x]
```

Maple [A] time = 1.836, size = 0, normalized size = 0.

$$\int \frac{a+b\,\mathrm{arcsec}\,(cx)}{x^5}\frac{1}{\sqrt{-c^4x^4+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((a+b*arcsec(c*x))/x^5/(-c^4*x^4+1)^(1/2),x)

[Out] int((a+b*arcsec(c*x))/x^5/(-c^4*x^4+1)^(1/2),x)
```

Maxima [A] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{8}\left(c^4\log\left(\sqrt{-c^4x^4+1}+1\right)-c^4\log\left(\sqrt{-c^4x^4+1}-1\right)+\frac{2\sqrt{-c^4x^4+1}}{x^4}\right)a+b\int\frac{\arctan\left(\sqrt{cx+1}\sqrt{cx-1}\right)}{\sqrt{c^2x^2+1}\sqrt{cx+1}\sqrt{-cx+1}x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5/(-c^4*x^4+1)^(1/2),x, algorithm="maxima")
```

```
[Out] -1/8*(c^4*log(sqrt(-c^4*x^4 + 1) + 1) - c^4*log(sqrt(-c^4*x^4 + 1) - 1) + 2
*sqrt(-c^4*x^4 + 1)/x^4)*a + b*integrate(arctan(sqrt(c*x + 1)*sqrt(c*x - 1)
)/(sqrt(c^2*x^2 + 1)*sqrt(c*x + 1)*sqrt(-c*x + 1)*x^5), x)
```

Fricas [A] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{-c^4x^4+1}(b\,\text{arcsec}\,(cx)+a)}{c^4x^9-x^5},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5/(-c^4*x^4+1)^(1/2),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(-c^4*x^4 + 1)*(b*arcsec(c*x) + a)/(c^4*x^9 - x^5), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*asec(c*x))/x**5/(-c**4*x**4+1)**(1/2),x)
```

```
[Out] Timed out
```

Giac [A] time = 0., size = 0, normalized size = 0.

$$\int\frac{b\,\text{arcsec}\,(cx)+a}{\sqrt{-c^4x^4+1}x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a+b*arcsec(c*x))/x^5/(-c^4*x^4+1)^(1/2),x, algorithm="giac")
```

```
[Out] integrate((b*arcsec(c*x) + a)/(sqrt(-c^4*x^4 + 1)*x^5), x)
```

Chapter 4

Listing of Grading functions

The following are the current version of the grading functions used for grading the quality of the antiderivative with reference to the optimal antiderivative included in the test suite.

There is a version for Maple and for Mathematica/Rubi. There is a version for grading Sympy and version for use with Sagemath.

The following are links to the current source code.

The following are the listings of source code of the grading functions.

4.0.1 Mathematica and Rubi grading function

```
(* Original version thanks to Albert Rich emailed on 03/21/2017 *)
(* ::Package:: *)

(* ::Subsection:: *)
(*GradeAntiderivative[result,optimal]*)


(* ::Text:: *)
(*If result and optimal are mathematical expressions, *)
(*         GradeAntiderivative[result,optimal] returns*)
(*  "F" if the result fails to integrate an expression that*)
(*      is integrable*)
(*  "C" if result involves higher level functions than necessary*)
(*  "B" if result is more than twice the size of the optimal*)
(*      antiderivative*)
(*  "A" if result can be considered optimal*)


GradeAntiderivative[result_,optimal_] :=
  If[ExpnType[result]<=ExpnType[optimal],
    If[FreeQ[result,Complex] || Not[FreeQ[optimal,Complex]],
      If[LeafCount[result]<=2*LeafCount[optimal],
        "A",
      "B"],
    "C"],
  If[FreeQ[result,Integrate] && FreeQ[result,Int],
    "C",
  "F"]]


(* ::Text:: *)
(*The following summarizes the type number assigned an *)
(*expression based on the functions it involves*)
(*1 = rational function*)
(*2 = algebraic function*)
(*3 = elementary function*)
(*4 = special function*)
```

```
(*5 = hyperpergeometric function*)
(*6 = appell function*)
(*7 = rootsum function*)
(*8 = integrate function*)
(*9 = unknown function*)


ExpnType[expn_] :=
  If[AtomQ[expn],
    1,
  If[ListQ[expn],
    Max[Map[ExpnType,expn]],
  If[Head[expn]===Power,
    If[IntegerQ[expn[[2]]],
      ExpnType[expn[[1]]],
    If[Head[expn[[2]]]===Rational,
      If[IntegerQ[expn[[1]]] || Head[expn[[1]]]===Rational,
        1,
      Max[ExpnType[expn[[1]]],2]],
    Max[ExpnType[expn[[1]]],ExpnType[expn[[2]]],3]]],
  If[Head[expn]===Plus || Head[expn]===Times,
    Max[ExpnType[First[expn]],ExpnType[Rest[expn]]],
  If[ElementaryFunctionQ[Head[expn]],
    Max[3,ExpnType[expn[[1]]]],
  If[SpecialFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],4]],
  If[HypergeometricFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],5]],
  If[AppellFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],6]],
  If[Head[expn]===RootSum,
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],7]],
  If[Head[expn]===Integrate || Head[expn]===Int,
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],8]],
  9]]]]]]]]]]


ElementaryFunctionQ[func_] :=
  MemberQ[{
        Exp,Log,
        Sin,Cos,Tan,Cot,Sec,Csc,
        ArcSin,ArcCos,ArcTan,ArcCot,ArcSec,ArcCsc,
        Sinh,Cosh,Tanh,Coth,Sech,Csch,
        ArcSinh,ArcCosh,ArcTanh,ArcCoth,ArcSech,ArcCsch
},func]


SpecialFunctionQ[func_] :=
  MemberQ[{
        Erf, Erfc, Erfi,
        FresnelS, FresnelC,
        ExpIntegralE, ExpIntegralEi, LogIntegral,
        SinIntegral, CosIntegral, SinhIntegral, CoshIntegral,
        Gamma, LogGamma, PolyGamma,
        Zeta, PolyLog, ProductLog,
        EllipticF, EllipticE, EllipticPi
},func]


HypergeometricFunctionQ[func_] :=
  MemberQ[{Hypergeometric1F1,Hypergeometric2F1,HypergeometricPFQ},func]
```

```
AppellFunctionQ[func_] :=
  MemberQ[{AppellF1},func]
```

4.0.2 Maple grading function

```
# File: GradeAntiderivative.mpl
# Original version thanks to Albert Rich emailed on 03/21/2017

#Nasser 03/22/2017  Use Maple leaf count instead since buildin
#Nasser 03/23/2017  missing 'ln' for ElementaryFunctionQ added
#Nasser 03/24/2017  corrected the check for complex result
#Nasser 10/27/2017  check for leafsize and do not call ExpnType()
#                   if leaf size is "too large". Set at 500,000
#Nasser 12/22/2019  Added debug flag, added 'dilog' to special functions
#                   see problem 156, file Apostol_Problems

GradeAntiderivative := proc(result,optimal)
local leaf_count_result, leaf_count_optimal,ExpnType_result,ExpnType_optimal,
    debug:=false;

      leaf_count_result:=leafcount(result);
      #do NOT call ExpnType() if leaf size is too large. Recursion problem
      if leaf_count_result > 500000 then
          return "B";
      fi;

      leaf_count_optimal:=leafcount(optimal);

      ExpnType_result:=ExpnType(result);
      ExpnType_optimal:=ExpnType(optimal);

      if debug then
         print("ExpnType_result",ExpnType_result," ExpnType_optimal=",
    ExpnType_optimal);
      fi;

# If result and optimal are mathematical expressions,
#  GradeAntiderivative[result,optimal] returns
#   "F" if the result fails to integrate an expression that
#       is integrable
#   "C" if result involves higher level functions than necessary
#   "B" if result is more than twice the size of the optimal
#       antiderivative
#   "A" if result can be considered optimal

  #This check below actually is not needed, since I only
  #call this grading only for passed integrals. i.e. I check
  #for "F" before calling this. But no harm of keeping it here.
  #just in case.


  if not type(result,freeof('int')) then
     return "F";
  end if;


  if ExpnType_result<=ExpnType_optimal then
      if debug then
           print("ExpnType_result<=ExpnType_optimal");
      fi;
      if is_contains_complex(result) then
         if is_contains_complex(optimal) then
            if debug then
```

```
               print("both result and optimal complex");
            fi;
            #both result and optimal complex
            if leaf_count_result<=2*leaf_count_optimal then
               return "A";
            else
               return "B";
            end if
         else #result contains complex but optimal is not
            if debug then
               print("result contains complex but optimal is not");
            fi;
            return "C";
         end if
      else # result do not contain complex
           # this assumes optimal do not as well
           if debug then
               print("result do not contain complex, this assumes optimal do not as well");
           fi;
           if leaf_count_result<=2*leaf_count_optimal then
              if debug then
                 print("leaf_count_result<=2*leaf_count_optimal");
              fi;
              return "A";
           else
              if debug then
                 print("leaf_count_result>2*leaf_count_optimal");
              fi;
              return "B";
           end if
      end if
  else #ExpnType(result) > ExpnType(optimal)
      if debug then
         print("ExpnType(result) > ExpnType(optimal)");
      fi;
      return "C";
  end if

end proc:

#
# is_contains_complex(result)
# takes expressions and returns true if it contains "I" else false
#
#Nasser 032417
is_contains_complex:= proc(expression)
  return (has(expression,I));
end proc:

# The following summarizes the type number assigned an expression
# based on the functions it involves
# 1 = rational function
# 2 = algebraic function
# 3 = elementary function
# 4 = special function
# 5 = hyperpergeometric function
# 6 = appell function
# 7 = rootsum function
# 8 = integrate function
# 9 = unknown function

ExpnType := proc(expn)
```

```
  if type(expn,'atomic') then
    1
  elif type(expn,'list') then
    apply(max,map(ExpnType,expn))
  elif type(expn,'sqrt') then
    if type(op(1,expn),'rational') then
       1
    else
       max(2,ExpnType(op(1,expn)))
    end if
  elif type(expn,'`^`') then
    if type(op(2,expn),'integer') then
      ExpnType(op(1,expn))
    elif type(op(2,expn),'rational') then
      if type(op(1,expn),'rational') then
         1
      else
         max(2,ExpnType(op(1,expn)))
      end if
    else
         max(3,ExpnType(op(1,expn)),ExpnType(op(2,expn)))
    end if
  elif type(expn,'`+`') or type(expn,'`*`') then
    max(ExpnType(op(1,expn)),max(ExpnType(rest(expn))))
  elif ElementaryFunctionQ(op(0,expn)) then
    max(3,ExpnType(op(1,expn)))
  elif SpecialFunctionQ(op(0,expn)) then
    max(4,apply(max,map(ExpnType,[op(expn)])))
  elif HypergeometricFunctionQ(op(0,expn)) then
    max(5,apply(max,map(ExpnType,[op(expn)])))
  elif AppellFunctionQ(op(0,expn)) then
    max(6,apply(max,map(ExpnType,[op(expn)])))
  elif op(0,expn)='int' then
    max(8,apply(max,map(ExpnType,[op(expn)]))) else
  9
  end if
end proc:


ElementaryFunctionQ := proc(func)
  member(func,[
        exp,log,ln,
        sin,cos,tan,cot,sec,csc,
        arcsin,arccos,arctan,arccot,arcsec,arccsc,
        sinh,cosh,tanh,coth,sech,csch,
        arcsinh,arccosh,arctanh,arccoth,arcsech,arccsch])
end proc:

SpecialFunctionQ := proc(func)
  member(func,[
        erf,erfc,erfi,
        FresnelS,FresnelC,
        Ei,Ei,Li,Si,Ci,Shi,Chi,
        GAMMA,lnGAMMA,Psi,Zeta,polylog,dilog,LambertW,
        EllipticF,EllipticE,EllipticPi])
end proc:

HypergeometricFunctionQ := proc(func)
  member(func,[Hypergeometric1F1,hypergeom,HypergeometricPFQ])
end proc:

AppellFunctionQ := proc(func)
  member(func,[AppellF1])
```

```
end proc:

# u is a sum or product.  rest(u) returns all but the
# first term or factor of u.
rest := proc(u) local v;
  if nops(u)=2 then
     op(2,u)
  else
     apply(op(0,u),op(2..nops(u),u))
  end if
end proc:

#leafcount(u) returns the number of nodes in u.
#Nasser 3/23/17  Replaced by build-in leafCount from package in Maple
leafcount := proc(u)
   MmaTranslator[Mma][LeafCount](u);
end proc:
```

4.0.3 Sympy grading function

```
#Dec 24, 2019. Nasser M. Abbasi:
#              Port of original Maple grading function by
#              Albert Rich to use with Sympy/Python
#Dec 27, 2019  Nasser. Added `RootSum`. See problem 177, Timofeev file
#              added 'exp_polar'
from sympy import *

def leaf_count(expr):
    #sympy do not have leaf count function. This is approximation
    return round(1.7*count_ops(expr))

def is_sqrt(expr):
    if isinstance(expr,Pow):
        if expr.args[1] == Rational(1,2):
            return True
        else:
            return False
    else:
        return False

def is_elementary_function(func):
    return func in [exp,log,ln,sin,cos,tan,cot,sec,csc,
            asin,acos,atan,acot,asec,acsc,sinh,cosh,tanh,coth,sech,csch,
            asinh,acosh,atanh,acoth,asech,acsch
        ]

def is_special_function(func):
    return func in [ erf,erfc,erfi,
             fresnels,fresnelc,Ei,Ei,Li,Si,Ci,Shi,Chi,
             gamma,loggamma,digamma,zeta,polylog,LambertW,
             elliptic_f,elliptic_e,elliptic_pi,exp_polar
         ]

def is_hypergeometric_function(func):
    return func in [hyper]

def is_appell_function(func):
    return func in [appellf1]

def is_atom(expn):
    try:
        if expn.isAtom or isinstance(expn,int) or isinstance(expn,float):
           return True
```

```
        else:
           return False

    except AttributeError as error:
        return False

def expnType(expn):
    debug=False
    if debug:
        print("expn=",expn,"type(expn)=",type(expn))

    if is_atom(expn):
       return 1
    elif isinstance(expn,list):
        return max(map(expnType, expn))   #apply(max,map(ExpnType,expn))
    elif  is_sqrt(expn):
        if isinstance(expn.args[0],Rational): #type(op(1,expn),'rational')
            return 1
        else:
            return max(2,expnType(expn.args[0]))  #max(2,ExpnType(op(1,expn)))
    elif isinstance(expn,Pow):   #type(expn,'`^`')
        if isinstance(expn.args[1],Integer):  #type(op(2,expn),'integer')
            return expnType(expn.args[0])   #ExpnType(op(1,expn))
        elif isinstance(expn.args[1],Rational):  #type(op(2,expn),'rational')
            if isinstance(expn.args[0],Rational): #type(op(1,expn),'rational')
                return 1
            else:
                return max(2,expnType(expn.args[0]))  #max(2,ExpnType(op(1,expn)))
        else:
            return max(3,expnType(expn.args[0]),expnType(expn.args[1])) #max(3,ExpnType(op(1,expn)),ExpnType(op(2,expn)))
    elif isinstance(expn,Add) or isinstance(expn,Mul): #type(expn,'`+`') or type(expn,'`*`')
        m1 = expnType(expn.args[0])
        m2 = expnType(list(expn.args[1:]))
        return max(m1,m2)  #max(ExpnType(op(1,expn)),max(ExpnType(rest(expn))))
    elif is_elementary_function(expn.func):  #ElementaryFunctionQ(op(0,expn))
        return max(3,expnType(expn.args[0]))  #max(3,ExpnType(op(1,expn)))
    elif is_special_function(expn.func): #SpecialFunctionQ(op(0,expn))
        m1 = max(map(expnType, list(expn.args)))
        return max(4,m1)   #max(4,apply(max,map(ExpnType,[op(expn)])))
    elif is_hypergeometric_function(expn.func): #HypergeometricFunctionQ(op(0,expn))
        m1 = max(map(expnType, list(expn.args)))
        return max(5,m1)   #max(5,apply(max,map(ExpnType,[op(expn)])))
    elif is_appell_function(expn.func):
        m1 = max(map(expnType, list(expn.args)))
        return max(6,m1)   #max(5,apply(max,map(ExpnType,[op(expn)])))
    elif isinstance(expn,RootSum):
        m1 = max(map(expnType, list(expn.args))) #Apply[Max,Append[Map[ExpnType,Apply[List,expn]],7]],
        return max(7,m1)
    elif str(expn).find("Integral") != -1:
        m1 = max(map(expnType, list(expn.args)))
        return max(8,m1)   #max(5,apply(max,map(ExpnType,[op(expn)])))
    else:
        return 9

#main function
def grade_antiderivative(result,optimal):

    leaf_count_result  = leaf_count(result)
```

```
    leaf_count_optimal = leaf_count(optimal)

    expnType_result  = expnType(result)
    expnType_optimal = expnType(optimal)

    if str(result).find("Integral") != -1:
        return "F"

    if expnType_result <= expnType_optimal:
        if result.has(I):
            if optimal.has(I): #both result and optimal complex
                if leaf_count_result <= 2*leaf_count_optimal:
                    return "A"
                else:
                    return "B"
            else: #result contains complex but optimal is not
                return "C"
        else: # result do not contain complex, this assumes optimal do not as
    well
            if leaf_count_result <= 2*leaf_count_optimal:
                return "A"
            else:
                return "B"
    else:
        return "C"
```

4.0.4 SageMath grading function

```
#Dec 24, 2019. Nasser: Ported original Maple grading function by
#              Albert Rich to use with Sagemath. This is used to
#              grade Fricas, Giac and Maxima results.
#Dec 24, 2019. Nasser: Added 'exp_integral_e' and 'sng', 'sin_integral'
#              'arctan2','floor','abs','log_integral'

from sage.all import *
from sage.symbolic.operators import add_vararg, mul_vararg

def tree(expr):
    debug=False;
    if debug:
         print ("Enter tree(expr), expr=",expr)
         print ("expr.operator()=",expr.operator())
         print ("expr.operands()=",expr.operands())
         print ("map(tree, expr.operands()=",map(tree, expr.operands()))

    if expr.operator() is None:
        return expr
    else:
        return [expr.operator()]+list(map(tree, expr.operands()))

def leaf_count(anti):
    debug=False;

    if debug: print ("Enter leaf_count, anti=", anti, " len(anti)=", len(anti))

    if len(anti) == 0: #special check for optimal being 0 for some test cases.
       if debug: print ("len(anti) == 0")
       return 1
    else:
        if debug: print ("round(1.35*len(flatten(tree(anti))))=",round(1.35*len
    (flatten(tree(anti)))))
        return round(1.35*len(flatten(tree(anti)))) #fudge factor
                         #since this estimate of leaf count is bit lower than
```

```
                      #what it should be compared to Mathematica's

def is_sqrt(expr):
    debug=False;
    if expr.operator() == operator.pow:   #isinstance(expr,Pow):
        if expr.operands()[1]==1/2: #expr.args[1] == Rational(1,2):
            if debug: print ("expr is sqrt")
            return True
        else:
            return False
    else:
        return False

def is_elementary_function(func):
    debug = False

    m = func.name() in ['exp','log','ln',
            'sin','cos','tan','cot','sec','csc',
            'arcsin','arccos','arctan','arccot','arcsec','arccsc',
            'sinh','cosh','tanh','coth','sech','csch',
            'arcsinh','arccosh','arctanh','arccoth','arcsech','arccsch','sgn',
        'arctan2','floor','abs'
        ]
    if debug:
        if m:
            print ("func ", func , " is elementary_function")
        else:
            print ("func ", func , " is NOT elementary_function")


    return m

def is_special_function(func):
    debug = False

    if debug: print ("type(func)=", type(func))

    m= func.name() in ['erf','erfc','erfi','fresnel_sin','fresnel_cos','Ei',
           'Ei','Li','Si','sin_integral','Ci','cos_integral','Shi','sinh_integral'
           'Chi','cosh_integral','gamma','log_gamma','psi,zeta',
           'polylog','lambert_w','elliptic_f','elliptic_e',
           'elliptic_pi','exp_integral_e','log_integral']

    if debug:
        print ("m=",m)
        if m:
            print ("func ", func ," is special_function")
        else:
            print ("func ", func ," is NOT special_function")


    return m


def is_hypergeometric_function(func):
    return func.name() in ['hypergeometric','hypergeometric_M','hypergeometric_U']

def is_appell_function(func):
    return func.name() in ['hypergeometric']   #[appellf1] can't find this in sagemath

```

```
def is_atom(expn):

    #thanks to answer at https://ask.sagemath.org/question/49179/what-is-sagemath-equivalent-to-atomic-type-in-maple/
    try:
        if expn.parent() is SR:
            return expn.operator() is None
        if expn.parent() in (ZZ, QQ, AA, QQbar):
            return expn in expn.parent() # Should always return True
        if hasattr(expn.parent(),"base_ring") and hasattr(expn.parent(),"gens"):
            return expn in expn.parent().base_ring() or expn in expn.parent().gens()
        return False

    except AttributeError as error:
        return False


def expnType(expn):
    debug=False

    if debug:
        print (">>>>>Enter expnType, expn=", expn)
        print (">>>>>is_atom(expn)=", is_atom(expn))

    if is_atom(expn):
        return 1
    elif type(expn)==list:   #isinstance(expn,list):
        return max(map(expnType, expn))   #apply(max,map(ExpnType,expn))
    elif  is_sqrt(expn):
        if  type(expn.operands()[0])==Rational: #type(isinstance(expn.args[0],Rational):
            return 1
        else:
            return max(2,expnType(expn.operands()[0]))  #max(2,expnType(expn.args[0]))
    elif expn.operator() == operator.pow:   #isinstance(expn,Pow)
        if type(expn.operands()[1])==Integer:  #isinstance(expn.args[1],Integer)
            return expnType(expn.operands()[0])   #expnType(expn.args[0])
        elif type(expn.operands()[1])==Rational:  #isinstance(expn.args[1],Rational)
            if type(expn.operands()[0])==Rational: #isinstance(expn.args[0],Rational)
                return 1
            else:
                return max(2,expnType(expn.operands()[0]))  #max(2,expnType(expn.args[0]))
        else:
            return max(3,expnType(expn.operands()[0]),expnType(expn.operands()[1])) #max(3,expnType(expn.operands()[0]),expnType(expn.operands()[1]))
    elif expn.operator() == add_vararg or expn.operator() == mul_vararg: #isinstance(expn,Add) or isinstance(expn,Mul)
        m1 = expnType(expn.operands()[0]) #expnType(expn.args[0])
        m2 = expnType(expn.operands()[1:]) #expnType(list(expn.args[1:]))
        return max(m1,m2)  #max(ExpnType(op(1,expn)),max(ExpnType(rest(expn))))
    elif is_elementary_function(expn.operator()):  #is_elementary_function(expn.func)
        return max(3,expnType(expn.operands()[0]))
    elif is_special_function(expn.operator()): #is_special_function(expn.func)
        m1 = max(map(expnType, expn.operands()))      #max(map(expnType, list(expn.args)))
```

```
        return max(4,m1)   #max(4,m1)
    elif is_hypergeometric_function(expn.operator()): # is_hypergeometric_function(expn.func)
        m1 = max(map(expnType, expn.operands()))       #max(map(expnType, list(expn.args)))
        return max(5,m1)   #max(5,m1)
    elif is_appell_function(expn.operator()):
        m1 = max(map(expnType, expn.operands()))       #max(map(expnType, list(expn.args)))
        return max(6,m1)   #max(6,m1)
    elif str(expn).find("Integral") != -1: #this will never happen, since it
                #is checked before calling the grading function that is passed.
                #but kept it here.
        m1 = max(map(expnType, expn.operands()))       #max(map(expnType, list(expn.args)))
        return max(8,m1)   #max(5,apply(max,map(ExpnType,[op(expn)])))
    else:
        return 9

#main function
def grade_antiderivative(result,optimal):
    debug = False;

    if debug: print ("Enter grade_antiderivative for sagemath")

    leaf_count_result  = leaf_count(result)
    leaf_count_optimal = leaf_count(optimal)

    if debug: print ("leaf_count_result=", leaf_count_result, " leaf_count_optimal=",leaf_count_optimal)


    expnType_result  = expnType(result)
    expnType_optimal = expnType(optimal)

    if debug: print ("expnType_result=", expnType_result, "expnType_optimal=", expnType_optimal)

    if expnType_result <= expnType_optimal:
        if result.has(I):
            if optimal.has(I): #both result and optimal complex
                if leaf_count_result <= 2*leaf_count_optimal:
                    return "A"
                else:
                    return "B"
            else: #result contains complex but optimal is not
                return "C"
        else: # result do not contain complex, this assumes optimal do not as well
            if leaf_count_result <= 2*leaf_count_optimal:
                return "A"
            else:
                return "B"
    else:
        return "C"
```