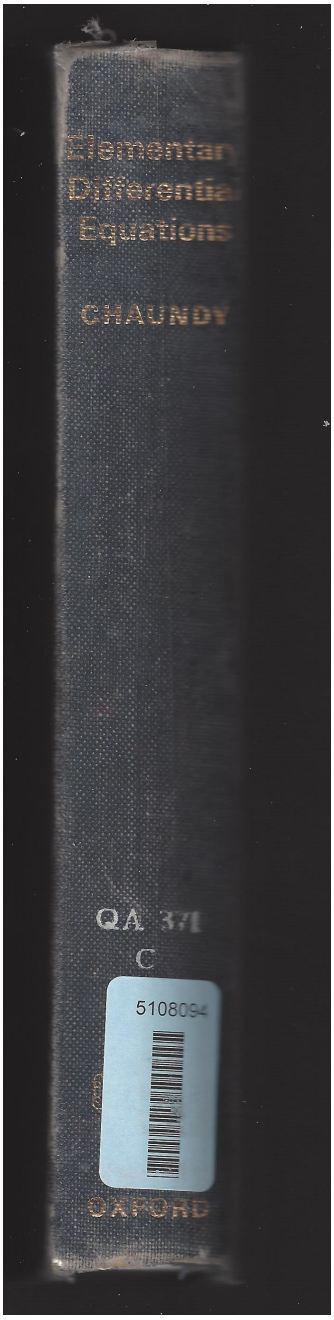
A Solution Manual For

Elementary Differential equations, Chaundy, 1969



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Contents

1 Exercises 3, page 60

1.1 problem 1(a)

Internal problem ID [2520]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_separable]`

$$\boxed{yy' - x = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 23

```
dsolve(diff(y(x),x)*y(x)=x,y(x), singsol=all)
```

$$y(x) = \sqrt{x^2 + c_1}$$
$$y(x) = -\sqrt{x^2 + c_1}$$

✓ Solution by Mathematica

Time used: 0.075 (sec). Leaf size: 35

```
DSolve[y'[x]*y[x]==x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to -\sqrt{x^2 + 2c_1}$$
$$y(x) \to \sqrt{x^2 + 2c_1}$$

1.2 problem 1(b)

Internal problem ID [2521]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(b).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[[_linear, 'class A']]`

$$\boxed{y' - y - x^3 = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 23

```
dsolve(diff(y(x),x)-y(x)=x^3,y(x), singsol=all)
```

$$y(x) = -x^3 - 3x^2 - 6x - 6 + c_1 \mathrm{e}^x$$

✓ Solution by Mathematica

Time used: 0.037 (sec). Leaf size: 23

```
DSolve[y'[x]-y[x]==x^3,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to -x(x(x+3)+6) + c_1 e^x - 6$$

1.3 problem 1(c)

Internal problem ID [2522]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(c).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + \cot(x)\, y - x = 0}$$

✓ Solution by Maple

Time used: 0.016 (sec). Leaf size: 18

```
dsolve(diff(y(x),x)+y(x)*cot(x)=x,y(x), singsol=all)
```

$$y(x) = \frac{\sin(x) - x\cos(x) + c_1}{\sin(x)}$$

✓ Solution by Mathematica

Time used: 0.045 (sec). Leaf size: 17

```
DSolve[y'[x]+y[x]*Cot[x]==x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to -x\cot(x) + c_1 \csc(x) + 1$$

1.4 problem 1(d)

Internal problem ID [2523]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(d).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + \cot(x)\, y - \tan(x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 21

```
dsolve(diff(y(x),x)+y(x)*cot(x)=tan(x),y(x), singsol=all)
```

$$y(x) = \frac{-\sin(x) + \ln(\sec(x) + \tan(x)) + c_1}{\sin(x)}$$

✓ Solution by Mathematica

Time used: 0.048 (sec). Leaf size: 16

```
DSolve[y'[x]+y[x]*Cot[x]==Tan[x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to -1 + \csc(x)(\operatorname{arctanh}(\sin(x)) + c_1)$$

1.5 problem 1(e)

Internal problem ID [2524]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(e).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + y\tan(x) - \cot(x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 17

```
dsolve(diff(y(x),x)+y(x)*tan(x)=cot(x),y(x), singsol=all)
```

$$y(x) = (-\ln(\csc(x) + \cot(x)) + c_1)\cos(x)$$

✓ Solution by Mathematica

Time used: 0.063 (sec). Leaf size: 27

```
DSolve[y'[x]+y[x]*Tan[x]==Cot[x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \cos(x)\left(\log\left(\sin\left(\frac{x}{2}\right)\right) - \log\left(\cos\left(\frac{x}{2}\right)\right) + c_1\right)$$

1.6 problem 1(f)

Internal problem ID [2525]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 1(f).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + \ln(x)\, y - x^{-x} = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 21

```
dsolve(diff(y(x),x)+y(x)*ln(x)=x^(-x),y(x), singsol=all)
```

$$y(x) = -x^{-x} + x^{-x} \mathrm{e}^{x} c_1$$

✓ Solution by Mathematica

Time used: 0.071 (sec). Leaf size: 19

```
DSolve[y'[x]+y[x]*Log[x]==x^(-x),y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to x^{-x}(-1 + c_1 e^{x})$$

1.7 problem 2(a)

Internal problem ID [2526]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 2(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y'x + y - x = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 13

```
dsolve(x*diff(y(x),x)+y(x)=x,y(x), singsol=all)
```

$$y(x) = \frac{x}{2} + \frac{c_1}{x}$$

✓ Solution by Mathematica

Time used: 0.023 (sec). Leaf size: 17

```
DSolve[x*y'[x]+y[x]==x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \frac{x}{2} + \frac{c_1}{x}$$

1.8 problem 2(b)

Internal problem ID [2527]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 2(b).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y'x - y - x^3 = 0}$$

✓ Solution by Maple

Time used: 0.016 (sec). Leaf size: 13

```
dsolve(x*diff(y(x),x)-y(x)=x^3,y(x), singsol=all)
```

$$y(x) = \left(\frac{x^2}{2} + c_1\right) x$$

✓ Solution by Mathematica

Time used: 0.026 (sec). Leaf size: 17

```
DSolve[x*y'[x]-y[x]==x^3,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \frac{x^3}{2} + c_1 x$$

1.9 problem 2(c)

Internal problem ID [2528]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 2(c).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y'x + ny - x^n = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 20

```
dsolve(x*diff(y(x),x)+n*y(x)=x^n,y(x), singsol=all)
```

$$y(x) = \frac{x^n}{2n} + x^{-n} c_1$$

✓ Solution by Mathematica

Time used: 0.045 (sec). Leaf size: 24

```
DSolve[x*y'[x]+n*y[x]==x^n,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \frac{x^n}{2n} + c_1 x^{-n}$$

1.10 problem 2(d)

Internal problem ID [2529]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 2(d).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y'x - ny - x^n = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 12

```
dsolve(x*diff(y(x),x)-n*y(x)=x^n,y(x), singsol=all)
```

$$y(x) = (\ln(x) + c_1)\, x^n$$

✓ Solution by Mathematica

Time used: 0.042 (sec). Leaf size: 14

```
DSolve[x*y'[x]-n*y[x]==x^n,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to x^n(\log(x) + c_1)$$

1.11 problem 2(e)

Internal problem ID [2530]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 2(e).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\left(x^3+x\right)y'+y-x=0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 22

```
dsolve((x^3+x)*diff(y(x),x)+y(x)=x,y(x), singsol=all)
```

$$y(x)=\frac{\sqrt{x^2+1}\,c_1}{x}-\frac{1}{x}$$

✓ Solution by Mathematica

Time used: 0.036 (sec). Leaf size: 23

```
DSolve[(x^3+x)*y'[x]+y[x]==x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x)\to\frac{-1+c_1\sqrt{x^2+1}}{x}$$

1.12 problem 3(a)

Internal problem ID [2531]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 3(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\cot(x)\,y' + y - x = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 23

```
dsolve(cot(x)*diff(y(x),x)+y(x)=x,y(x), singsol=all)
```

$$y(x) = \left(\frac{x}{\cos(x)} - \ln(\sec(x) + \tan(x)) + c_1\right)\cos(x)$$

✓ Solution by Mathematica

Time used: 0.072 (sec). Leaf size: 45

```
DSolve[Cot[x]*y'[x]+y[x]==x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to x + \cos(x)\left(\log\left(\cos\left(\frac{x}{2}\right) - \sin\left(\frac{x}{2}\right)\right) - \log\left(\sin\left(\frac{x}{2}\right) + \cos\left(\frac{x}{2}\right)\right) + c_1\right)$$

1.13 problem 3(b)

Internal problem ID [2532]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 3(b).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\cot(x)\,y' + y - \tan(x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 31

```
dsolve(cot(x)*diff(y(x),x)+y(x)=tan(x),y(x), singsol=all)
```

$$y(x) = \left(\frac{\sin(x)^3}{2\cos(x)^2} + \frac{\sin(x)}{2} - \frac{\ln(\sec(x)+\tan(x))}{2} + c_1\right)\cos(x)$$

✓ Solution by Mathematica

Time used: 0.064 (sec). Leaf size: 25

```
DSolve[Cot[x]*y'[x]+y[x]==Tan[x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \frac{1}{2}(\cos(x)(-\operatorname{arctanh}(\sin(x))) + \tan(x) + 2c_1\cos(x))$$

1.14 problem 3(c)

Internal problem ID [2533]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 3(c).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\tan(x)\,y' + y - \cot(x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 21

```
dsolve(tan(x)*diff(y(x),x)+y(x)=cot(x),y(x), singsol=all)
```

$$y(x) = \frac{\cos(x) + \ln(\csc(x) - \cot(x)) + c_1}{\sin(x)}$$

✓ Solution by Mathematica

Time used: 0.074 (sec). Leaf size: 29

```
DSolve[Tan[x]*y'[x]+y[x]==Cot[x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \csc(x)\left(\cos(x) + \log\left(\sin\left(\frac{x}{2}\right)\right) - \log\left(\cos\left(\frac{x}{2}\right)\right) + c_1\right)$$

1.15 problem 3(a)

Internal problem ID [2534]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 3(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\tan(x)\,y' - y + \cos(x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 15

```
dsolve(tan(x)*diff(y(x),x)=y(x)-cos(x),y(x), singsol=all)
```

$$y(x) = \left(\cot(x) - \frac{\pi}{2} + x + c_1\right)\sin(x)$$

✓ Solution by Mathematica

Time used: 0.054 (sec). Leaf size: 17

```
DSolve[Tan[x]*y'[x]==y[x]-Cos[x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \cos(x) + \sin(x)(\arctan(\tan(x)) + c_1)$$

1.16 problem 4(a)

Internal problem ID [2535]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 4(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + \cos(x)\, y - \sin(2x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 17

```
dsolve(diff(y(x),x)+y(x)*cos(x)=sin(2*x),y(x), singsol=all)
```

$$y(x) = 2\sin(x) - 2 + \mathrm{e}^{-\sin(x)} c_1$$

✓ Solution by Mathematica

Time used: 0.079 (sec). Leaf size: 20

```
DSolve[y'[x]+y[x]*Cos[x]==Sin[2*x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to 2\sin(x) + c_1 e^{-\sin(x)} - 2$$

1.17 problem 4(b)

Internal problem ID [2536]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 4(b).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' \cos(x) + y - \sin(2x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 25

```
dsolve(cos(x)*diff(y(x),x)+y(x)=sin(2*x),y(x), singsol=all)
```

$$y(x) = \frac{-2\sin(x) - 2\ln(\sin(x) - 1) + c_1}{\sec(x) + \tan(x)}$$

✓ Solution by Mathematica

Time used: 0.085 (sec). Leaf size: 42

```
DSolve[Cos[x]*y'[x]+y[x]==Sin[2*x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to e^{-2\operatorname{arctanh}\left(\tan\left(\frac{x}{2}\right)\right)} \left(-2\sin(x) - 4\log\left(\cos\left(\frac{x}{2}\right) - \sin\left(\frac{x}{2}\right)\right) + c_1\right)$$

1.18 problem 4(c)

Internal problem ID [2537]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 4(c).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{y' + \sin(x)\, y - \sin(2x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 15

```
dsolve(diff(y(x),x)+y(x)*sin(x)=sin(2*x),y(x), singsol=all)
```

$$y(x) = 2\cos(x) + 2 + \mathrm{e}^{\cos(x)} c_1$$

✓ Solution by Mathematica

Time used: 0.069 (sec). Leaf size: 18

```
DSolve[y'[x]+y[x]*Sin[x]==Sin[2*x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to 2\cos(x) + c_1 e^{\cos(x)} + 2$$

1.19 problem 4(d)

Internal problem ID [2538]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 4(d).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\sin(x)\,y' + y - \sin(2x) = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 23

```
dsolve(sin(x)*diff(y(x),x)+y(x)=sin(2*x),y(x), singsol=all)
```

$$y(x) = (-2\cos(x) + 2\ln(\cos(x)+1) + c_1)(\csc(x) + \cot(x))$$

✓ Solution by Mathematica

Time used: 0.051 (sec). Leaf size: 29

```
DSolve[Sin[x]*y'[x]+y[x]==Sin[2*x],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \cot\left(\frac{x}{2}\right)\left(-2\cos(x) + 4\log\left(\cos\left(\frac{x}{2}\right)\right) - 2 + c_1\right)$$

1.20 problem 5(a)

Internal problem ID [2539]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 5(a).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\sqrt{x^2+1}\,y' + y - 2x = 0}$$

✓ Solution by Maple

Time used: 0.016 (sec). Leaf size: 34

```
dsolve(sqrt(1+x^2)*diff(y(x),x)+y(x)=2*x,y(x), singsol=all)
```

$$y(x) = \frac{x^2 + x\sqrt{x^2+1} - \operatorname{arcsinh}(x) + c_1}{x + \sqrt{x^2+1}}$$

✓ Solution by Mathematica

Time used: 0.124 (sec). Leaf size: 39

```
DSolve[Sqrt[1+x^2]*y'[x]+y[x]==2*x,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to \left(\sqrt{x^2+1} - x\right)\left(-\operatorname{arcsinh}(x) + x\left(\sqrt{x^2+1} + x\right) + c_1\right)$$

1.21 problem 5(b)

Internal problem ID [2540]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 5(b).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\sqrt{x^2+1}\,y' - y - 2\sqrt{x^2+1} = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 32

```
dsolve(sqrt(1+x^2)*diff(y(x),x)-y(x)=2*sqrt(1+x^2),y(x), singsol=all)
```

$$y(x) = \left(x\sqrt{x^2+1} + \operatorname{arcsinh}(x) - x^2 + c_1\right)\left(x + \sqrt{x^2+1}\right)$$

✓ Solution by Mathematica

Time used: 0.073 (sec). Leaf size: 24

```
DSolve[Sqrt[1+x^2]*y'[x]-y[x]==2*Sqrt[1+x^2],y[x],x,IncludeSingularSolutions -> True]
```

$$y(x) \to x + \left(\sqrt{x^2+1} + x\right)(\operatorname{arcsinh}(x) + c_1)$$

1.22 problem 5(c)

Internal problem ID [2541]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 5(c).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\sqrt{(x+a)\,(x+b)}\,(2y'-3)+y=0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 63

```
dsolve(sqrt((x+a)*(x+b))*(2*diff(y(x),x)-3)+y(x)=0,y(x), singsol=all)
```

$$y(x)=\frac{2\left(\int \frac{3\sqrt{2a+2b+4x+4\sqrt{(x+a)(x+b)}}}{4}dx\right)+2c_1}{\sqrt{2a+2b+4x+4\sqrt{x^2+(a+b)\,x+ab}}}$$

✓ Solution by Mathematica

Time used: 0.408 (sec). Leaf size: 115

```
DSolve[Sqrt[(x+a)*(x+b)]*(2*y'[x]-3)+y[x]==0,y[x],x,IncludeSingularSolutions -> True]
```

$$y(x)$$
$$\to \exp\left(-\frac{\sqrt{a+x}\sqrt{b+x}\operatorname{arctanh}\left(\frac{\sqrt{b+x}}{\sqrt{a+x}}\right)}{\sqrt{(a+x)(b+x)}}\right)\left(\int_1^x \frac{3}{2}\exp\left(\frac{\operatorname{arctanh}\left(\frac{\sqrt{b+K[1]}}{\sqrt{a+K[1]}}\right)\sqrt{a+K[1]}\sqrt{b+K[1]}}{\sqrt{(a+K[1])(b+K[1])}}\right)dK[1]\right.$$
$$\left.+c_1\right)$$

1.23 problem 5(d)

Internal problem ID [2542]

Book: Elementary Differential equations, Chaundy, 1969
Section: Exercises 3, page 60
Problem number: 5(d).
ODE order: 1.
ODE degree: 1.

CAS Maple gives this as type `[_linear]`

$$\boxed{\sqrt{(x+a)(x+b)}\,y' + y - \sqrt{x+a} + \sqrt{x+b} = 0}$$

✓ Solution by Maple

Time used: 0.0 (sec). Leaf size: 103

```
dsolve(sqrt((x+a)*(x+b))*diff(y(x),x)+y(x)=sqrt(x+a)-sqrt(x+b),y(x), singsol=all)
```

$$y(x) = \frac{\frac{2(x+a)^{\frac{3}{2}}}{3} - \frac{2(x+b)^{\frac{3}{2}}}{3} + \frac{\sqrt{x+a}\,(x+b)(2x-b+3a)}{3\sqrt{(x+a)(x+b)}} - \frac{\sqrt{x+b}\,(x+a)(2x-a+3b)}{3\sqrt{(x+a)(x+b)}} + c_1}{\frac{a}{2} + \frac{b}{2} + x + \sqrt{x^2 + (a+b)\,x + ab}}$$

✓ Solution by Mathematica

Time used: 2.353 (sec). Leaf size: 145

```
DSolve[Sqrt[(x+a)*(x+b)]*y'[x]+y[x]==Sqrt[x+a]-Sqrt[x+b],y[x],x,IncludeSingularSolutions -> T
```

$$y(x)$$

$$\to \exp\left(-\frac{2\sqrt{a+x}\sqrt{b+x}\operatorname{arctanh}\left(\frac{\sqrt{b+x}}{\sqrt{a+x}}\right)}{\sqrt{(a+x)(b+x)}}\right)\left(\int_1^x \frac{\exp\left(\frac{2\operatorname{arctanh}\left(\frac{\sqrt{b+K[1]}}{\sqrt{a+K[1]}}\right)\sqrt{a+K[1]}\sqrt{b+K[1]}}{\sqrt{(a+K[1])(b+K[1])}}\right)\left(\sqrt{a+K[1]}-\right.}{\sqrt{(a+K[1])(b+K[1])}}\right.$$

$$\left.\left. + c_1\right)\right.$$