

HOMWORK 11 - DUE DECEMBER 3

Homework instructions: Complete the assigned problems on your own paper. Once you are finished, scan or photograph your work and upload it to Gradescope. When prompted, tell Gradescope where to find each problem.

You are allowed (and in fact encouraged) to work with other students on homework assignments. If you do that, please indicate on each problem who you worked with. If you use sources other than your notes, the textbook, and any resources on Canvas for your homework, you must indicate the source on each problem. You are not permitted to view, request, or look for solutions to any of the homework problems from solutions manuals, homework help websites, online forums, other students, or any other sources.

Textbook Problems:

- §1.2: 6, 8, 24, 26

For problems in this section, use 9.8 m/s^2 or 32 ft/s^2 as the acceleration due to gravity

- §1.3: 5, 9

For the problems in section 1.3, ignore the instructions in the textbook and do the following:

- Make a copy of the slope field given in the textbook. You may sketch it by hand, make a photocopy of the textbook page, generate your own using a computer, or do anything else to make a copy that you can write on.
- On your slope field, sketch at least 3 different solution curves. Label each solution curve by the initial point (x, y) that you chose

Additional Problems:

For these problems, please use a calculator to compute approximate times, distances, and speeds. Round all numbers to two decimal places. **Be careful with your units!**

1. A racecar accelerates from stationary at a rate of 14 m/s^2 . How long does it take the car to reach its top speed of 300 km/h ? How far does the car travel in that time?
2. The car is approaching a tight turn at 300 km/h . In order to safely make the corner, it must be traveling at 80 km/h when it enters the corner. The brakes on the car cause a deceleration of 39 m/s^2 . How far away from the corner must the driver begin braking to make the corner?
3. At the exit of the corner, two cars are traveling at 100 km/h , with car A 10 m behind car B. Out of the corner, car A accelerates at 14 m/s^2 and car B accelerates at 13 m/s^2 . How much time does it take for car A to be right next to car B? How fast are the cars going when this happens? How far from the corner exit have they traveled?