

PHYS-2010: Dr. Luttermoser's General Physics I Course

Problem Set 1, Fall 2010

There are 11 problems you are to complete via the web at

<http://capa.etsu.edu/>

You will gain access to this set by typing in your CAPA Student Number and CAPA ID which will be supplied to you. These problems will be graded and must be completed by 6:00 p.m. on Friday, September 24, 2010. **Start working on these problems immediately Don't wait until the last day to start them. One never knows when the network will go down, and you will not be able to use this as an excuse for not doing your CAPA problems.** As a matter of fact, there will be no allowed excuses for not doing your CAPA homework.

The following problems will not be graded, but should be done for review. These problems are from your textbook (College Physics, 8th Edition, Serway & Vuille). The solutions are posted on the course web page. **Try to work these problems out by yourself before looking at the solutions I have supplied for you.**

1. Problems 1.55, Page 22.
2. A farmer measures the perimeter of a rectangular field. The length of each long side is of the rectangle is found to be 38.44 m, and the length of each short side is found to be 19.5 m. What is the perimeter of the field? (*Hint*: Worry about significant digits.)
3. Problems 1.24, Page 20. (*Hint*: Worry about significant digits.)
4. Problem 1.38, Page 21.
5. Problem 1.43, Page 21.
6. Problem 2.5, Page 49.
7. Problem 2.19, Page 50.
8. A drag racer starts her car from rest and accelerates at 10.0 m/s^2 for a distance of 400 m (1/4 mile). (a) How long did it take the race car to travel this distance? (b) What is the speed of the race car at the end of the run?
9. Problem 2.47, Page 51.

10. A young woman named Kathy Kool buys a sports car that can accelerate at the rate of 4.90 m/s^2 . She decides to test the car by drag racing with another speedster, Stan Speedy. Both start from rest, but experienced Stan leaves the starting line 1.00 s before Kathy. If Stan moves with a constant acceleration of 3.50 m/s^2 , and Kathy maintains an acceleration of 4.90 m/s^2 , find (a) the time it takes Kathy to overtake Stan, (b) the distance she travels before she catches him, and (c) the speeds of both cars at the instant she overtakes him.
11. Problem 3.4, Page 76. Do the problem both graphically (as requested by the text) and algebraically.
12. Problem 3.17, Page 77.
13. Problem 3.22, Page 77.
14. Problem 3.38, Page 79.
15. Problem 3.51, Page 80.
16. Problem 4.7, Page 111.
17. Problem 4.17a, Page 112. Only do part (a).
18. Problem 4.24, Page 112.
19. Problem 4.28, Page 113.
20. Problem 4.38, Page 114.
21. Problem 4.47, Page 114.