PHYS 1401 General Physics I
Homework #2

For the first two questions, express your final answer in the form of a ***complete sentence***, with the correct units and number of significant figures. Do not just circle a number. Show all calculations, and draw diagrams where appropriate. The last six questions are found on the Mastering Physics site, and are worth a point each.

It would be a good idea to try the Tutorials before tackling the homework problems. If you complete the entire Tutorial for Homework #2, you will get 1 bonus point. If you complete any part of the Tutorial, you will get half a bonus point.

Do these problems on paper and turn them in

1. (2 points) A speeder is traveling at a speed of 75 mph in a 55 mph zone, and sails right past a police cruiser initially at rest. The police officer reacts quickly, and starts moving the moment the other car passes. The cruiser is capable of going from zero to 60 mph in 6.1 seconds at maximum acceleration. The speeder is listening to Dethklok on his iPod, and is oblivious to the police officer, and so maintains a constant velocity.

    a. What is the acceleration of the police car?
    b. How many seconds does it take the officer to catch up to the speeder?
    c. How fast is the police car traveling when it catches up?
    d. How many meters long was the chase?

2. (2 points) Chapter 2, Problem 28, p. 60 (Note: The cat's feet start 4 feet above the floor)

These are the problems from the book that are online. The data are different, so you can work them out without numbers and then go online.

1. Chapter 2, Problem 34, p. 60

2. Chapter 2, Problem 36, p. 60

3. Chapter 2, Problem 37, p. 60

4. Chapter 2, Problem 54, p. 61

5. Chapter 2, problem 66, p. 62

6. Chapter 2, Problem 74, p. 63