PHYS 1401 General Physics I
Homework #1

For the first three 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 #1, 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. (1 point) While pulling a wagon, a horse exerts a force of 252 N at an angle of 42 degrees above the ground. How much force does the horse exert upward? How much force does the horse exert forward? Draw a diagram to illustrate.

2. (1.5 points) Problem 45 on p. 24. Skip part d.

3. (1.5 points) Consider a sled being pulled across the snow at a constant velocity. Imagine that a child pulls the sled with a force of 142 N, and that the rope makes an angle of 32 degrees with the horizontal. The sled moves along the snow with a constant velocity. The sled has a weight of 119 N.

    a) Draw a diagram showing all the forces exerted on the sled. Break the forces up into components if needed, draw those forces, and come up with equations for those forces.

    b) What is the size of the normal force felt by the sled?

    c) What is the size of the friction force felt by the sled?

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 1, Problem 36, p. 24
2. Chapter 1, Problem 55, p. 26
3. Chapter 4, Problem 5, p. 116
4. Chapter 5, Problem 4, p. 145
5. Chapter 5, Problem 8, p. 145
6. Chapter 5, Problem 13, p. 146