

PHYS 1401 General Physics I
Homework #4

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 #4, 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. (1.25 points) Chapter 5, Problem 40, p. 148 (Note that parts c and d have different answers!)
2. (1.5 points) A skier slides straight down an incline of 25 degrees without using her poles. The slope itself is 96 meters long, and the skier starts from rest at the top.
 - a. What would the velocity of the skier be at the bottom of the incline if friction can be neglected?
 - b. What would your answer be to the previous question if the coefficient of kinetic friction between the skis and the snow is 0.13 on the incline?
 - c. Upon reaching the bottom of the incline in part b, she reaches a flat portion, and decides to just let friction slow her to a stop. How far does the skier travel along the horizontal portion before coming to a stop, if the coefficient of kinetic friction is 0.28 on the flat portion?
3. (1.25 points) Chapter 3, Problem 40, p. 90
 - a. Calculate the velocity of the rocket when it leaves the ramp, and its x- and y-position when it leaves the ramp.
 - b. How high off the ground does the rocket get at its highest point?
 - c. What is the total time in the air for the rocket, and how far from the starting point does it travel horizontally?

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 5, Problem 17, p. 146
2. Chapter 5, Problem 32, p. 147
3. Chapter 5, Problem 38, p. 148

4. Chapter 5, problem 62, p. 150
5. Chapter 3, Problem 14, p. 89
6. Chapter 3, Problem 16, p. 89