Physics 20, Fall 2011
Homework Set 1
Due: 5pm Monday, October 3

Turn homework into the **Phys 20 box on the 2nd floor of Broida Hall,** directly in front of the elevators. (It's labeled with the names of the professor and TA.)

1. Kleppner & Kolenkow, Chapter 1, Problem 1.1

2. Kleppner & Kolenkow, Chapter 1, Problem 1.2

3. Can two vectors having different magnitudes be combined to give a zero vector sum (resultant)? How about three vectors?

4. Kleppner & Kolenkow, Chapter 1, Problem 1.4

5. Kleppner & Kolenkow, Chapter 1, Problem 1.5

6. A person walks in the following pattern: 3.1 km north, then 2.4 km west, and finally 5.2 km south.
   (a) Construct the vector diagram that represents this motion.
   (b) How far and in what direction would a bird fly in a straight line to arrive at the same final point?

7. The minute hand of a wall clock measures 10 cm from axis to tip. What is the displacement vector of its tip
   (a) from a quarter after the hour to half past?—
   (b) in the next half hour?—
   (c) in the next hour?

8. Kleppner & Kolenkow, Chapter 1, Problem 1.8

Hint: When a problem asks for a vector as a solution, remember that a vector has both a length (or magnitude) and a direction. One good way to write a vector is to use base vectors, as in Problem 1.2, or Section 1.4.

DME 10/10/11 revised