# Two Dimensions 9—Test Review

For this homework I will have questions and comments as for what to study. In order to be ready for the test, you should look over all of the previous homeworks and notes. You will be able to use your equation sheet and variable chart, but not the notes. Do not write notes on these sheets, or I will have to take them from you.

1. When thrown, what kind of balloon is not projectile motion?
2. When thrown, what kind of balloon is projectile motion?

3. A vector is something with m_____ and d_____.
4. Is weight a vector quantity or not?

   *In your book there may be more examples of what is and is not a vector.*
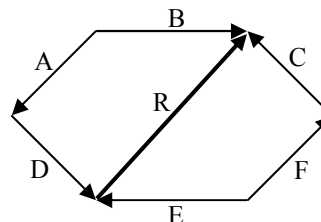
5. Give two ways to make R in the diagram at the right.

   Be sure you study the bellwork regarding: Acids and Bases (notes on TD6); Thermodynamics; Density.

6. Using the two picture at the right to answer the following. Notice that in the before picture the object is outside of the graduated cylinder. In the after picture the object is in the water in the cylinder.
   A) In the before picture, what is the volume?
   B) In the after picture, what is the volume?
   C) What is the volume of the object?
   D) If the object has 9.5 grams of mass, find the density of the object.
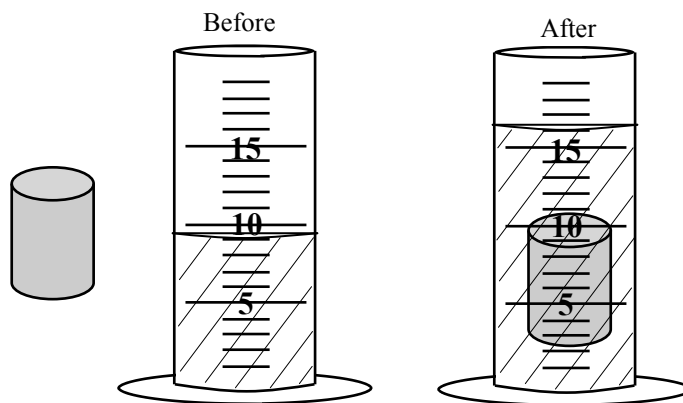
7. Answer these projectile motion conceptual questions.
   A) In which direction do you calculate time?
   B) Why?

   C) If an ball rolls off of a 2 m tall table going 4 m/s,
   1. What is its Δy?
   2. What is a_y?
   3. What is a_x?
   4. What is V_{xi}?
   5. What is V_{yi}?

   D) What is the x-direction acceleration for any projectile?
   E) If the initial Vx = 15 m/s, what is the final Vx?

   For those that want bonus points, study how to find range for a projectile shot from an elevated position.
   An example is in the teacher notes.
   Be sure you can do these kinds of problems:
   A. Projectile from ground to ground. And "how high".
   B. Adding vectors.
   C. Kinematics at an angle (see next problem).

More on back

8. A fish is trying to escape from a pursuing sea lion (an example of _____). ***The fish*** is swimming 0.4 m/s when it begins to flee. ***The fish*** accelerates at 0.4 m/s^2 for 5 seconds at an angle of -60° to the surface of the water (downward).

   A) How far did ***the fish*** travel?

   B) If the sea lion dives straight down to get the fish, to what DEPTH did the sea lion dive down?

   C) A boat is following a radio collar on the fish. How far will it have to travel to stay with the chase?

9. A ball is thrown from the ground at 25 m/s at 45° to the ground. Find how high up it goes.

10. In the previous question, find the range of the ball when it gets to the ground.

   Study hard.