Physics U1 – Review Guide

This is not a comprehensive study help, it is simply a guide to show you what kind of topics to expect on the test. You will have to review the notes and the practice problems we did to be ready for the test.

Good resources for studying:

1. Homework
2. Bell Ringers
3. Class powerpoints
4. Labs (eh)

Topics to be covered:

1. Units
   1. Convert between units of the same system (e.g. inches to feet).
   2. Convert between units of different systems (e.g. inches to centimeters).
   3. Use dimensional analysis/train track method.
   4. Use double conversions (e.g. mi/hr to m/s)
   5. Memorize the metric prefixes and what they mean (most important are kilo, centi, and milli).
2. Distance / Displacement
   1. Understand the difference between distance and displacement
   2. Find dist./disp. for linear, triangular, circular, etc. situations
   3. Be able to graph dist./disp.
   4. Be able to find dist./disp. using a graph.
3. Speed / Velocity
   1. Understand the difference between speed and velocity
   2. Find speed/velocity for linear, triangular, circular, etc. situations
   3. Be able to graph speed/velocity
   4. Be able to find speed/velocity using a graph.
   5. Be able to make a velocity graph using a position graph
   6. Be able to make a position graph using a velocity graph
   7. Be able to calculate velocity given just position and time
   8. Be able to calculate time given just velocity and position
   9. Be able to calculate position given just velocity and time
4. Motion maps
   1. Be able to make motion maps using position vs. time graphs
   2. Be able to make motion maps using velocity vs. time graphs
   3. Be able to make motion maps using position or velocity data.
   4. Be able to make position and/or velocity graphs if given a motion map

Just a quick hint, when trying to calculate distances, etc. Using dimensional analysis is a good way to go. For example:

A rocket to mars is going 11.2 km/s. How far does is go in 10 seconds?

Start with what you know

11.2 km

s

Then, find out what you want to know. In this case km. So, that means we want seconds gone, and we want to be left with just km.

11.2 km 10s

s

In this case, seconds cancel out now, and leave you with just km, which is what you want.

Also, make sure what you want is always on the top of the division line. Many tears have been shed by students who do all the right steps except they get their answer in km-1 instead of km.