**Physics – Honors**

**Additional Review: Significant Figures, Scientific Notation & Dimensional Analysis**

1. Suppose you jog 5.0 miles each day. Use dimensional analysis to convert this distance to the following units.
   1. pm
   2. Gm
   3. μm
   4. ly
   5. parsec
   6. in.

Report each converted value **in scientific notation** with the **appropriate number of significant figures**.

1 mile = 5,280 feet = 1.609 km

1 in. = 2.54 cm

1 light-year (ly) = 9.461 x 10­­15 m

1 parsec = 3.26 ly

1. Express a measurement of **0.013794682 cm** with the following numbers of significant figures, **in scientific notation**, and **with units**.
2. 1 sig. fig. = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 2 sig. fig. = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 3 sig fig. = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 4 sig. fig. = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. 5 sig. fig. = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Bicyclists in the Tour de France reach speeds of 34.0 miles per hour (mi/h) on flat sections of the road. What is this speed in the following units? Refer to problem #1 for conversion factors.
   1. kilometers per hour (km/h)
   2. meters per second (m/s)
8. Azelastine hydrochloride is an antihistamine nasal spray. A standard size container holds one fluid ounce (oz) of the liquid. You are searching for this medication in a European drugstore and are asked how many milliliters (mL) there are in one fluid ounce. Using the following conversion factors, determine the number of milliliters in a volume of one fluid ounce. Report you answer with three significant figures and the appropriate units.

1 gallon (gal) = 128 oz

3.785 x 10-3 cubic meters (m3) = 1 gal

1 mL = 10-6 m3