Chemistry 101   Name:_____

UNIT CONVERSIONS & PROBLEM SOLVING

1. Perform the following conversions, using unit analysis, and express the answers to the correct number of significant figures:

   a) 100.0 g of ethanol to liters (density of ethanol = 0.79 g/mL)

   b) 536 mg to kg

   c) 25 m^2 to cm^2

   d) 65 mi/h to m/s (1 mi = 1.609 km)

   e) 75 °F to K

2. What is the volume (in L) of 1.00 kg of mercury? (density of mercury $=13.59$ g/cm^3)

3. Some people believe that large doses of vitamin C can cure the common cold. One commercial over-the-counter product contains 500.0 mg tablets that are 20.0% by mass vitamin C. How many tablets are needed for a 1.00 g dose of vitamin C?

4. A copper wire (d=8.96 g/cm^3) has a diameter of 0.25 mm. If a sample of this wire has a mass of 22 g, how long is the wire?

5. A person with high cholesterol has 250 mg of cholesterol per 100.0 mL of blood. If the total blood volume of the person is 5.4 L, what is the total mass (in g) of cholesterol present in the person's blood?