Diff Chem/ IB Chem I: Conversions Worksheet Name:

Answer the following questions. Be sure to show all your work and label your answers according. Specific notice will be given to significant figures.

1. The label on a soft-drink bottle gives the volume in two units: 2.0 L and 67.6 fl oz. Use this information to find a conversion factor between the English and metric units. How many significant figures can you justify including in your conversion factor?

2. According to the owners manual, the gas tank of a certain luxury automobile holds 22.3 gal. If the density of gasoline is 0.8206 g/mL, determine the mass in kilograms and pounds of the fuel in a full tank.

3. In order to prepare for a laboratory period, a student lab assistant needs to prepare a solution containing 125 g of a compounds and 250 mL of acetone. A bottle containing 0.250 lbs of compound is available along with a can holding 7.5 fl. oz of acetone. Does the lab assistant have enough of each material?

4. A cylindrical glass tube that is 18.5 cm long is filled with distilled water at 4^{o}C. The mass of water needed to fill the tube is found to be 16.0g. Calculate the inner diameter of the tube in millimeters.

5. What is the mass in kg of a pure lead sphere that has a radius of 4.12 in.?

6. Nickel shot has a mass of 5.60 g per shot. How many shot would be required to displace water in a 50 mL graduated cylinder from 24.5 mL to 44.8 mL?