Problem Set 2: Expressing Uncertainty

1. Express the following measurements in scientific notation and with three sig figs.
    a. 967 cm
    b. 20,000 g
    c. 0.00012456 km

2. Assume you are measuring the volume of a rock in the lab. You fill your large graduated cylinder with 9.5 mL of water, and then you carefully slide the rock into the water. The displaced water level now reads 18.8 mL. What is the volume of the rock?

3. In the lab, you measure the length, width and height of a wooden block as 2.1 cm, 2.9 cm, and 2.5 cm, respectively. What is the volume of the wooden block?

4. The mass of a chunk of sulfur is 3.05 g. If the density of sulfur is 2.07 g/cm^3, what is the volume of this sulfur chunk?

5. Write a conversion factor that could be used to convert meters into millimeters.

6. Write a conversion factor that could be used to convert kilometers into miles.

7. Write a conversion factor that could be used to convert milligrams into grams.

8. The speed limit on a road in Canada is 95 km/hr. Express this speed in mi/hr.

9. The diameter of a red blood cell is 6 x 10^{-6} m. How many millimeters is this?

10. A patient has a blood glucose level of 85 mg/dL. Express this in g/mL.

11. A hydrogen atom has a volume of approximately 6.2 x 10^{-31} m^3. What is the volume in cm^3?