CHEM 130 **Name** _____
Quiz 2 – August 31, 2018

Complete the following problems. Write your final answers in the blanks provided. You must show your work to receive full credit. Show your answers to the correct number of significant figures with the correct units.

1. Perform the following conversions. Report your answers in scientific notation. (6 pts.)

   a. 12,700 km (diameter of a earth) = _____nm

   b 9.81 m/s^2 (acceleration due to gravity) = _____cm/min^2

2. Perform these calculations. Report your results to the correct number of significant figures. (6 pts)

   a.

$$\frac{32.44 + 4.9 - 0.304}{82.94} =$$

Answer_____

   b.

$$\frac{(1.45 \times 10^2) \times (8.76 \times 10^{-4})}{(9.2 \times 10^{-3})^2} =$$

Answer_____

3. In an engineering reference book, you find that the density of iron is 4.544 oz/in^3. What is the density in g/cm^3? (1.00 lb = 453.6 g, 1 lb is exactly 16 oz, 1 inch is exactly 2.54 cm.) (6 pts)

Answer_____

4. You are trying to determine the density of an unknown object. You use a balance to determine its mass to be 8.129 ± 0.002 grams and determine its volume to be 3.45 ± 0.05 mL. Determine the density of the object, and use error propagation to find the uncertainty (*error*) in the density. (7 pts)

Error propagation for multiplication and division: $\frac{e_4}{v_4} = \sqrt{\left(\frac{e_1}{v_1}\right)^2 + \left(\frac{e_2}{v_2}\right)^2 + \left(\frac{e_3}{v_3}\right)^2}$

Answer_____