WORKSHEET #1
CHEM 161

FOR ALL PROBLEMS INVOLVING CALCULATIONS, PLEASE SHOW ALL WORK FOR FULL CREDIT.

1. Decide whether the each of the following is an exact number or a measured number.
   a. there are 1000g in 1kg
   b. an apple weighs 478 grams
   c. a class has 35 students
   d. a student obtains 100.0mL of distilled water in a graduated cylinder

2. How many significant figures are in each of the following measured quantities?
   a. 12.0 g  
   b. 0.0650 mL  
   c. 0.00079 m  
   d. 925,000,000 km

3. Round the following calculations off to the correct number of significant figures. Be careful on the mixed calculations.*
   a. $1,308 \times 0.0000125 =$
   b. $47.1 \div 0.0042 =$
   c. $127.925 - 125.925 =$
   d. *(128.05 - 123.32) \times 0.0358 =$
   e. *(0.38 + 10.75) \div 761 =$
   f. *(11.652 - 10.902) \times 78.15 =$
4. Using the conversions provided with each problem, convert the following. **Round your answer to the correct number of significant digits.**

   a. \(4.55 \times 10^{-7} \text{ m} = \text{ ? nm} \); where \(1 \text{ nm} = 1 \times 10^{-9} \text{ m}\)

   b. \(65 \text{ lbs} = \text{ ? kg} \); where \(1 \text{ lbs.} = 454 \text{ g} \) and \(1000 \text{ g} = 1 \text{ kg}\).

   c. \(1,250 \text{ ft} = \text{ ? m} \); where \(1 \text{ ft} = 12 \text{ in}, 1 \text{ in} = 2.54 \text{ cm}, \) and \(100 \text{ cm} = 1 \text{ m}\).

5. The mass of a metal object measuring 12.0 inches by 10.0 inches by 4.50 inches is 174 pounds. What is the density of this metal in grams per cubic centimeter? **Round your answer to the correct number of significant digits.**

6. Silver metal has a density of 10.5 g/cm\(^3\). A solid sphere of silver has a mass of 0.295 g. What is the diameter of the silver piece, in mm? The volume of a sphere is \(V = \frac{4}{3} \pi r^3\). **Round your answer to the correct number of significant figures.**

7. A circular pond will be 8.0 feet in diameter and 2.5 feet deep. Calculate the mass of the pond in both kilograms and pounds assuming that the mass of the pond container is negligible. The \(V = \pi r^2 \ell\) and the density of water is 1.0 g/cm\(^3\). **Round your answers to the correct number of significant figures.**