El Camino Community College Name:
Chemistry 20 – Fundamentals of Chemistry Date:
Instructor: Dr. Kenneth R. Rodriguez, Fall08 Score:

Homework #1

You must show your entire work on a separate sheet(s) of paper to get full credit.


What volume in liters would be occupied by 0.22777kg of a material with a density of 0.00523kg/mL?

What is the density of a substance in mg/L, if a sample with a volume of 1.91cm$^3$ has a mass of 0.00588kg?

2. Determine the number of significant figures.

   a. 0.009300   b. 9778000   c. 3.000*10$^{-5}$   d. 8.000*10$^{+2}$

3. Write the following measurements in scientific notation.

   a. 0.43    b. 156500000    c. 0.000000075    d. 62300000.0

4. Write the following measurements in non-scientific notation (decimal).

   a. 0.53*10$^{-1}$   b. 2.1*10$^{-5}$   c. 2.354*10$^{+1}$   d. 4.3*10$^{-6}$

5. Round off the following values to three sig. figs and two sig. figs

   a. 109.3567       b. 45.9864

6. Sig. Figs in Calculations (report final answer rounded to the appropriate SFs)

   a. (34.565)(4.45)/(2.4)(343.98)   b. 100.0/20.0   c. 2.56+2938.498   d. 20.5-5.5

7. Convert the following:

   a. 623.5 °F to K   b. 0.0083 miles to cm   c. 3027.2 ml to ounces   d. 0.885 kg to pounds

8. Conversion problem

   a. 25.345 µg/ml is converted to kg/cm$^3$   b. 203.77 miles/sec is converted to cm/nsec
9. A fish company delivers 22 kg of salmon, 05.5 g of crab, and 300.48 mg of oysters to your seafood restaurant.
   a. What is the total mass, in kg, of the seafood?
   b. What is the total number of pounds?

10. Use the density value to solve the following problems:
   a. A graduated cylinder contains 18.0 ml of water. What is the new water level after
      35.6 g of silver metal with a density of 10500 g/L is submerged in the water?
   b. A thermometer containing 8.3 g of mercury has broken. If mercury has a density of
      13.6 g/ml, what volume spilled?