CONVERSION FACTOR PROBLEMS

Conversion factors can be used to convert units or to convert between equivalent ways of expressing a quantity. The quantity in the problem is multiplied by one or more "conversion factors," in which the numerator is equal to the denominator. Since the numerator and denominator of the conversion factor are equal, multiplying by the conversion factor is like multiplying by 1 and thus does not change the value of the original quantity. Use the table of English to Metric equivalents as needed. All answers should be in *significant figures*!

A) Problems with a single conversion factor.
1. How many cm are in 18.9 inches?

2. How many grams are in 0.143 ounces?

B) Problems with two or more conversion factors.
1. How many mL are in 0.037 quarts?

2. How many grams are in 0.397 pounds (lbs)?

3. How many micrograms are in 6.8 x 10^{-7} ounces?

C) Using density as a conversion factor. The density of Al is 2.70 g/cm³.
Remember, 1 mL = 1 cm³.
1. What is the volume of 0.810 grams of Al?

2. Find the mass in grams of 0.327 liters of Al.

3. Find the volume in liters of 16.2 kg Al.

D) Complex conversions

1. Convert the density of Al to pounds/quart. (Convert one unit at a time. First, convert grams to pounds, and then convert cm^3 to quarts.)

2. Convert the density of Al to ounces/in^3. (1 in = 2.54 cm; 1 in^3 = $(2.54)^3$ cm^3 = 16.4 cm^3)