WORKSHOP 5: NAME _____
Mole Conversions

Section _____

1. Calculate the molar mass of:

a. HNO_3 b. $KHCO_3$

c. $Al_2(SO_4)_3$ d) $(NH_4)_2Cr_2O_7$

When you are given a problem that involves conversions among moles, grams, number of particles, it is helpful to analyze the problem, write a road-map, consider what factors are available, set up the problem(s) using dimensions, put in the numbers, and then do the arithmetic. Recall: 1 mole = 6.022×10^{23} particles (i.e. atoms or molecules or ions)

Be sure to include all dimensions in your set-ups for each of the following problems. The answers should be rounded off to the correct number of significant figures. Use scientific notation for very large or very small numbers.

2. **1**4.85 g of $HgBr_2$ is how many moles of $HgBr_2$?

3. What is the mass of 0.9051 moles of $(NH_4)_2Cr_2O_7$?

4. How many molecules are in 3.73 moles of methane gas, CH_4?

5. How many molecules of water, H_2O, are present in 36.4 g of H_2O?

6. Find the weight, in grams, of one atom of uranium, U.

7. How many atoms of silver, Ag, are present in 15.00 mg of silver?

8. Given a sample containing 5.466×10^{12} molecules of C_3H_8O, answer the following questions.

a. How many moles of compound does this represent?

b. How many grams of this compound are there?

c. How many grams of carbon are there?

d. How many hydrogen atoms are there?

9. Given 7.24×10^4 kg of dinitrogen tetroxide:

a) How many moles are there?

b) How many grams of nitrogen are there?

c) How many molecules are there?

d) How many moles of oxygen atoms are there?

10. How many mL of Hg (l) with a density of 13.6 g/mL must you dispense to have 1.96 millimole (mmol)?