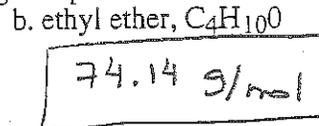
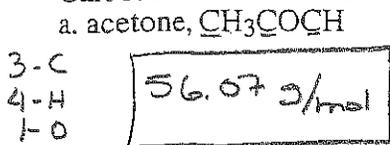


Conversion to Moles, grams, and Atoms Worksheet

Name _____
Hour _____

1. Calculate the molecular mass of the following compounds:



2. Find the number of molecules in .846 moles of HF molecules. Factor Label.

$$\frac{6.02 \times 10^{23} \text{ molecules HF}}{1 \text{ mol HF}} \times 0.846 \text{ mol HF} = \boxed{5.09 \times 10^{23} \text{ molecules HF}}$$

3. Calculate the mass in grams of 0.35 moles benzene, C_6H_6 . Benzene is known carcinogen. Factor Label.

$$\frac{78.12 \text{ g C}_6\text{H}_6}{1 \text{ mol C}_6\text{H}_6} \times 0.35 \text{ mol C}_6\text{H}_6 = \boxed{27 \text{ g C}_6\text{H}_6}$$

4. Using Factor Labeling, convert the following to moles:

a. 4.02×10^{23} atoms Fe

$$\frac{1 \text{ mol Fe}}{6.02 \times 10^{23} \text{ atoms Fe}} \times 4.02 \times 10^{23} \text{ atoms Fe} = \boxed{0.668 \text{ mol Fe}}$$

b. 6.41×10^{26} molecules HCl

$$\frac{1 \text{ mol HCl}}{6.02 \times 10^{23} \text{ molecules HCl}} \times 6.41 \times 10^{26} \text{ molecules HCl} = \boxed{1066 \text{ mol HCl}}$$

5. Use Factor Labeling to find the following:

a. the number of molecules in 125 g of CO_2 .

$$\frac{6.02 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2} \times \frac{1 \text{ mol CO}_2}{44.01 \text{ g CO}_2} \times 125 \text{ g CO}_2 = \boxed{1.71 \times 10^{24} \text{ molecules CO}_2}$$

b. the number of grams in 9.23×10^{27} molecules of ammonia, NH_3 .

$$\frac{17.04 \text{ g NH}_3}{1 \text{ mol NH}_3} \times \frac{1 \text{ mol NH}_3}{6.02 \times 10^{23} \text{ molecules NH}_3} \times 9.23 \times 10^{27} \text{ molecules NH}_3 = \boxed{261,600 \text{ g NH}_3}$$

c. the number of atoms of Hydrogen in 25.3 g of Sulfuric Acid. H_2SO_4

$$\frac{2 \text{ atoms H}}{1 \text{ molecule H}_2\text{SO}_4} \times \frac{6.02 \times 10^{23} \text{ molecules H}_2\text{SO}_4}{1 \text{ mol H}_2\text{SO}_4} \times \frac{1 \text{ mol H}_2\text{SO}_4}{98.09 \text{ g H}_2\text{SO}_4} \times 25.3 \text{ g H}_2\text{SO}_4 = \boxed{3.11 \times 10^{23} \text{ atoms H}}$$