**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_**

**STOICHIOMETRY PRACTICE**

1. Write the formula unit for the following ionic compounds and determine their

formula mass in u (out to the hundredths place). Show all work

a. potassium hydroxide

b. magnesium hydroxide

c. iron(III) chloride

d. beryllium chloride

2. Write the molecular formula for the following molecular compounds and

determine their molecular mass in u (out to the hundredths place). Show all work.

a. chlorine gas

b. sulfur dioxide

c. CH3COOH

3. Write the chemical formula for the following compounds and determine their

molar mass in g/mol (out to the hundredths place). Show all work.

a. barium iodide

b. ammonia

c. carbon tetrachloride

d. cesium carbonate

e. iron(III) sulfite

f. 54.3% Iron, 45.4% Phosphorus; 204.61 g/mol

4. Watch significant figures.

a. Calculate the number of atoms in 4.2 moles of iron.

b. Calculate the number of atoms in 0.75 moles of gold.

c. Calculate the number of moles in 12.04 x 1023 atoms of carbon.

d. Calculate the number of molecules in 7.2 moles of water.

e. Calculate the number of formula units in 2.65 moles of NaCl.

f. Calculate the number of moles in 6.02 x 1023 molecules of water.

5. Write the balance equation and solve each of the following.

a. Aluminum metal and aqueous hydrogen chloride react to form solid

aluminum chloride and hydrogen gas. How many moles of aluminum metal are

needed to produce 3.33 moles of aluminum chloride?

b. Solid aluminum bromide and aqueous sodium hydroxide react to form solid

aluminum hydroxide and solid sodium bromide. How many moles of sodium

bromide can be formed from 1.55 moles of aluminum bromide?

In the following problems, calculate how much of the indicated product is made.

Show all your work.

c. LiOH(aq) + HBr(aq)  LiBr(aq) + H2O(l)

If you started with ten grams of lithium hydroxide, how many grams of

lithium bromide will be produced?

d. C2H4(l) + O2(g)  CO2(g) + H2O(l) is it balanced?

If you start with 45 grams of C2H4, how many grams of carbon dioxide will

be produced?

e. Ca(s) + LiF(aq)  CaF2(s) + Li(aq) is it balanced?

If you start with 5.5 grams of lithium fluoride, how many grams of calcium

fluoride will be produced?

f. HCl(aq) + Na2SO4 (aq)  NaCl(aq) + H2SO4(aq) is it balanced?

If you start with 20 grams of hydrochloric acid, how many grams of sulfuric

acid will be produced?

Selected Answers (make sure you show all work for full credit)

1. a. 56.11 u b. 58.32 u c. 162.29 u d. 79.92 u

2. a. 70.91 u b. 64.07 u c. 60.05 u

3. a. BaI2; 391.14 g/mol b. 17.03 g/mol c. 153.82 g/mol d. 325.82 g/mol

e. 351.91 g/mol

4. a. 2.5 x 1024 atoms of Fe b. 4.52 x 1023 atoms of Au c. 2 moles of C

d. 4.33 x 1024 molecules of H2O e. 1.59 x 1024 molecules of H2O

f. 1 mole of H2O

5. a. 3.33 mol Al b. 4.65 mol NaBr c. 36.3 grams LiBr d. 141.2 g CO2

e. 8.30 g CaF2 f. 26.9 grams sulfuric acid