Name: _____

Chemistry PracTest: Stoichiometry

1. Place the correct answer in the space at the left.

a.) _____ The coefficients in a balanced chemical equation represent the (mass / moles) ratio of the substances.

b.) _____ In a chemical reaction (mass / moles) are conserved.

c.) _____ Which type of problem requires more steps? (**A.** mass to mass or **B.** moles to moles)

d.) _____ Given: $2SO_{2(g)} + O_{2(g)} + 2\ H_2O_{(l)} \rightarrow 2\ H_2SO_{4(l)}$ How many moles of O_2 react with 30. Moles of SO_2?

e.) _____ from "d.": 50.g of H_2SO_4 is made from 33g of SO_2, 16 g of O_2 and _?_ g of H_2O.

f.) _____ A lab experiment should produce 3.07g of product. 2.60g are actually produced. What is the percent yield?

g.) _____ A difficult reaction has only a 38% yield. If 35.1g of product are predicted, what is the yield likely to be?

h.) _____ We have done 3 labs this chapter. What is the <u>element</u> that you produced in one of these 3 experiments?

i.) _____ 0.010 moles of Na_2CO_3 formed 0.02 moles of NaCl. What is the mole ratio of Na_2CO_3 to NaCl?

j.) _____ In a reaction it was determined that 0.866 moles of "A" reacted with 1.73 moles of "B". What is the mole ratio of "A" to "B"? (not "B" to "A")

2. For the reaction: $4\ POF_{3(g)} \rightarrow P_{4(s)} + 2\ O_{2(g)} + 6\ F_{2(g)}$

a.) _____ How many moles of P_4 are produced from 12.0 moles of POF_3?

b.) _____ If 0.250 moles of F_2 is produced, how many moles of O_2 are also produced?

c.) _____ Find the number of moles of POF_3 that are needed to produce $1.0x10^5$ moles of F_2.

d.) _____ When 0.10 moles of P_4 are produced __ moles of O_2 is also produced.

e.) _____ How many moles of POF_3 are needed to produce 250 moles of P_4?

3. How many grams of hydrogen gas are produced when 25.0g of zinc reacts? The reaction is:

$$Zn + 2\ HCl \rightarrow ZnCl_2 + H_2$$

4. What mass of chlorine is produced when 8.22g of NaCl reacts as follows: $F_2 + 2\ NaCl \rightarrow 2\ NaF + Cl_2$

5. A student measures 3.06 grams of iron and reacts it with a solution of copper sulfate. 3.28 grams of copper metal is actually produced. Write a balanced equation for this reaction, calculate the theoretical yield and calculate the students percent yield. (5 pts.)

6. A student in the lab measures an evaporating dish and cover to be 46.83g. She then adds 2.53g of Na_2CO_3 to the dish. The Na_2CO_3 reacts with an excess of HCl and is evaporated to dryness. The remaining NaCl salt and the evaporating dish measures to be 49.62g. (This is typical information from Mondays lab) (6 pts.)

   a.) Write a balanced equation for this reaction.

   b.) Determine the moles of Na_2CO_3 and NaCl

   c.) Compare the mole ratio of Na_2CO_3 to NaCl with their coefficients. This means to write a statement!