STOICHIOMETRY OBJWS
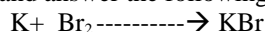
1) MOLE-MOLE Calculations:
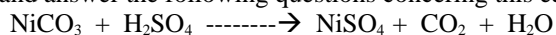   BALANCE and answer the following questions concerning this equation:
   $$K + Br_2 ----------\rightarrow KBr$$

a. How many moles of K are needed to form 3.3 mol of KBr?

b. How many moles of bromine are required to react completely with 0.96 mol of K?

c. Calculate the number of moles of KBr formed when 16.3 mol of Br_2 reacts with K.

2) MASS-MASS Calculations:
   BALANCE and answer the following questions concering this equation:
   $$NiCO_3 + H_2SO_4 --------\rightarrow NiSO_4 + CO_2 + H_2O$$

a. What is the mass of sulfuric acid needed to react with excess nickel (II) carbonate to produce 4.45 g $NiSO_4$?

b. How many grams of CO_2 are formed when 0.355 g of H_2O is produced?
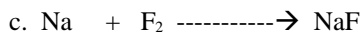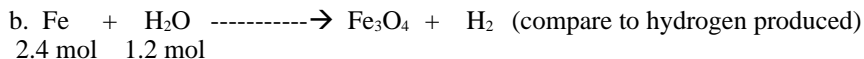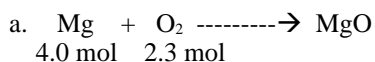
3) OTHERS
   BALANCE and answer the following questions concerning this equation:
   $$Ba + HCl ----------\rightarrow BaCl_2 + H_2$$
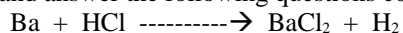
a. How many grams of $BaCl_2$ can be made by reaction 6.63×10^8 ions of HCl with Ba?

b. How many liters of hydrogen gas (STP) are produced by reaction 25.66 g of Ba with HCl?

c. How many ions of $BaCl_2$ are needed to produce 13.4 L of H_2?

d. When 4.50 L of H2 are produced, how many Ba moles were used at the beginning of the reaction?

4) LIMITING REAGENTS
   BALANCE and identify the limiting reagent for each equation in a and b:

a. $Mg + O_2 ---------\rightarrow MgO$
   4.0 mol   2.3 mol

b. $Fe + H_2O -----------\rightarrow Fe_3O_4 + H_2$ (compare to hydrogen produced)
   2.4 mol   1.2 mol

c. $Na + F_2 -----------\rightarrow NaF$
   When 0.24g of sodium react with 0.13 mol of fluorine, what is the limiting reagent?