Stoichiometry Worksheet

1. Na_2SIO_3 (s) + 8 HF(aq) → H_2SiF_6 (aq) + 2 NaF(aq) + 3 H_2O (l)

a. How many moles of HF are needed to react with 0.300 mol of Na_2SiO_3?

b. How many grams of NaF form when 0.500 mol of HF reacts with excess Na_2SiO_3?

c. How many grams of Na_2SiO_3 can react with 0.800 g of HF?

2. $C_6H_{12}O_6$ (aq) → 2 C_2H_5OH (aq) + 2 CO_2 (g)

a. How many moles of CO_2 are produced when 0.400 mol of $C_6H_{12}O_6$ reacts in this fashion?

b. How many grams of $C_6H_{12}O_6$ are needed to form 7.50 g of C_2H_5OH?

c. How many grams of CO_2 form when 7.50 g of C_2H_5OH are produced?

3. Fe_2O_3 (s) + CO (g) → Fe(s) + CO_2 (g) (unbalanced!)

a. Calculate the number of grams of CO that can react with 0.150 kg of Fe_2O_3

b. Calculate the number of grams of Fe and the number of grams of CO_2 formed when 0.150 kg of Fe_2O_3 reacts

4. $2\ NaOH\ (s) + CO_2\ (g) \rightarrow Na_2CO_3\ (s) + H_2O\ (l)$

a. Which reagent is the limiting reactant when 1.85 mol NaOH and 1.00 mol CO_2 are allowed to react?

b. How many moles of Na_2CO_3 can be produced?

5. $C_6H_6 + Br_2 \rightarrow C_6H_5Br + HBr$

a. What is the theoretical yield of C_6H_5Br in this reaction when 30.0 g of C_6H_6 reacts with 65.0 g or Br_2?

b. If the actual yield of C_6H_5Br was 56.7 g, what is the percent yield?