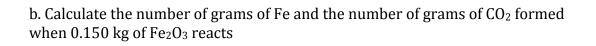
## Stoichiometry Worksheet

- 1.  $Na_2SIO_3(s) + 8 HF(aq) \rightarrow H_2SiF_6(aq) + 2 NaF(aq) + 3 H_2O(l)$
- 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<sub>2</sub>SiO<sub>3</sub>?
- c. How many grams of Na<sub>2</sub>SiO<sub>3</sub> can react with 0.800 g of HF?
- 2.  $C_6H_{12}O_6$  (aq)  $\rightarrow$  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<sub>6</sub>H<sub>12</sub>O<sub>6</sub> are needed to form 7.50 g of C<sub>2</sub>H<sub>5</sub>OH?
- c. How many grams of CO<sub>2</sub> form when 7.50 g of C<sub>2</sub>H<sub>5</sub>OH are produced?
- 3.  $Fe_2O_3(s) + CO(g) \rightarrow Fe(s) + CO_2(g)$  (unbalanced!)
- a. Calculate the number of grams of CO that can react with  $0.150\; kg$  of  $Fe_2O_3$



4. 2 NaOH (s) + CO<sub>2</sub> (g) 
$$\rightarrow$$
 Na<sub>2</sub>CO<sub>3</sub> (s) + H<sub>2</sub>O (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<sub>2</sub>CO<sub>3</sub> 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?