

# Stoichiometry Worksheet #2

①

$$(a) \begin{array}{l} 1 \text{ mol} = 18 \text{ g} \\ \times \quad 2.46 \text{ g} \end{array} \quad \underline{0.14 \text{ mol}}$$

$$(b) \frac{x}{2} \text{ C}_4\text{H}_{10} = \frac{.14}{10} \text{ H}_2\text{O} \quad \underline{0.028 \text{ mol}}$$

$$(c) \begin{array}{l} 1 \text{ mol} = 58.1 \text{ g} \\ .028 \text{ mol} = x \end{array} \quad \underline{1.6 \text{ g}}$$

$$(d) \frac{0.028}{2} \text{ C}_4\text{H}_{10} = \frac{x}{13} \text{ O}_2 \quad \underline{0.182 \text{ mol}}$$

$$\begin{array}{l} 1 \text{ mol} = 32 \text{ g} \\ .182 \quad \times \end{array} \quad \underline{5.8 \text{ g}}$$

②

$$1 \text{ mol C}_8\text{H}_{10} = 106.1 \text{ g} \quad 1.45 \text{ mol C}_8\text{H}_{10}$$

$$\times \quad 154 \text{ g}$$

$$\frac{1.45}{1} \text{ C}_8\text{H}_{10} = \frac{x}{1} \text{ C}_8\text{H}_6\text{O}_4$$

$$\underline{1.45 \text{ mol}}$$

$$1 \text{ mol C}_8\text{H}_6\text{O}_4 = 166.06$$

$$1.45 \text{ mol} = x$$

$$\underline{240.8 \text{ g}}$$

③

$$(a) \frac{x}{5} \text{ O}_2 = \frac{40}{2} \text{ C}_6\text{H}_{10}\text{O}_4 \quad 100 \text{ mol}$$

$$(b) \begin{array}{l} 1 \text{ mol C}_6\text{H}_{12} = 84.12 \text{ g} \\ \times \quad 164 \text{ g} \end{array} \quad 1.95 \text{ mol}$$

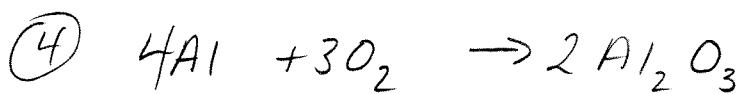
$$\frac{1.95}{1} \text{ C}_6\text{H}_{12} = \frac{x}{2} \text{ C}_6\text{H}_{10}\text{O}_4$$

$$\underline{3.9 \text{ mol}}$$

$$1 \text{ mol C}_6\text{H}_{10}\text{O}_4 = 146.1 \text{ g}$$

$$3.9 \text{ mol} = x$$

$$\underline{569.8 \text{ g}}$$



$$\begin{array}{l} 1 \text{ mol Al} = 27 \text{ g} \\ \times \qquad \qquad \quad 5 \text{ g} \end{array} \quad .19 \text{ mol Al}$$

$$\frac{.19 \text{ Al}}{4} = \frac{x}{3} \text{ O}_2$$

$$1 \text{ mol O}_2 = 32 \text{ g}$$

$$.143 \text{ mol} = x$$

$$\underline{0.143 \text{ mol}}$$

$$\underline{4.58 \text{ g}}$$

$$(5) \quad \begin{array}{l} 1 \text{ mol Fe}_2\text{O}_3 = 159.6 \text{ g} \\ \times \qquad \qquad \quad 16.5 \text{ g} \end{array} \quad .103 \text{ mol}$$

$$\frac{x}{2} \text{ Fe} = \frac{.103}{1} \text{ Fe}_2\text{O}_3$$

$$1 \text{ mol Fe} = 55.8 \text{ g}$$

$$.206 = x$$

$$.206 \text{ mol}$$

$$\underline{11.5 \text{ g}}$$

$$(6) \quad \begin{array}{l} 1 \text{ mol ICl} = 162.4 \text{ g} \\ \times \qquad \qquad \quad 28.6 \text{ g} \end{array} \quad 0.176 \text{ mol}$$

$$\frac{x}{2} \text{ I}_2 = \frac{.176}{5} \text{ ICl}$$

$$1 \text{ mol I}_2 = 253.8 \text{ g}$$

$$.0704 = x$$

$$.0704 \text{ mol}$$

$$\underline{17.9 \text{ g}}$$

$$(7) \quad \begin{array}{l} 1 \text{ mol KNO}_2 = 85.1 \text{ g} \\ \times \qquad \qquad \quad 11.4 \text{ g} \end{array} \quad 0.134 \text{ mol}$$

$$\frac{.134}{5} \text{ KNO}_2 = \frac{x}{2} \text{ KMnO}_4$$

$$1 \text{ mol KMnO}_4 = 158 \text{ g}$$

$$.054 = x$$

$$\underline{.054 \text{ mol}}$$

$$\underline{8.5 \text{ g}}$$

$$(8) \quad \begin{array}{l} 1 \text{ mol HF} = 20.01 \text{ g} \\ \times \qquad \qquad \quad 63.4 \text{ g} \end{array} \quad 3.17 \text{ mol}$$

$$\frac{3.17}{4} \text{ HF} = \frac{x}{1} \text{ SiF}_4$$

$$1 \text{ mol SiF}_4 = 104.1 \text{ g}$$

$$0.79 \text{ mol} = x$$

$$0.79 \text{ mol}$$

$$\underline{82.2 \text{ g}}$$

$$\textcircled{9} \text{ (a) } \begin{array}{l} 1 \text{ mol CuSO}_4 = 159.6 \text{ g} \\ \times \qquad \qquad \qquad 10.4 \text{ g} \\ \hline 0.065 \text{ mol} \end{array}$$

$$\frac{.065}{2} \text{ CuSO}_4 = \frac{x}{4} \text{ HI}$$

$$0.13 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol HI} = 127.91 \text{ g} \\ 0.13 = x \\ \hline 16.6 \text{ g} \end{array}$$

$$\frac{.065}{2} \text{ CuSO}_4 = \frac{x}{2} \text{ CuI}$$

$$0.065 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol CuI} = 190.4 \text{ g} \\ 0.065 = x \\ \hline 12.4 \text{ g} \end{array}$$

$$\frac{.065}{2} \text{ CuSO}_4 = \frac{x}{2} \text{ H}_2\text{SO}_4$$

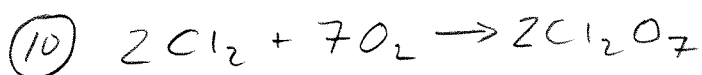
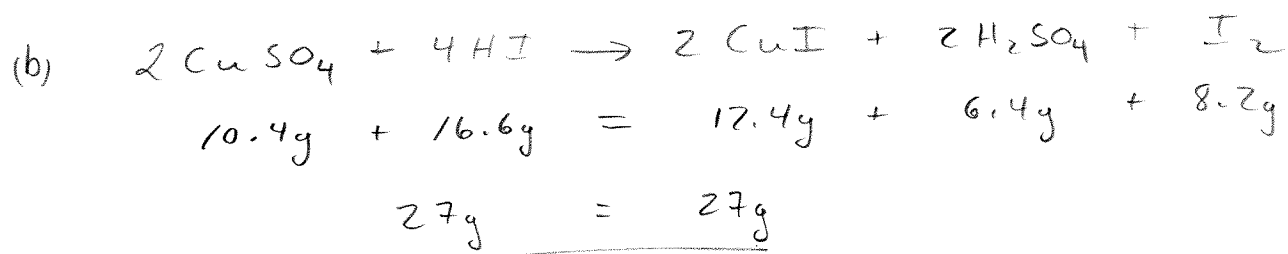
$$0.065 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol H}_2\text{SO}_4 = 98.12 \text{ g} \\ 0.065 = x \\ \hline 6.4 \text{ g} \end{array}$$

$$\frac{.065}{2} \text{ CuSO}_4 = \frac{x}{1} \text{ I}_2$$

$$0.0325 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol I}_2 = 253.8 \text{ g} \\ 0.0325 = x \\ \hline 8.2 \text{ g} \end{array}$$



$$\begin{array}{l} 1 \text{ mol Cl}_2 = 71 \text{ g} \\ \times \qquad \qquad = 2.56 \text{ g} \\ \hline 0.036 \text{ mol} \end{array}$$

$$\frac{.036}{2} \text{ Cl}_2 = \frac{x}{7} \text{ O}_2$$

$$\underline{0.126 \text{ mol}}$$

$$\begin{array}{l} 1 \text{ mol O}_2 = 32 \text{ g} \\ 0.126 \text{ mol} = x \\ \hline 4.0 \text{ g} \end{array}$$

$$\textcircled{11} \quad \begin{array}{l} 1 \text{ mol } \text{NH}_3 = 17.03 \text{ g} \\ \times \qquad \qquad \qquad 56.8 \text{ g} \end{array} \quad 3.34 \text{ mol}$$

$$\frac{3.34}{4} \text{ NH}_3 = \frac{x}{5} \text{ O}_2$$

$$\underline{4.175 \text{ mol}}$$

$$\begin{array}{l} 1 \text{ mol } \text{O}_2 = 32 \text{ g} \\ 4.175 \text{ mol} = x \end{array}$$

$$\underline{133.6 \text{ g}}$$

$$\textcircled{12} \quad \begin{array}{l} 1 \text{ mol } \text{NaIO}_3 = 197.9 \text{ g} \\ \times \qquad \qquad \qquad 16.4 \text{ g} \end{array} \quad 0.083 \text{ mol}$$

$$\frac{0.083}{1} \text{ NaIO}_3 = \frac{x}{3} \text{ I}_2$$

$$\underline{0.249 \text{ mol}}$$

$$\begin{array}{l} 1 \text{ mol } \text{I}_2 = 253.8 \text{ g} \\ 0.249 = x \end{array}$$

$$\underline{63.2 \text{ g}}$$

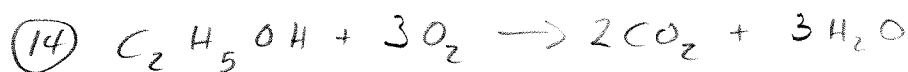
$$\textcircled{13} \quad \begin{array}{l} 1 \text{ mol } \text{Ni} = 58.7 \text{ g} \\ \times \qquad \qquad \qquad 15.32 \text{ g} \end{array} \quad 0.26 \text{ mol}$$

$$\frac{0.26}{1} \text{ Ni} = \frac{x}{2} \text{ Ag}$$

$$0.52 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol } \text{Ag} = 107.9 \text{ g} \\ 0.52 = x \end{array}$$

$$\underline{56.1 \text{ g}}$$



$$\begin{array}{l} 1 \text{ mol } \text{C}_2\text{H}_5\text{OH} = 46.06 \text{ g} \\ \times \qquad \qquad \qquad 23 \text{ g} \end{array} \quad 0.5 \text{ mol}$$

$$\frac{.5}{1} \text{ C}_2\text{H}_5\text{OH} = \frac{x}{2} \text{ CO}_2$$

$$1 \text{ mol}$$

$$1 \text{ mol } \text{CO}_2 = \underline{44 \text{ g}}$$

$$\textcircled{15} \quad \begin{array}{l} 1 \text{ mol } \text{CO} = 28 \text{ g} \\ \times \qquad \qquad \qquad 14 \text{ g} \end{array} \quad 0.5 \text{ mol}$$

$$\frac{x}{3} \text{ Fe}_2\text{O}_3 = \frac{0.5}{1} \text{ CO}$$

$$1.5 \text{ mol}$$

$$\begin{array}{l} 1 \text{ mol } \text{Fe}_2\text{O}_3 = 159.6 \text{ g} \\ 1.5 = x \end{array}$$

$$\underline{239.4 \text{ g}}$$