Stoichiometry Worksheet
1 Step Problems

Directions: Calculate the following mol to mol stoichiometry problems. Show all work! No work = no credit. Express answers in scientific notation with 3 significant figures.

$$2C_4H_{10} + 13O_2 \rightarrow 8CO_2 + 10H_2O$$

1. Given: 5.77 mol C4H10
   Unknown: mol CO2
   \[ \frac{5.77 \text{ mol C}_4\text{H}_{10}}{1} \times \frac{8 \text{ mol CO}_2}{2 \text{ mol C}_4\text{H}_{10}} = 2.31 \times 10^1 \text{ mol CO}_2 \]

2. Given: 9.15 mol H2O
   Unknown: mol O2
   \[ \frac{9.15 \text{ mol H}_2\text{O}}{1} \times \frac{13 \text{ mol O}_2}{10 \text{ mol H}_2\text{O}} = 1.19 \times 10^1 \text{ mol O}_2 \]

3. Given: 0.445 mol O2
   Unknown: mol C4H10
   \[ \frac{0.445 \text{ mol O}_2}{1} \times \frac{2 \text{ mol C}_4\text{H}_{10}}{13 \text{ mol O}_2} = 6.85 \times 10^{-2} \text{ mol C}_4\text{H}_{10} \]

4. Given: 8.11 mol CO2
   Unknown: mol H2O
   \[ \frac{8.11 \text{ mol CO}_2}{1} \times \frac{10 \text{ mol H}_2\text{O}}{8 \text{ mol CO}_2} = 1.01 \times 10^1 \text{ mol H}_2\text{O} \]

5. Given: 13.7 mol H2O
   Unknown: mol CO2
   \[ \frac{13.7 \text{ mol H}_2\text{O}}{1} \times \frac{8 \text{ mol CO}_2}{10 \text{ mol H}_2\text{O}} = 1.10 \times 10^1 \text{ mol CO}_2 \]