HW 7.23 Mole Ratios

Directions: For each problem, show all work for calculations including problem set-up, unrounded answers, proper units, and answers rounded to significant figures as appropriate.

1. Balance the equation, then answer the questions below:

   \[ \text{_____ C}_8\text{H}_{18} + \text{_____ O}_2 \rightarrow \text{_____ CO}_2 + \text{_____ H}_2\text{O} \]

   a. If 4.0 mol C\textsubscript{8}H\textsubscript{18} are reacted, how many moles CO\textsubscript{2} are produced?

   b. If 48 mol CO\textsubscript{2} are produced, how many moles of H\textsubscript{2}O are produced?

2. Balance the equation, then answer the questions below:

   \[ \text{_____ SO}_2 + \text{_____ Li}_2\text{Se} \rightarrow \text{_____ SSe}_2 + \text{_____ Li}_2\text{O} \]

   a. If 2.21 mol SSe\textsubscript{2} are produced, how many moles Li\textsubscript{2}Se were reacted?

   b. If 18 molecules of SO\textsubscript{2} are reacted, how many molecules of Li\textsubscript{2}O are produced?
3. Balance the equation, then answer the questions below:

\[ \text{____}_C_5H_{12} + \text{____} O_2 \rightarrow \text{____} CO_2 + \text{____} H_2O \]

a. If 2.55 mol \( C_5H_{12} \) are reacted, how many moles \( O_2 \) are reacted?

b. If 352 molecules \( CO_2 \) are produced, how many molecules of \( H_2O \) are produced?

4. For the following balanced equation, answer the questions below:

\[ 4 \text{Cs}_3\text{PO}_4 + 3 \text{Mn(NO}_3\text{)_4} \rightarrow 12 \text{CsNO}_3 + \text{Mn}_3(\text{PO}_4)_4 \]

a. If 0.25mol \( \text{Cs}_3\text{PO}_4 \) are reacted, how many moles \( \text{CsNO}_3 \) are produced?

b. If 1.79 mol \( \text{CsNO}_3 \) are produced, how many moles of \( \text{Mn}_3(\text{PO}_4)_4 \) are produced?