

### Mole Ratios

#### Let's Practice!

Given the following balanced chemical equation,  $\text{CO}_2(\text{g}) + 4 \text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g}) + 2 \text{H}_2\text{O}(\text{l})$ , write the mole ratio need to calculate:

a. The moles of  $\text{H}_2\text{O}$  produced from 3 moles of  $\text{CO}_2$

b. The moles of  $\text{H}_2$  needed to produce 3 moles of  $\text{H}_2\text{O}$ .

### Mole Ratios

#### Let's Practice!

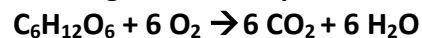
Given the following balanced chemical equation, what is the mole ratio needed to calculate the following: the moles of  $\text{KCl}$  produced when 4.5 moles of  $\text{O}_2$  are formed?



### Mole-Mole Calculations

#### Let's Practice!

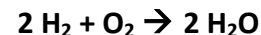
How many moles of  $\text{CO}_2$  will be produced by reaction of 2.0 mol of glucose, given the following balanced equation?



### Mole-Mole Calculations

#### Let's Practice!

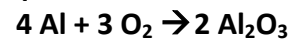
How many  $\text{H}_2\text{O}$  molecules are produced when 0.010 mol  $\text{O}_2$  react, given the following balanced equation?



### Mole-Mole Calculations

#### Let's Practice!

How many moles of  $\text{Al}$  are produced when 0.5 mol of  $\text{O}_2$  react, given the following balanced equation?



### Mass-Mole Calculations

#### Let's Practice!

What mass of  $\text{H}_2$  can be produced when 6.0 mol of  $\text{Al}$  reacts with  $\text{HCl}$ ?



### Mole-Mass Calculations

#### Let's Practice!

How many moles of water are produced when 325 g of octane (C<sub>8</sub>H<sub>18</sub>) are burned?



### Mass-Mass Calculations

#### Let's Practice!

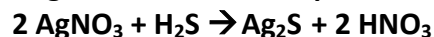
How many grams of CrCl<sub>3</sub> are required to produce 75.0 g of AgCl using the following reaction?



### Mole-Mass Calculations Practice

#### Let's Practice!

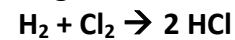
How many grams of AgNO<sub>3</sub> are needed to produce 0.25 mol of Ag<sub>2</sub>S?



### Limiting Reactant Problems

#### Let's Practice!

How many moles of HCl can be produced from 4.0 mol of H<sub>2</sub> and 3.5 mol of Cl<sub>2</sub>? What is the limiting reactant?



### Mass-Mass Calculations

#### Let's Practice!

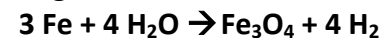
How many grams of HNO<sub>3</sub> are required to produce 8.75 g of N<sub>2</sub>O from the following reaction?



### Limiting Reactant Problems

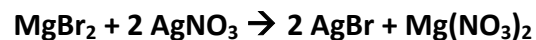
#### Let's Practice!

How many moles of Fe<sub>3</sub>O<sub>4</sub> can be produced from 16.8 g Fe and 10.0 g H<sub>2</sub>O? What is the limiting reactant?



**Limiting Reactant Problems****Let's Practice!**

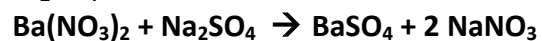
How many grams of AgBr can be produced from 50.0 g MgBr<sub>2</sub> and 100.0 g AgNO<sub>3</sub>?



How much excess reactant remains?

**Limiting Reactant Problems****Let's Practice!**

How many grams of BaSO<sub>4</sub> can be produced from 200.0 g of Ba(NO<sub>3</sub>)<sub>2</sub> and 100.0 g of Na<sub>2</sub>SO<sub>4</sub>?

**% Yield****Let's Practice!**

Calculate the percent yield of AgBr if 375.0 g of the compound are prepared from 200.0 g of MgBr<sub>2</sub>.

**% Yield****Let's Practice!**

Calculate the percent yield of Al<sub>2</sub>O<sub>3</sub> if 125.0 g of Al give 100.0 g of Al<sub>2</sub>O<sub>3</sub>.

