

Name \_\_\_\_\_  
Period \_\_\_\_\_

Date \_\_\_\_\_

## Mole Ratio Worksheet

1) Given this equation:  $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$ , write the following molar ratios:

a)  $\text{N}_2 / \text{H}_2$

b)  $\text{N}_2 / \text{NH}_3$

c)  $\text{H}_2 / \text{NH}_3$

2) Given the following equation:  $8 \text{H}_2 + \text{S}_8 \rightarrow 8 \text{H}_2\text{S}$ , write the following molar ratios:

a)  $\text{H}_2 / \text{H}_2\text{S}$

b)  $\text{H}_2 / \text{S}_8$

c)  $\text{H}_2\text{S} / \text{S}_8$

3) Answer the following questions for this equation:  $2 \text{H}_2 + \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$

a) What is the  $\text{H}_2 / \text{H}_2\text{O}$  molar ratio?

b) Suppose you had 20 moles of  $\text{H}_2$  on hand and plenty of  $\text{O}_2$ , how many moles of  $\text{H}_2\text{O}$  could you make?

c) What is the  $\text{O}_2 / \text{H}_2\text{O}$  molar ratio?

d) Suppose you had 20 moles of  $\text{O}_2$  and enough  $\text{H}_2$ , how many moles of  $\text{H}_2\text{O}$  could you make?

4) Use this equation:  $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$ , for the following problems

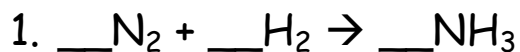
a) If you used 1 mole of  $\text{N}_2$ , how many moles of  $\text{NH}_3$  could be produced?

b) If 10 moles of  $\text{NH}_3$  were produced, how many moles of  $\text{N}_2$  would be required?

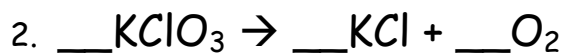
c) If 3.00 moles of  $\text{H}_2$  were used, how many moles of  $\text{NH}_3$  would be made?

d) If 0.600 moles of  $\text{NH}_3$  were produced, how many moles of  $\text{H}_2$  are required?

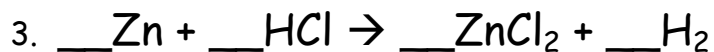
## Mole/Mole Ratio Problems



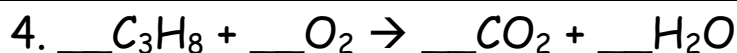
- a. How many moles of hydrogen are needed to completely react with two moles of nitrogen?
- b. How many moles of nitrogen trihydride can be produced with 5 moles of nitrogen?
- c. How many moles of nitrogen are needed to produce .5 moles of nitrogen trihydride?
- d. How many liters of nitrogen trihydride can be produced from 24 liters of nitrogen gas?



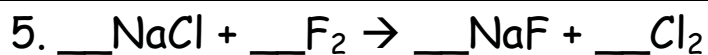
- a. How many moles of oxygen are produced by the decomposition of six moles of potassium chlorate?
- b. How many moles of potassium chloride are produced by the decomposition of .75 moles of potassium chlorate?
- c. How many moles of potassium chlorate are needed to produce 100 moles of oxygen?
- d. How many liters of oxygen will the decomposition of 100 liters of potassium chlorate produce?



- How many moles of hydrogen are produced from the reaction of three moles of zinc?
- How many moles zinc are needed to produce 3.5 moles of zinc chloride?
- How many moles of hydrogen can 15 moles hydrogen chloride produce?
- How many liters hydrogen chloride are needed react with 11 liters of zinc?



- How many moles of oxygen are necessary to react completely with four moles of Propane ( $\text{C}_3\text{H}_8$ )?
- How many moles of Propane ( $\text{C}_3\text{H}_8$ ) are needed to produce 25 moles of carbon dioxide?
- How many moles of water will 3 moles of propane ( $\text{C}_3\text{H}_8$ ) produce?
- How many liters of Propane ( $\text{C}_3\text{H}_8$ ) are needed to react with 75 liters of oxygen?



- How many moles of fluorine are needed to produce 3.2 moles of sodium chloride?
- How many moles of chlorine can be produced by using a total of 3 moles of sodium chloride?
- How many moles of sodium fluoride can five moles of fluorine produce?