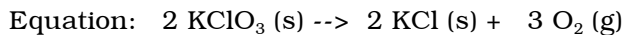


## Stoichiometry

Name: \_\_\_\_\_

Directions: Show all steps in your solution. Remember to include units in your work.

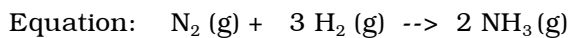
1) Oxygen gas can be produced by the decomposition of potassium chlorate into potassium chloride and oxygen.



a) How many grams of oxygen can be obtained by the decomposition of 15 grams of  $\text{KClO}_3$ ?

b) How many moles of potassium chloride are produced in the same reaction?

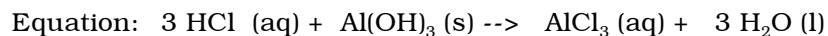
2) Ammonia gas ( $\text{NH}_3$ ) can be synthesized by the reaction of nitrogen gas with hydrogen gas.



a) How many grams of nitrogen **and** hydrogen must be used to produce 240 grams of ammonia?

b) How many grams of ammonia would be produced by the reaction of 5.00 g of nitrogen with excess hydrogen (more hydrogen than is needed)?

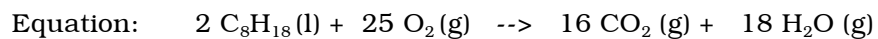
3) The hydrochloric acid (HCl) secreted in your stomach can be neutralized by antacid products which contain aluminum hydroxide.



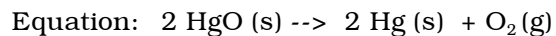
a) How many grams of aluminum hydroxide are required to neutralize 0.220 moles of stomach acid?

b) What mass of water would be produced by the reaction?

4) If a car engine burns 500. grams of octane ( $\text{C}_8\text{H}_{18}$ ) when idling for one hour, how many grams of carbon dioxide are produced?



5) How many grams of oxygen gas are produced by the decomposition of 175 grams of mercury (II) oxide?



Answers:

1a) 5.88 g oxygen gas

3a) 5.72 aluminum hydroxide

2a) 42 g hydrogen gas, 198 g nitrogen gas

4) 1544 g carbon dioxide