

Name _____ Date _____ Period _____

Chapter 12 Stoichiometry Review

Directions: Show all work!!! No Work Shown, no credit given! Include all units and chemical formulas.

- For the following equation answer these questions: $3\text{PbCl}_2 + \text{Al}_2(\text{SO}_4)_3 \rightarrow 2\text{AlCl}_3 + 3\text{PbSO}_4$
 - What mass of PbCl_2 is needed to produce 128 g of PbSO_4 ?
 - What is the limiting reactant if you have 65.45 g of **each** reactant?
 - What is the excess reactant?, How many grams of excess reactant are left over?
 - What is the theoretical yield in grams of the Aluminum Chloride if you react 85 g of PbCl_2 ?
 - If the actual yield is 42.5 g, what is the % yield?
- Balance the following equation and work the problem. $\text{FeS} + \text{HCl} \rightarrow \text{H}_2\text{S} + \text{FeCl}_2$
 - What mass of Iron(II) Sulfide (FeS) is needed to produce 42.3 L of H_2S ?
 - If 62.43 g of HCl is reacted with excess FeS how many grams of FeCl_2 is produced?
 - What is the limiting reactant if you have 23.50 g of each reactant?
 - What is the excess reactant? How many grams of excess reactant are left over?
 - What is the theoretical yield in grams of the FeCl_2 if you react 22.35 g FeS with excess HCl ?
 - If the actual yield is 12.5 g, what is the % yield?
- Balance the following equation and work the problems below: $\text{N}_2 + \text{H}_2 \rightarrow \text{NH}_3$
 - If 6.52 L of H_2 react with excess nitrogen what volume of NH_3 is produced?
 - In order to produce 6.52 L of NH_3 how many liters of nitrogen are needed?
- Use the following equation answer these questions: $\text{Mg} + 2\text{HNO}_3 \rightarrow \text{Mg}(\text{NO}_3)_2 + \text{H}_2$
 - If I start this reaction with 40 grams of magnesium and an excess of nitric acid, how many grams of hydrogen gas will I produce?
 - If 1.7 grams of hydrogen is actually produced, what was my percent yield of hydrogen?
- Use the following equation answer these questions: $\text{NaHCO}_3 \rightarrow \text{NaOH} + \text{CO}_2$
 - If 25 grams of carbon dioxide gas is produced in this reaction, how many grams of sodium hydroxide should be produced?
 - If 50 grams of sodium hydroxide are actually produced, what was my percent yield?
- Use the following equation answer these questions: $2\text{FePO}_4 + 3\text{Na}_2\text{SO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + 2\text{Na}_3\text{PO}_4$
 - If I start with 25 g of FePO_4 how many grams of $\text{Fe}_2(\text{SO}_4)_3$ can I make?
 - If 18.5 grams of $\text{Fe}_2(\text{SO}_4)_3$ are actually made what is the percent yield for this experiment?
- Use the following equation answer these questions: $\text{C}_{12}\text{H}_{22}\text{O}_{11} + 12\text{O}_2 \rightarrow 12\text{CO}_2 + 11\text{H}_2\text{O}$
 - If there are 10.0 g of $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ and 10.0 g of oxygen reacting. Which is the limiting reagent?
- Use the following equation to answer these questions: $2\text{Na}_{(s)} + 2\text{H}_2\text{O}_{(l)} \rightarrow 2\text{NaOH}_{(aq)} + \text{H}_{2(g)}$
 - If 90.0 grams of sodium is dropped into 80.0 g of water, how many liters of hydrogen would be produced? (HINT: find limiting reacting first)
 - Which reactant is in excess, and how much of it is left over?
- Use the following equation to answer these questions: $\text{P}_4(s) + 5\text{O}_2(g) \rightarrow \text{P}_4\text{O}_{10}(g)$
 - If 2.50 grams of phosphorus is ignited in a flask containing 750 mL of oxygen how many grams of P_4O_{10} are formed? (HINT: find limiting reacting first)
 - Which reactant is in excess and how much of it is left over?