

Honors Unit 6 Review

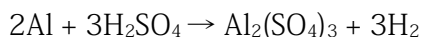
Name_____

1. Define the following:

- | | |
|----------------------|----------------------|
| a. Molar mass | g. Excess reagent |
| b. Mole | h. Theoretical yield |
| c. Mole ratio | i. Actual yield |
| d. Molecular formula | j. Percent yield |
| e. Empirical formula | k. Molarity |
| f. Limiting reagent | |

Stoichiometry: Moles to Moles , Mass to Mass

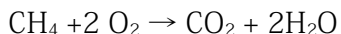
Use the following equation for problems 2-5.



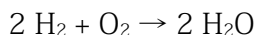
- Write 6 mole ratios that can be derived from the above equation.
- If you have 5 mole of Al, how many moles of hydrogen can you produce?
- If you have 95 g of H_2SO_4 , how many moles of Al do you need to react fully?
- How many grams of $\text{Al}_2(\text{SO}_4)_3$ would be produced from 13.6 g of Al?

Stoichiometry: Limiting Reagents and Percent Yield

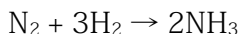
- The burning of 18.0 g of methane produces 55.0 g of carbon dioxide. What is the theoretical yield of CO_2 ? What is the percent yield?



- Calculate the mass of water produced from the reaction of 24.0 g of H_2 and 160.0g of O_2 . What is the limiting reagent? How much of the excess reagent is left over?



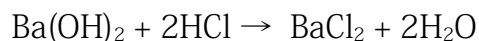
- What is the limiting reagent when 49.84 g of nitrogen react with 10.7 g of hydrogen to make ammonia?



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Molarity and Dilutions

9. How many moles of P_2O_5 are present in 75 mL of a 4 M solution?
10. What is the molarity of a solution made from 55 g of KNO_3 diluted to 500 mL?
11. If you have a stock solution of H_2SO_4 that is 18M and you want 275 mL of a 3 M solution of H_2SO_4 , how much of the stock solution would need to use?
12. How many mL would you need of 2 M HCl solution to get 3.5 g of BaCl_2 from the following reaction:



13. If 36.0 mL of H_3PO_4 react exactly with 80.0 mL of 0.500 M NaOH , what is the concentration of the phosphoric acid?
14. Throwing some scrap iron in a gold (III) nitrate solution causes the gold metal to precipitate. How much 0.50 M gold nitrate solution would react with 224 grams of iron metal? (Iron (II) nitrate and gold metal are the products)