

Unit 4 – Chapter 4: Types of Reactions

Name _____

Take Home Quiz: Solutions, Dilutions, Stoichiometry, Limiting Reagents

Period _____

- 1)
 - a. How many grams of potassium dichromate, $\text{K}_2\text{Cr}_2\text{O}_7$, need to be dissolved to achieve a total volume of 50.0 mL of 0.360 molar solution?

 - b. 4.28 grams of ammonium sulfate, $(\text{NH}_4)_2\text{SO}_4$, is mixed to a total volume of 300 mL of solution. What is the molarity of this solution?

 - c. How many **mL** of solution are made when 2.25 g of copper (II) sulfate, CuSO_4 , is used to make a 0.238 *M* solution?

- 2)
 - a. What volume of a 14.8 *M* stock solution is needed to make 100.0 mL of a 0.250 *M* dilution?

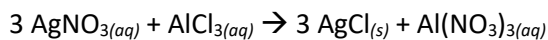
 - b. What is the molarity of a solution if 10.0 mL of a 14.8 *M* solution is diluted to a final volume of 250.0 mL?

- 3)
 - a. How much of a 10.0 *M* stock solution is needed to create 0.350 L of a 0.400 *M* solution?

 - b. 500.0 mL of a dilute solution is generated by using 25 mL of a 10.0 *M* stock solution. What is the concentration of the new solution?

- 4) What is the molarity of solution if 1.049 grams of acetic acid, CH_3COOH , is added to a volume totaling 20.00 mL of solution?

- 5) 0.020 L of a 0.100 M silver nitrate, AgNO_3 , solution completely reacts with aluminum chloride to form silver chloride and aluminum nitrate. How many grams of aluminum chloride are required for the reaction to occur?



- 6) How many grams of NaOH are required to completely react with 25.0 mL of a 0.500 M $\text{Cd}(\text{NO}_3)_2$ solution if the reaction reacts completely? The products are cadmium hydroxide and sodium nitrate (hint: write and balance the equation first!).

- 7) 150 mL of a 0.20 M iron (III) sulfate solution is mixed with 100 mL of a 0.60 M lithium hydroxide solution. How many grams of iron (III) hydroxide are produced?

