

**Unit 4 – Chapter 4: Types of Reactions**

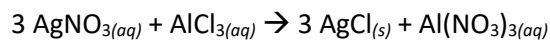
Name \_\_\_\_\_

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

Period \_\_\_\_\_

- 1)
  - a. How many grams of potassium dichromate,  $K_2Cr_2O_7$ , 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,  $(NH_4)_2SO_4$ , 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,  $\text{AgNO}_3$ , 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 (II) sulfate solution is mixed with 100 mL of a 0.60 M lithium hydroxide solution. How many grams of iron (III) hydroxide are produced?

