Name: _____Per__

Unit 8 Review

Solutions

Solution Concentration and Solution Dilution

1. Calculate the concentration of a 4.0 L solution that contains 2.4 mol of NaCl.

2. How many moles of magnesium chloride are contained in 500 mL of a 0.40 M solution? What mass of magnesium chloride is present in the solution?

3. 1.2 L 0f 0.10 M CaI_2 solution is diluted to a final volume of 3.0 L. Calculate the final concentration. Determine the mass of CaI_2 present in the solution.

4. 2.5 L of 0.80 M potassium chloride solution is diluted to give a solution with a final concentration of 0.50 M. Calculate the final volume of the solution. What volume of water was added to dilute the solution?

Dissociation

5. Write dissociation equations for the following compounds. Calculate the concentration of each ion in solution.
    a. 0.30 M K_2SO_4

    b. 2.5×10^{-3} Na_3PO_4

6. Calculate the concentration of each ion resulting from mixing the following solutions, given that no reaction occurs.
    a. 2.0 L of 0.10 M HCl mixed with 3.0 L of 0.15 M $Ca(C_2H_3O_2)_2$

    b. 300 mL of 0.015 M $MgCl_2$ mixed with 600 mL of 0.018 M $Mg(NO_3)_2$.

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Solubility

7. Determine whether the following compounds are soluble or insoluble in water
    a. $SrSO_4$
    b. K_3PO_4
    c. ZnS
    d. $CuCl_2$

8. Write the formula equation, complete ionic equation, and net ionic equation for the following reactions.
    a. Sodium fluoride and strontium nitrate

    b. $K_2CO_3 + AlCl_3$

Solution Stoichiometry

9. Barium chloride reacts with sodium sulfate. Given the balanced chemical equation for this reaction. IF 125 mL of 0.40 M barium chloride solution is reacted with 200 mL of sodium sulfate solution, what molarity of sodium sulfate solution is required? What would be the mass of each of the products?

10. Silver nitrate is reacted with calcium chloride. Give the balanced chemical equation for this reaction. If 50.0 mL of 0.150 M silver nitrate solution is reacted with 40.0 mL of 0.120 M calcium chloride solution, which reactant is limiting and which is excess? What would be the mass of each of the products? Give the net ionic equation for the reaction.