Solutions Review

\*\*Remember that we covered solubility as well\*\*

\*\*Review HW as well\*\*

1. A solution of sodium phosphate is prepared by dissolving 3.95 g of sodium phosphate in water, diluting it to 300.0 mL. What is the molarity of the salt and each of the ions?
2. What is the molarity of a solution in which 1.6 g of sodium hydroxide are dissolved in 125 mL of solution? What is the molarity of each of the ions?
3. What is the molarity of a solution in which 5.0 g of sodium carbonate are dissolved in 200. mL of solution?
4. Calculate the mass of solid sodium iodide that must be added to 2.50 L of a 0.125 *M* lead (II) nitrate solution to precipitate ALL of the lead as PbI2 (s).
5. What mass of Pb2+ could be precipitated from a solution of the addition of 0.785 L of a 0.0015 *M* sodium iodide solution?
6. When aqueous solutions of silver nitrate and sodium chloride are mixed, solid silver chloride is precipitated. What mass of silver chloride would be formed by the addition of 75.00 mL to 3.17 *M* NaCl and 128 mL of 2.44 *M* silver nitrate?
7. When aqueous silver nitrate and sodium chromate solutions are mixed, solid silver chromate forms in a solution of sodium nitrate. If 257.8 mL of a 0.0468 *M* solution of silver nitrate is added to 156.00 mL of a 0.0950 *M* solution of sodium chromate, what mass of silver chromate (MM = 331.8 g/mol) will be formed?
8. If I combined 15.0 grams of calcium hydroxide with 75.0 mL of 0.500 M HCl, how many grams of calcium chloride would be formed?
   1. What is the limiting reagent from the reaction?
   2. How many grams of the excess reagent will be left over after the reaction is complete?
9. How many mL of a 0.150 M sodium iodide solution must be added to 75.0 mL of a 0.250 M lead (II) nitrate solution to precipitate all of the lead?
10. The neutralization of 25.0 mL of 0.24 M hydrochloric acid requires 5.0 mL of barium hydroxide. What is the molarity of the barium hydroxide solution?
11. If I add 25 mL of water to 125 mL of a 0.15 M NaOH solution, what will the molarity of the diluted solution be?
12. Draw diagrams of both solutions in #11
13. If I add water to 100 mL of a 0.15 M NaOH solution until the final volume is 150 mL, what will the molarity of the diluted solution be?
14. How much 0.05 M HCl solution can be made by diluting 250 mL of 10 M HCl?
15. I have 345 mL of a 1.5 M NaCl solution. If I boil the water until the volume of the solution is 250 mL, what will the molarity of the solution be?
16. How much water would I need to add to 500 mL of a 2.4 M KCl solution to make a 1.0 M solution?
17. Sea water contains roughly 28.0 g of NaCl per liter. What is the molarity of sodium chloride in sea water?
18. What is the molarity of 5.30 g of calcium chloride dissolved in 400.0 mL solution?
19. Draw a diagram of the solution in #19. Also, draw a diagram of a sugar (C6H12O6) solution. Explain the differences.
20. How many moles of phosphoric acid are there in 10.0 L of 2.0 M solution?
21. What is the concentration of sodium ions in 10.0 mL of a 2.0 M Na2CO3 solution?
22. What volume (in mL) of 18.0 M H2SO4 is needed to contain 2.45 g H2SO4?
23. How many grams of Ca(OH)2 are needed to make 100.0 mL of 0.250 M solution?
24. What is the molarity of a solution made by dissolving 20.0 g of H3PO4 in 50.0 mL of solution?
25. Given 5.2 x105 mL of 1.49 M H2CO3 reacting with 3.74 L of copper(II) nitrate, what is the Molarity of the Copper (II)Nitrate?