Lesson 130: Molarity Practice Problems

1. How many grams of potassium carbonate are needed to make 280 mL of a 2.5 M solution?

2. How many liters of water are needed to make a 4.00 M solution using 75.0 grams of lithium bromide?

3. What is the concentration if I have 450 mL of iron (II) chloride solution that contains 9.6 grams of iron (II) chloride solute?

4. How many grams of ammonium sulfate are needed to make a 0.25 L of solution at a concentration of 6.0 M?

5. If I have 2.5 L of a solution that contains 660 grams of calcium phosphate, what is this solution's concentration?

6. Extra Credit: How many grams of copper (II) fluoride are needed to make 6.7 liters of a 1.2 M solution?

Lesson 130: Molarity Practice Problems (cont.) Chemistry with Lab

1. How many liters of 0.88 M LiF solution can be made with 25.5 grams of solute?

2. What is the concentration of a solution that has a volume of 660 mL and contains 33.4 grams of aluminum acetate?

3. How many liters of 0.75 M solution can be made using 75 grams of lead (II) oxide?

4. How many kilograms of manganese (IV) oxide are needed to make 5.6 liters of a 2.1 M solution?

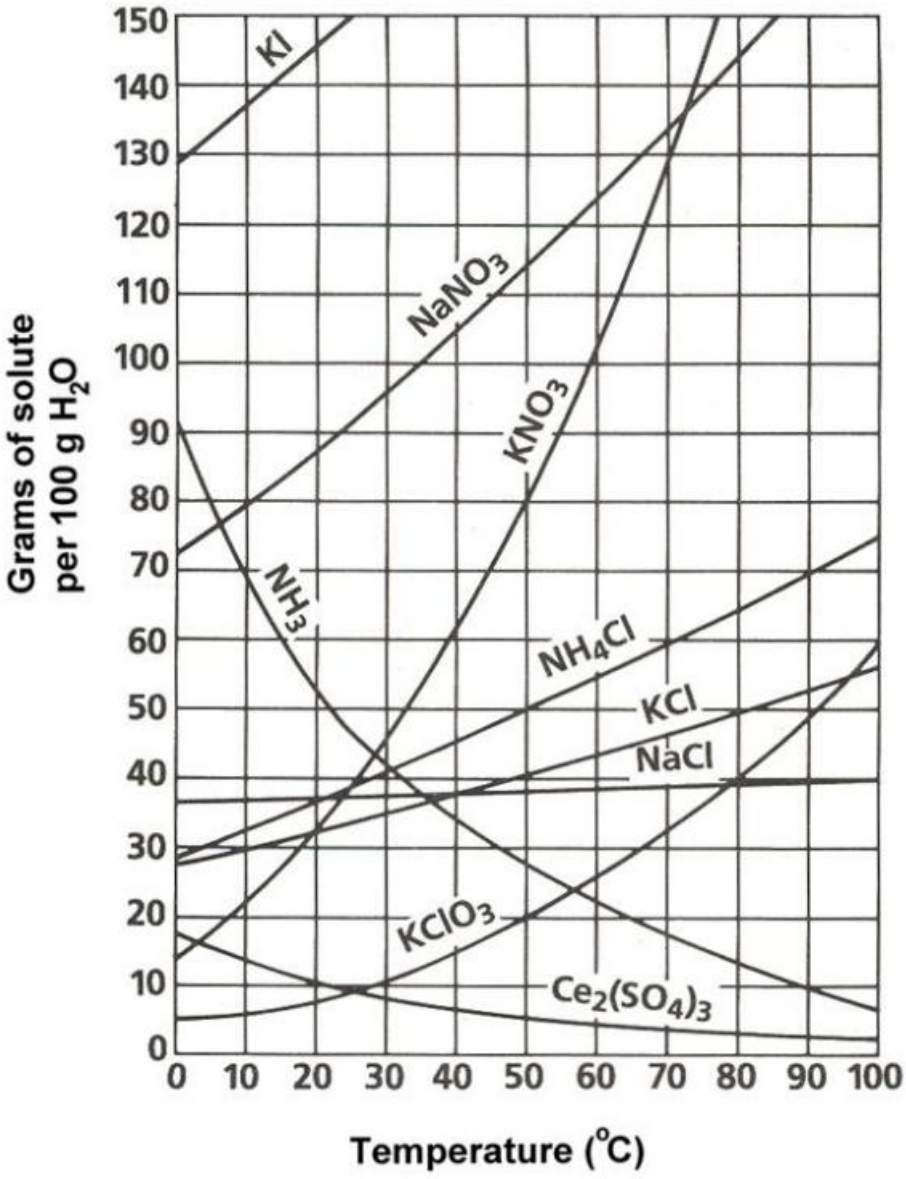
5. What is the concentration of a solution with a volume of 9.00 mL that contains 0.025 grams of iron (III) hydroxide?

6. Extra Credit: What is the concentration of a solution containing 3.3 mL of solvent and 12 grams of ammonium sulfite?

Lesson 130: Solubility Curve Worksheet

Chemistry with Lab

Use this solubility graph curve to answer the questions.



1. What are the customary units of solubility on solubility curves?

2. Define solubility.

3. According to the graph, the solubility of any substance changes as _____ changes.
4. List the substances whose solubility decreases as temperature increases.
5. Which substance is least affected by temperature changes?
6. How many grams of ammonium chloride (NH_4Cl) at 50°C?
7. _____ and _____ have the same solubility at approximately 78°C.
8. Which compound is least soluble in water at 10°C?
9. How many grams of KNO_3 can be dissolved at 50°C?
10. Are the following solutions unsaturated, saturated, or supersaturated?
    a. 45g of NaNO3 in 100 g of water at 30°C _____
    b. 60g of KClO3 in 100 g of water at 90°C _____
11. How many grams of sodium chloride, NaCl are required to saturate 100 grams of water at 100°C?
12. How many grams of $NaNO_3$ are required to saturate 100 grams of water at 75°C?
13. How many grams of KCl will saturate water at 20°C?
14. At what temperature would 25g of potassium chlorate ($KClO_3$) dissolve?

15. At what temperature would 60g of NH_4Cl dissolve?

16. 89g NaNO3 is prepared at 30°C.

    a. Will all of the salt dissolve? _____

    b. What mass of NaNO3 will dissolve at this temperature? _____

17. If 50g of NH_4Cl is dissolved at 50°C, how many additional grams of NH_4Cl would be needed to make the solution saturated at 80°C?

18. At 50°C, how many grams of KNO_3 will dissolve?

19. At 70°C, how many grams of cerium (III) sulfate ($Ce_2(SO_4)_3$) dissolve?

20. Determine if each of the following is unsaturated, saturated, or supersaturated.

    a. 55g of NH_3 at 20°C _____

    b. 10g of $Ce_2(SO_4)_3$ at 10°C _____

    c. 110g of KNO_3 at 60°C _____

    d. 65g of NH_4Cl at 80°C _____

    e. 12g of NH_3 at 90°C _____

    f. 78g of $NaNO_3$ at 10°C _____

    g. 145g of $NaNO_3$ at 80°C _____

    h. 35g of NaCl at 100°C _____