

Solubility Curve Practice Problems Worksheet



For most substances, solubility increases as temperature increases. What are the exceptions on the graph below? _____

Part One: Reading Solubility Curves

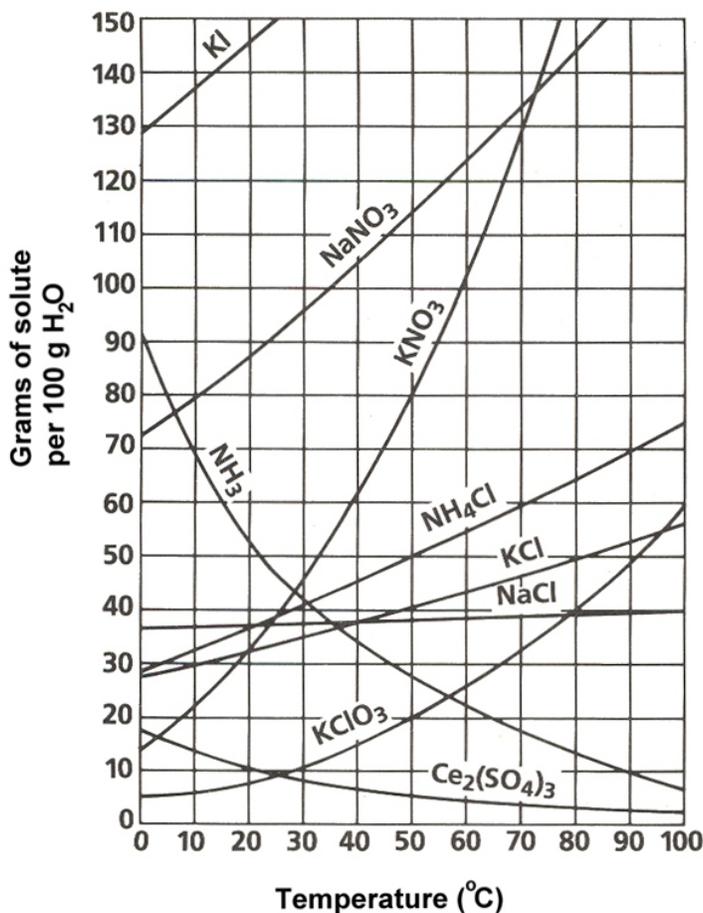
Use the graph to answer the following questions. REMEMBER UNITS!

1. What mass of solute will dissolve in **100mL** of water at the following temperatures?
 - a. KNO_3 at 70°C _____
 - b. NaCl at 100°C _____
 - c. NH_4Cl at 90°C _____
 - d. Which of the **above** three substances is most soluble in water at 15°C . _____

Part Two: Types of Solutions (saturated, unsaturated, supersaturated)

On a solubility curve, the lines indicate the concentration of a _____ **solution** - the maximum amount of solute that will dissolve at that specific temperature.

Values on the graph _____ (below, above, on) a curve represent **unsaturated solutions** - more solute could be dissolved at that temperature.



Use the solubility curve on the first page to label the following solutions as saturated or unsaturated. If unsaturated, write how much more solute can be dissolved in the solution.

Solution	Saturated or Unsaturated?	If unsaturated: How much more solute can dissolve in the solution?
a solution that contains 70g of NaNO_3 at 30°C (in 100 mL H_2O)		
a solution that contains 50g of NH_4Cl at 50°C (in 100 mL H_2O)		
a solution that contains 20g of KClO_3 at 50°C (in 100 mL H_2O)		
a solution that contains 70g of KI at 0°C (in 100 mL H_2O)		

Additional Practice:

- At 90°C , you dissolved 10 g of KCl in 100. g of water. Is this solution saturated or unsaturated?
 - How do you know?

2. A mass of 100 g of NaNO_3 is dissolved in 100 g of water at 80°C .

a) Is the solution saturated or unsaturated? _____

b) As the solution is cooled, at what temperature should solid first appear in the solution? Explain.

- Use the graph to answer the following two questions:
 Which compound is most soluble at 20°C ? _____
 Which is the least soluble at 40°C ? _____

4. Which substance on the graph is **least** soluble at 10°C ?

5. A mass of 80 g of KNO_3 is dissolved in 100 g of water at 50°C . The solution is heated to 70°C . How many more grams of potassium nitrate must be added to make the solution saturated? Explain your reasoning

