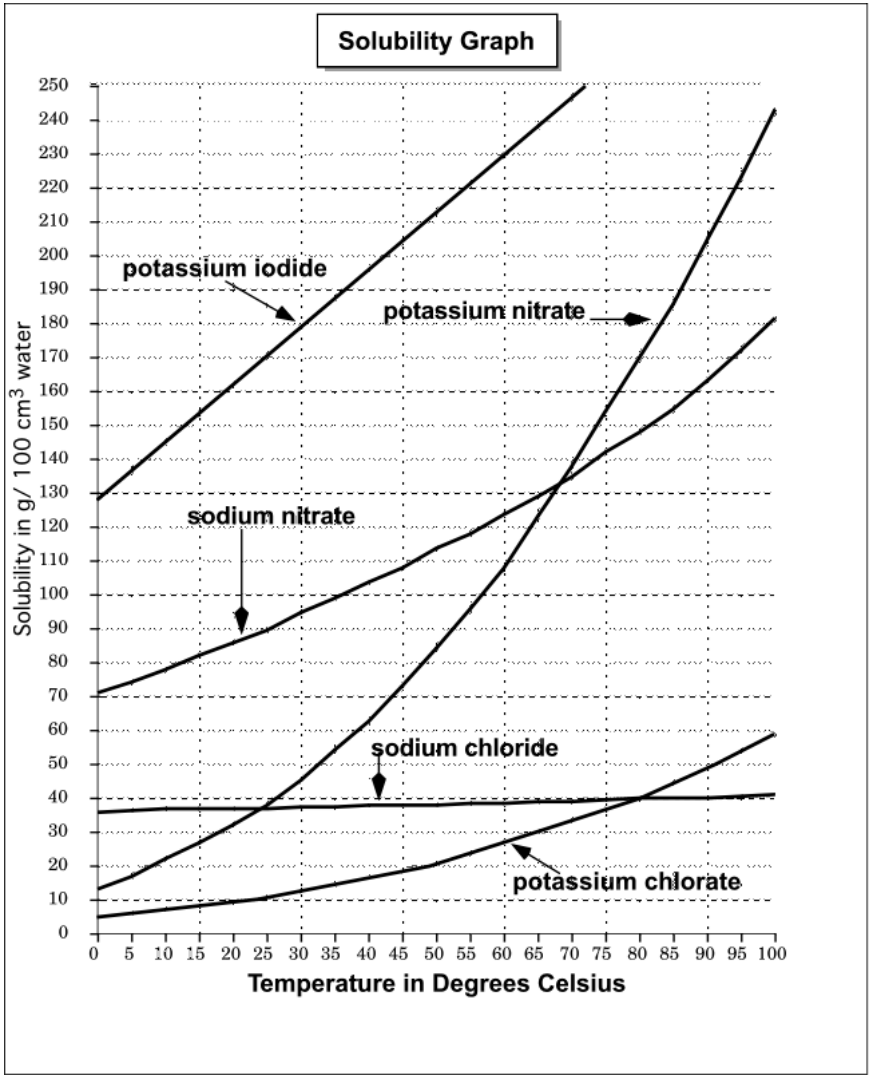
Name, Date, Hr/Per KEY

Solubility Curves

SOLUBILITY GRAPH A



Answer the following questions based on Solubility graph A

1. Why do the temperatures on the graph only go from 0° C to 100° C ?
   water is frozen below 0 celcus and is gaseous above 100 celcius

2. Which substance is most soluble at 60° C ?
   potassium iodide

3. Which two substances have the same solubility at 80° C ?
   potassium chlorate & sodium chloride [both at 40g/100mL water]

4. Which substance's solubility changes the most from 0° C to 100° C ?
   potassium nitrate

5. Which substance's solubility changes the least from 0° C to 100° C ?
   sodium chloride

6. What is the solubility of potassium nitrate at 90° C ?
   approximately 200g/100mL of water

7. At what temperature does potassium iodide have a solubility of 150 g/ 100 cm3 water?
   approximately 22.5 Celcius

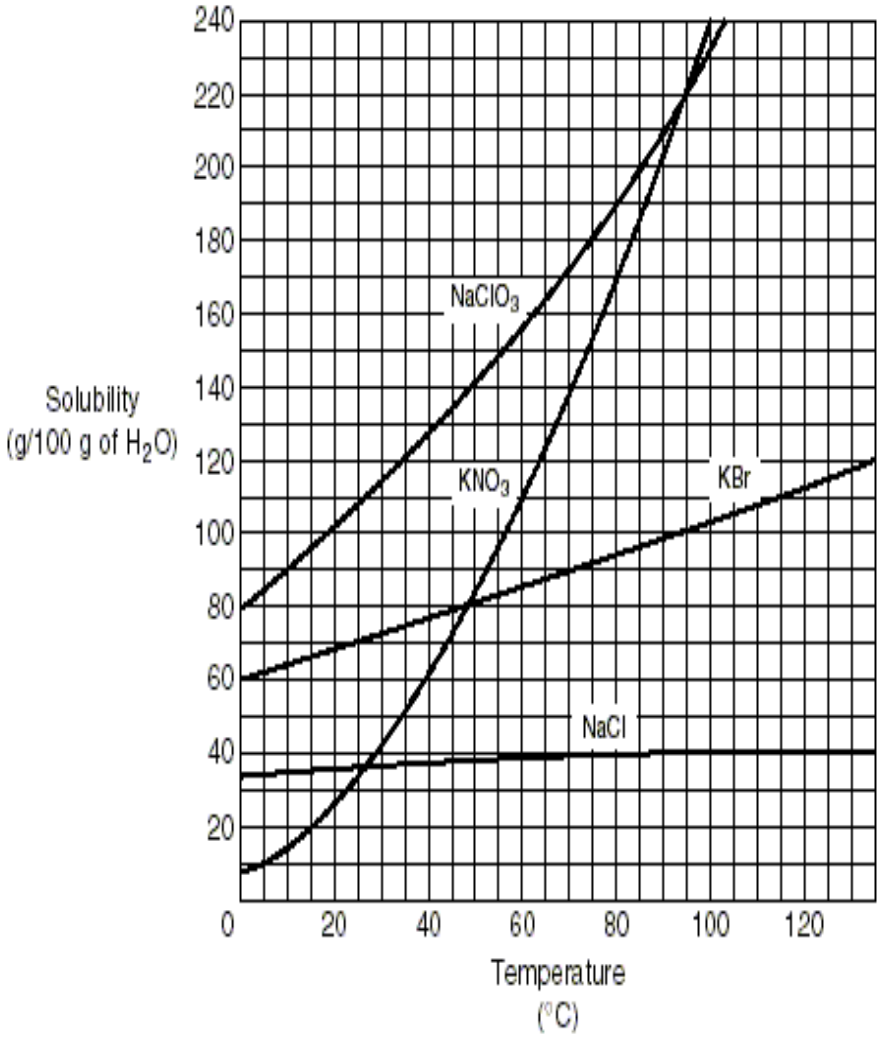
8. You have a solution of sodium nitrate containing 140 g at 65° C. Is the solution saturated, unsaturated, or supersaturated ?
   supersaturated [sodium nitrate is saturated at 130g at 65 Celcius; the point at 140g & 65 Celcius lies above the saturation curve]

9. You have a solution of potassium chlorate containing 4 g at 65° C. How many additional grams of solute must be added to it, to make the solution saturated ?
   approximately 26 more grams [the solubility of potassium chlorate is `approximately 30g at 65 Celcius]

10. A solution of potassium iodide at 70° C contains 200 g of dissolved solute in 100 cm^3 water. The solution is allowed to cool. At what new temperature would crystals begin to start forming ?
    just above 40 degrees [excess solute will come out of solution and crystallize at any point below the saturation curve]

11. What is the general trend that you see on the graph? Use the IV and DV in your answer.
    solubility increases as temperature increases

SOLUBILITY GRAPH B



Answer the following questions based on Solubility graph B

1. At which temperature do KBr and KNO_3 have the same solubility?
   approximately 50 Celcius

2. At which temperature do NaCl and KNO_3 have the same solubility?
   approximately 27.5 Celcius

3. At which temperature do $NaClO_3$ and KNO_3 have the same solubility?
   approximately 95 Celcius

4. At 60°C, how much KNO_3 can 100 g of water hold?
   approximately 110g

5. At 80°C, how much NaCl can 100 g of water hold?
   approximately 40g

6. At 0°C, how much KBr can 100 g of water hold?
   approximately 60g

7. A solution of NaCl contains 50g at 70 ° C. Is the solution saturated, unsaturated, or supersaturated ?
   supersaturated [point falls above the saturation curve]

8. A solution of KBr contains 100g at 95 ° C. Is the solution saturated, unsaturated, or supersaturated ?
   Saturated [rests right on the saturation curve]

9. Which compound's solubility changes very little with temperature?
   NaCl

10. Which compound's solubility changes the most with temperature?
    KNO_3

11. Which compound has the greatest solubility at 60°C?
    $NaClO_3$

12. Which compound has the least solubility at 20° C?
    KNO_3