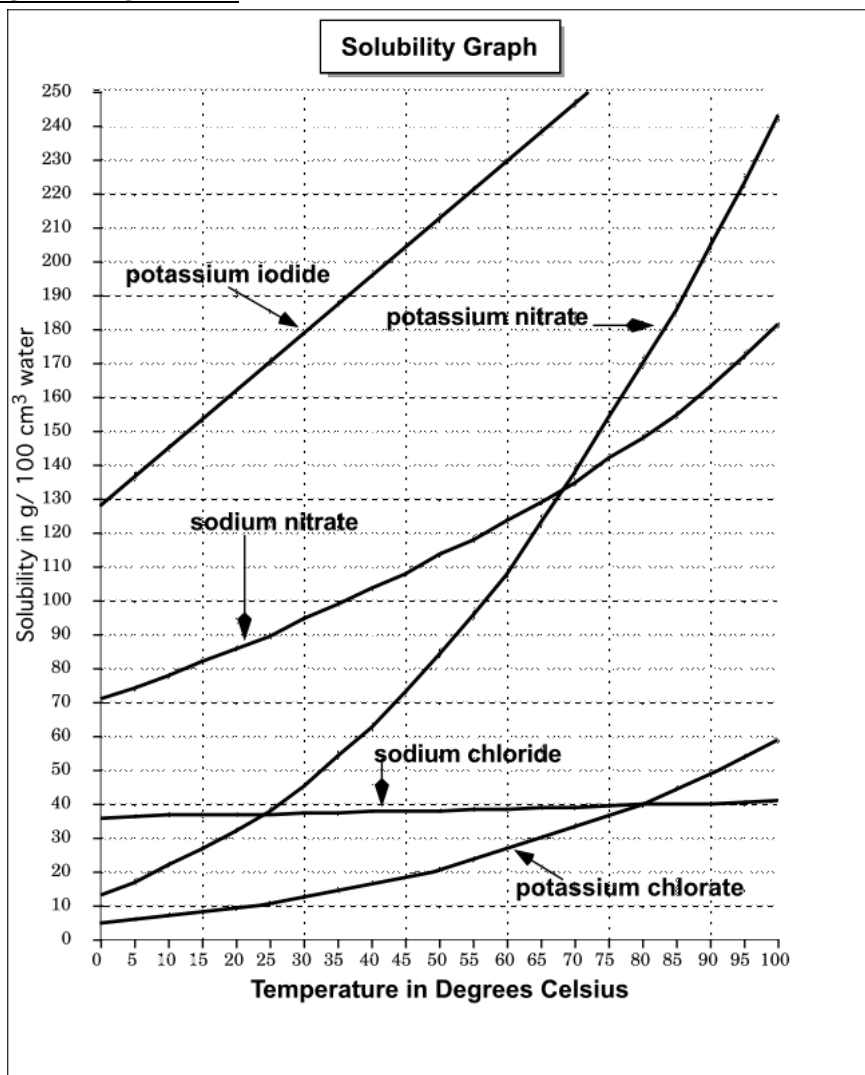


## Solubility Curves

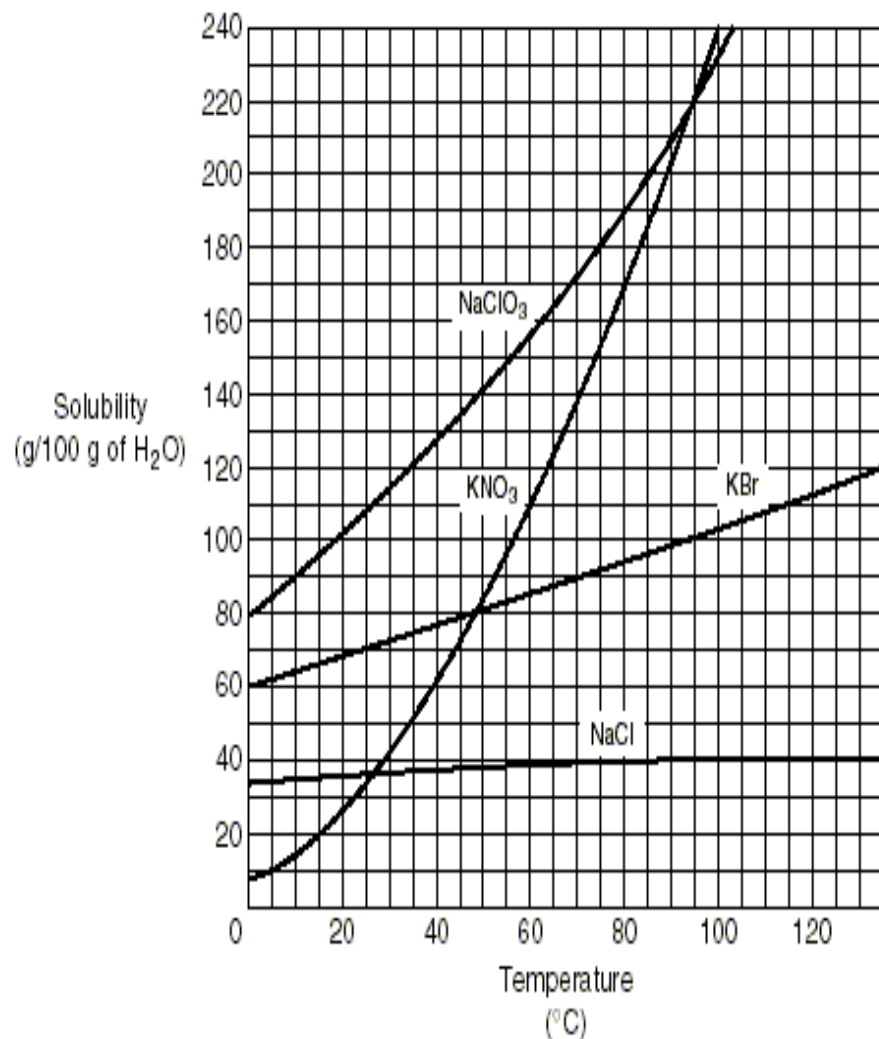
### SOLUBILITY GRAPH A



Answer the following questions based on Solubility graph A

- Why do the temperatures on the graph only go from 0° C to 100° C ?  
**water is frozen below 0 celcius and is gaseous above 100 celcius**
- Which substance is most soluble at 60° C ?  
**potassium iodide**
- Which two substances have the same solubility at 80° C ?  
**potassium chlorate & sodium chloride [both at 40g/100mL water]**
- Which substance's solubility changes the most from 0° C to 100° C ?  
**potassium nitrate**
- Which substance's solubility changes the least from 0° C to 100° C ?  
**sodium chloride**
- What is the solubility of potassium nitrate at 90° C ?  
**approximately 200g/100mL of water**
- At what temperature does potassium iodide have a solubility of 150 g/ 100 cm<sup>3</sup> water?  
**approximately 22.5 Celcius**
- 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]**
- 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]**
- A solution of potassium iodide at 70° C contains 200 g of dissolved solute in 100 cm<sup>3</sup> 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]**
- 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

- At which temperature do KBr and KNO<sub>3</sub> have the same solubility?  
**approximately 50 Celcius**
- At which temperature do NaCl and KNO<sub>3</sub> have the same solubility?  
**approximately 27.5 Celcius**
- At which temperature do NaClO<sub>3</sub> and KNO<sub>3</sub> have the same solubility?  
**approximately 95 Celcius**
- At 60°C, how much KNO<sub>3</sub> can 100 g of water hold?  
**approximately 110g**
- At 80°C, how much NaCl can 100 g of water hold?  
**approximately 40g**
- At 0°C, how much KBr can 100 g of water hold?  
**approximately 60g**
- A solution of NaCl contains 50g at 70° C. Is the solution saturated, unsaturated, or supersaturated ?  
**supersaturated [point falls above the saturation curve]**
- A solution of KBr contains 100g at 95 ° C. Is the solution saturated, unsaturated, or supersaturated ?  
**Saturated [rests right on the saturation curve]**
- Which compound's solubility changes very little with temperature?  
**NaCl**
- Which compound's solubility changes the most with temperature?  
**KNO<sub>3</sub>**
- Which compound has the greatest solubility at 60°C?  
**NaClO<sub>3</sub>**
- Which compound has the least solubility at 20° C?  
**KNO<sub>3</sub>**