CHEMISTRY MATTERS
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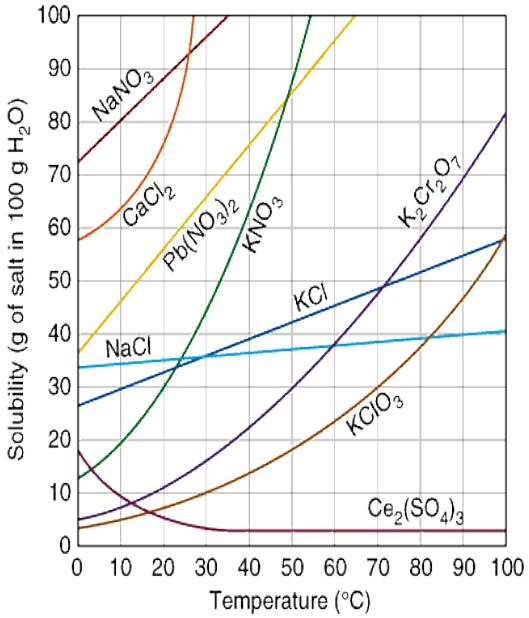
Unit 7B Practice Problems VIII
Reading a Solubility Graph

Name:

Date:

Use the provided solubility graph to answer the following questions:



1. These concentrations of solutes are dissolved in 100 g of water at the temperature stated. Label the solutions as:

   S (saturated)
   U (unsaturated)
   SS (supersaturated)

   a. 55 g of KCl at 50 °C _____

   b. 45 g of $NaNO_3$ at 10 °C _____

2. Under ordinary conditions, what is the maximum mass of solute that will dissolve in the given amount of solvent at the temperature stated?

   ~40 g NaCl in 100 g water at 100 °C

   ~15 g KNO_3 in 50 g water at 20 °C *(~30 g KNO_3/100 g H_2O)*

For questions 3 and 4, write your answer in the blank space and show your work.

3. If 70 g of $KClO_3$ are added to 100 mL of water at 70 °C, _____ g will not dissolve.

4. A hot solution contains 100 g KNO_3 in 100 g of water. When the solution cools to 50 °C, _____ g of the KNO_3 will crystallize.

5. Which compound has solubility values that are least affected by changes in temperature? _____

6. Underline the more concentrated solution:

   a saturated solution of $KClO_3$ at 25 °C

   an unsaturated solution of NaCl containing 30 g of NaCl at 80°C

7. At what temperature will $Ce_2(SO_4)_3$ and $KClO_3$ have the same solubility in water? _____

8. If 100 g of water saturated with KCl at 80 °C is carefully evaporated to dryness, how many grams of the dry KCl will be recovered? _____