Solubility Curves

The following graph shows solubility curves. Study the graph then answer the following questions.

1. What relationship exists between solubility and temperature for most of the substances shown?

2a. What is the exception?
b. What general principle accounts for this exception?

3a. Approximately how many grams of NaNO₃ will dissolve in 100 g water at 10 °C?
b. How many grams will dissolve at 34 °C?

4. How many grams of KCl will dissolve in 1 liter of H₂O at 50 °C?

5. 58.0 g of K₂Cr₂O₇ is added to 100 g H₂O at 0 °C. With constant stirring, to what temperature must the solution be raised to produce a saturated solution with no solid K₂Cr₂O₇ remaining?

6. A saturated solution of KClO₃ was made with 300 g of H₂O at 34 °C. How much KClO₃ could be recovered by evaporating the solution to dryness?

7. 500 g of water are used to make a saturated solution of KCl at 15 °C. How many more grams of KCl could be dissolved if the temperature were raised to 78 °C?

8. A saturated solution of KNO₃ in 200 g of H₂O at 51 °C is cooled to 28 °C. How much KNO₃ will precipitate out of solution?

1. _____________________________

2a. _____________________________

b. _____________________________

3a. _____________________________

b. _____________________________

4. _____________________________

5. _____________________________

6. _____________________________

7. _____________________________

8. _____________________________
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1. As temperature increases, the solubility of solids into liquids increases as well.

2b. As temperature increases, the solubility of gases into liquids decreases.