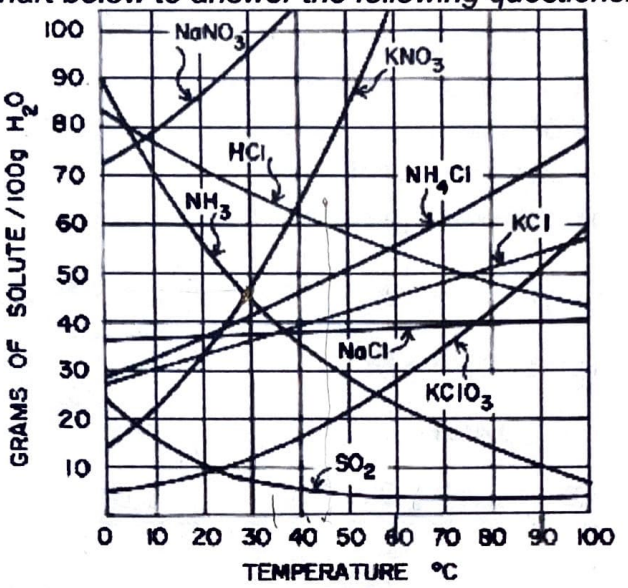
Solubility Curve Worksheet

Use the solubility chart below to answer the following questions:



Graph from U. Va Department of Physics.

1) What is the solubility of potassium nitrate at 30° C? 46g / 100g H_2O

2) How many grams of ammonia can I dissolve in 200 grams of water at a temperature of 45° C?

a 21g (2x32g)

3) At what temperature is the solubility of sodium chloride the same as the solubility of potassium chloride?

34 °C

4) How many grams of ammonium chloride would I need to make 300 grams of a saturated solution at 70° C?

183 g

5) What do all of the compounds that decreased in solubility over the temperature range in the graph have in common?

all gases

6) What compound is least soluble at 40° C? Sulfur dioxide

7) What ionic compound is least soluble at 40° C? $KClO_3$

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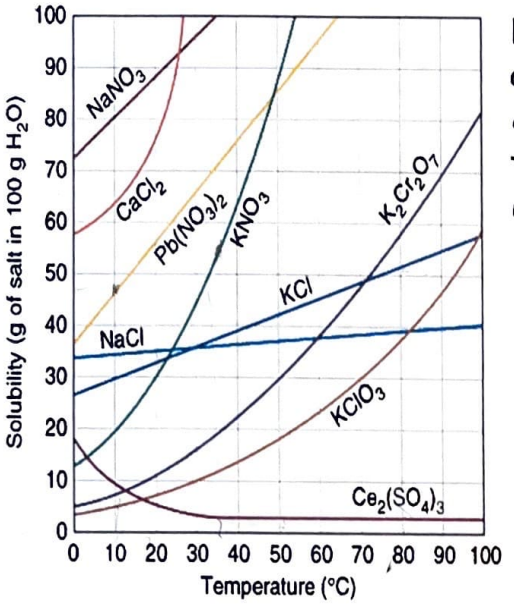
Worksheet: Solubility Graphs **Name**_____

Use the provided solubility graph to answer the following questions:



For questions 1 – 4 an amount of solute is given, and a temperature is stated. *If all of the solute could be dissolved* in 100 g of water at the given temperature, would the resulting solution be *unsaturated, saturated,* or *supersaturated?*

1. 60 g KCl at 70 °C supersaturated
2. 10 g $KClO_3$ at 60 °C unsaturated
3. 80 g $NaNO_3$ at 10 °C saturated
4. 70 g $CaCl_2$ at 20 °C unsaturated

For questions 5 – 8 a solute and temperature are given. Tell how many grams of each solute must be added to 100 g of water to form a saturated solution at the given temperature.

5. $Pb(NO_3)_2$ at 10 °C 47 g
6. $Ce_2(SO_4)_3$ at 50 °C ~~3g~~
7. NaCl at 20 °C 35g
8. $K_2Cr_2O_7$ at 50 °C 30g

For questions 9 and 10 underline the solution that is more concentrated.

9. At 10 °C: a saturated solution of KNO_3 or a saturated solution of $CaCl_2$.
10. At 50 °C: a saturated solution of KNO_3 or an unsaturated solution of $NaNO_3$ consisting of 90 g of the solute dissolved in 100 g of water.

For questions 11 – 12, show your work and circle your final answer.

11. If 115 g KNO_3 are added to 100 g of water at 35 °C, how many grams do not dissolve? 115g − 54 g = (61g)

12. What mass of KCl would be needed to form a saturated solution if the KCl was dissolved in 200 g of water at 80 °C?

$\frac{52\text{ g KCl}}{100\text{ g H}_2\text{O}} = \frac{104\text{g KCl}}{200\text{g H}_2\text{O}}$

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