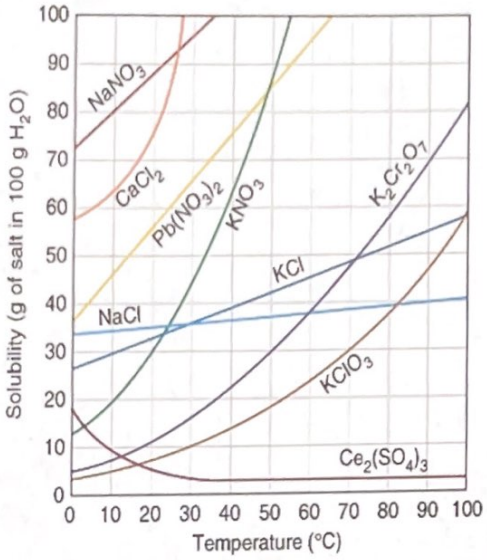
Worksheet: Solubility Graphs Name mary jane woody

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 ~46g
6. $Ce_2(SO_4)_3$ at 50 °C ~3g
7. NaCl at 20 °C ~36g
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? $115g - 54g = 61g$

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?

$$\frac{52g\ KCl}{100g\ H_2O} = \frac{104g\ KCl}{200g\ H_2O}$$