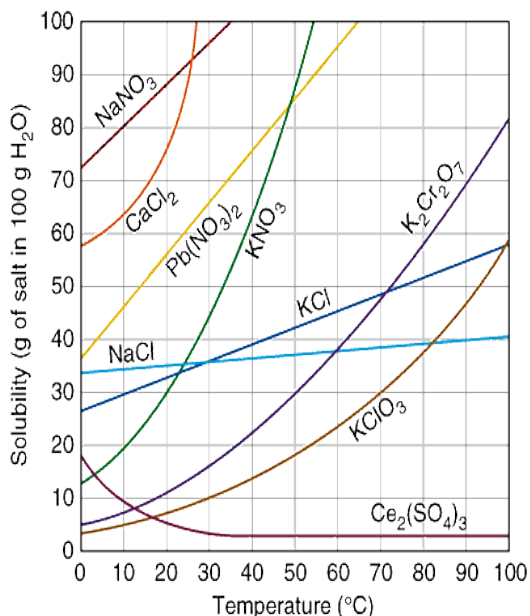


Use the provided solubility graph to answer the following questions:



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<sub>3</sub> at 60 °C      unsaturated
3. 80 g NaNO<sub>3</sub> at 10 °C      saturated
4. 70 g CaCl<sub>2</sub> 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 <sub>3</sub> ) <sub>2</sub> at 10 °C               | <u>~46 g</u> | 7. NaCl at 20 °C  | <u>~35 g</u> |
| 6. Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> at 50 °C | <u>~3 g</u>  | 8. K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> at 50 °C | <u>~30 g</u> |

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

9. At 10 °C: a saturated solution of KNO<sub>3</sub> or a saturated solution of CaCl<sub>2</sub>.
10. At 50 °C: a saturated solution of KNO<sub>3</sub> or an unsaturated solution of NaNO<sub>3</sub> 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<sub>3</sub> are added to 100 g of water at 35 °C, how many grams do not dissolve?

$$115 \text{ g} - \sim 54 \text{ g} = \sim 61 \text{ g}$$

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?

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