

5) Lower P = lower solubility.  
 As the ~~oke~~ is opened, the CO<sub>2</sub> leaves solution as bubbles.

**General Chemistry**  
**Mr. MacGillivray**  
**Worksheet:**  
**Solubility and Ionic Equations**

The solubility graph may be useful in answering some of the following questions.

- Solubility** is a measure of how MUCH of a substance can be dissolved in a given amount of solvent, whereas the **rate of solvation** is a measure of how fast the substance can be dissolved.
- In general, the solubility of solids (increases / decreases) as the temperature of a solid-in-liquid solution is increased.
- In general, the solubility of gases (increases / decreases) as the temperature of a gas-in-liquid solution is increased.
- What is "the bends"? Explain it in terms of solubility.
- What happens to a bottle of Coke after you open it? Explain this in terms of solubility.
- Fill in the following table.

*If a diver is decompressed too quickly, dissolved CO<sub>2</sub> leaves the bloodstream as bubbles, which is dangerous & painful. Lower P = lower solubility.*

Substance	Solubility (g/100 g H <sub>2</sub> O) at this temperature:			
	0°C	20°C	50°C	70°C
KNO <sub>3</sub>	12 grams	32	47	139
NH <sub>3</sub>	91	56	30	19
NaCl	36	37	38	39

- A solution of KNO<sub>3</sub> at 10 °C, in which 40 g of solute has been dissolved in 100 g of H<sub>2</sub>O would be considered (saturated/unsaturated/supersaturated).
- A solution of KNO<sub>3</sub> at 25 °C, in which 40 g of solute has been dissolved in 100 g of H<sub>2</sub>O would be considered (saturated/unsaturated/supersaturated).
- A solution of KNO<sub>3</sub> at 50 °C, in which 40 g of solute has been dissolved in 100 g of H<sub>2</sub>O would be considered (saturated/unsaturated/supersaturated).
- A solution of KNO<sub>3</sub> at 50 °C, in which 100 g of solute has been dissolved in 250 g of H<sub>2</sub>O would be considered (saturated/unsaturated/supersaturated).
- Write the chemical equation, the complete ionic equation, and the net ionic equation for the following aqueous phase reactions :

*This is the same conc as 40g per 100g of H<sub>2</sub>O*

- barium chloride + sodium sulfate
- potassium chromate + calcium nitrate
- lithium carbonate + calcium chloride

*See next page*

$$\frac{10000}{250} = \frac{x \text{ g KNO}_3}{100 \text{ g H}_2\text{O}}$$

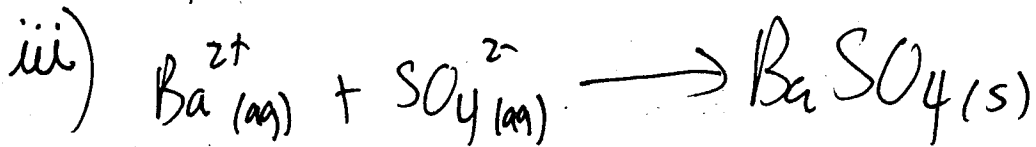
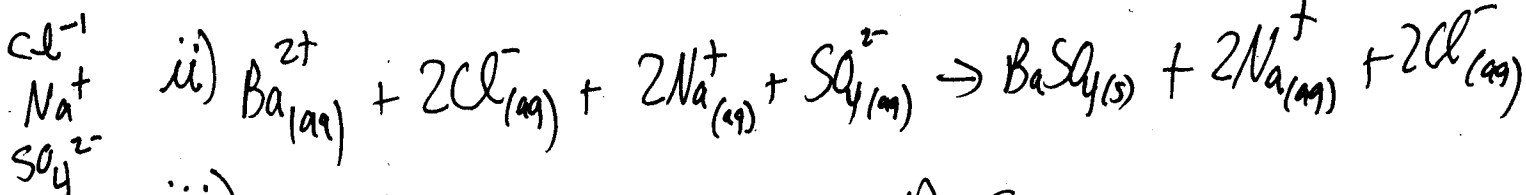
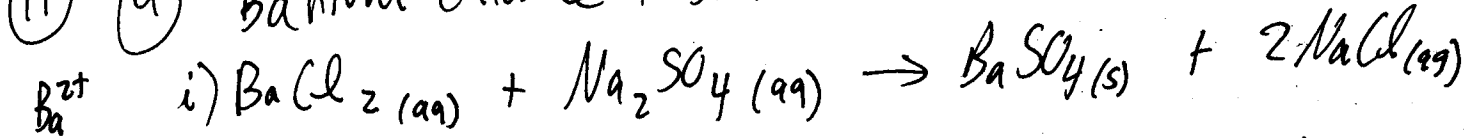
$$10000 = 250x$$

$$\frac{10000}{250} = x$$

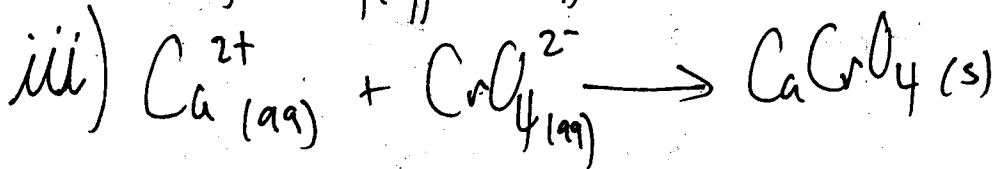
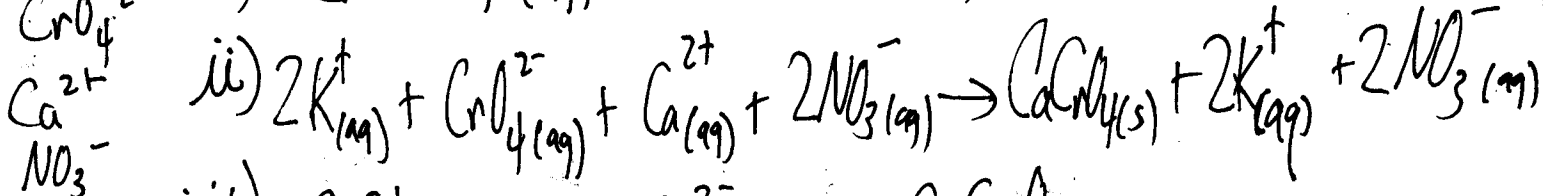
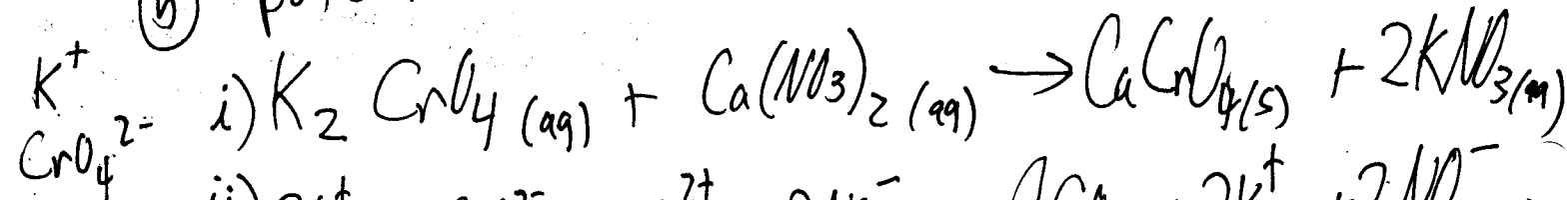
$$40 \text{ g} = x$$

*40g KNO<sub>3</sub> per 100g H<sub>2</sub>O*

(11) (a) Barium chloride + sodium sulfate



(b) potassium chromate + calcium nitrate



(c) lithium carbonate + calcium chloride

