

## Solubility Problems

$$\textcircled{1} \quad \begin{array}{l} 118 \text{ g/L} \\ \div 2.6 \text{ L} \downarrow \\ 45 \text{ g} / 382 \text{ mL} \end{array} \quad \begin{array}{l} \downarrow \div 2.6 \text{ L} \\ \boxed{382 \text{ mL}} \end{array}$$

$$\textcircled{2} \quad 18 \text{ g} / 15 \text{ mL} \xrightarrow{\times 6.6} 120 \text{ g} / 100 \text{ mL}$$

Find the temp at which the solubility of  $\text{KNO}_3$  is  $120 \text{ g} / 100 \text{ mL}$   
 $63^\circ \text{C}$

At anything below that temp, solid will begin to precipitate.

$$\textcircled{3} \quad 40 \text{ g} / 50 \text{ mL} \xrightarrow{\times 2} 80 \text{ g} / 100 \text{ mL}$$

Solubility at  $40^\circ \text{C}$  is around  $68 \text{ g} / 100 \text{ mL}$

so it will not all dissolve

$$80 - 68 = 12 \text{ g will be left over}$$

Solubility at  $45^\circ \text{C}$  is  $80 \text{ g} / 100 \text{ mL}$

so it would all dissolve.

$$\textcircled{4} \quad 142 \text{ g} / 350 \text{ mL} \xrightarrow{\div 3.5} 40.6 \text{ g} / 100 \text{ mL}$$

Solubility is  $52 \text{ g} / 100 \text{ mL}$  at  $50^\circ \text{C}$  (from chart from previous lesson)

so not saturated.