

$$1000 \text{ mL} \left(1.112 \frac{\text{g}}{\text{mL}} \right) = 1112 \text{ g}$$

$$1.75 \text{ mol} \left(\frac{105.99 \text{ g}}{1 \text{ mol}} \right) = 185 \text{ g}$$

| | |
|---------|--|
| 1112 g | Na ₂ CO ₃ + H ₂ O |
| - 185 g | Na ₂ CO ₃ |
| 927 g | |
| | H ₂ O |

| |
|------------------------|
| 1000g H ₂ O |
| 423g KI |
| 1423g solution |

molality = $\frac{\text{mol KI}}{\text{kg H}_2\text{O}} = \frac{2.55 \text{ mol}}{1 \text{ kg}}$
 molarity = $\frac{\text{mol KI}}{\text{\#L solution}} = \frac{2.55 \text{ mol}}{1.135 \text{ L}}$
 = 2.25 M

2.55 M KI
 $d = 1.254 \frac{\text{g}}{\text{mL}}$
 $\rho = ?$

$d = \frac{m}{V} \rightarrow V = \frac{m}{d} = \frac{1423 \text{ g}}{1.254 \frac{\text{g}}{\text{mL}}} = 1135 \text{ mL}$

~~2.55 mol~~ $\left(\frac{166 \text{ g}}{1 \text{ mol}} \right) = 423 \text{ g}$

NaCl

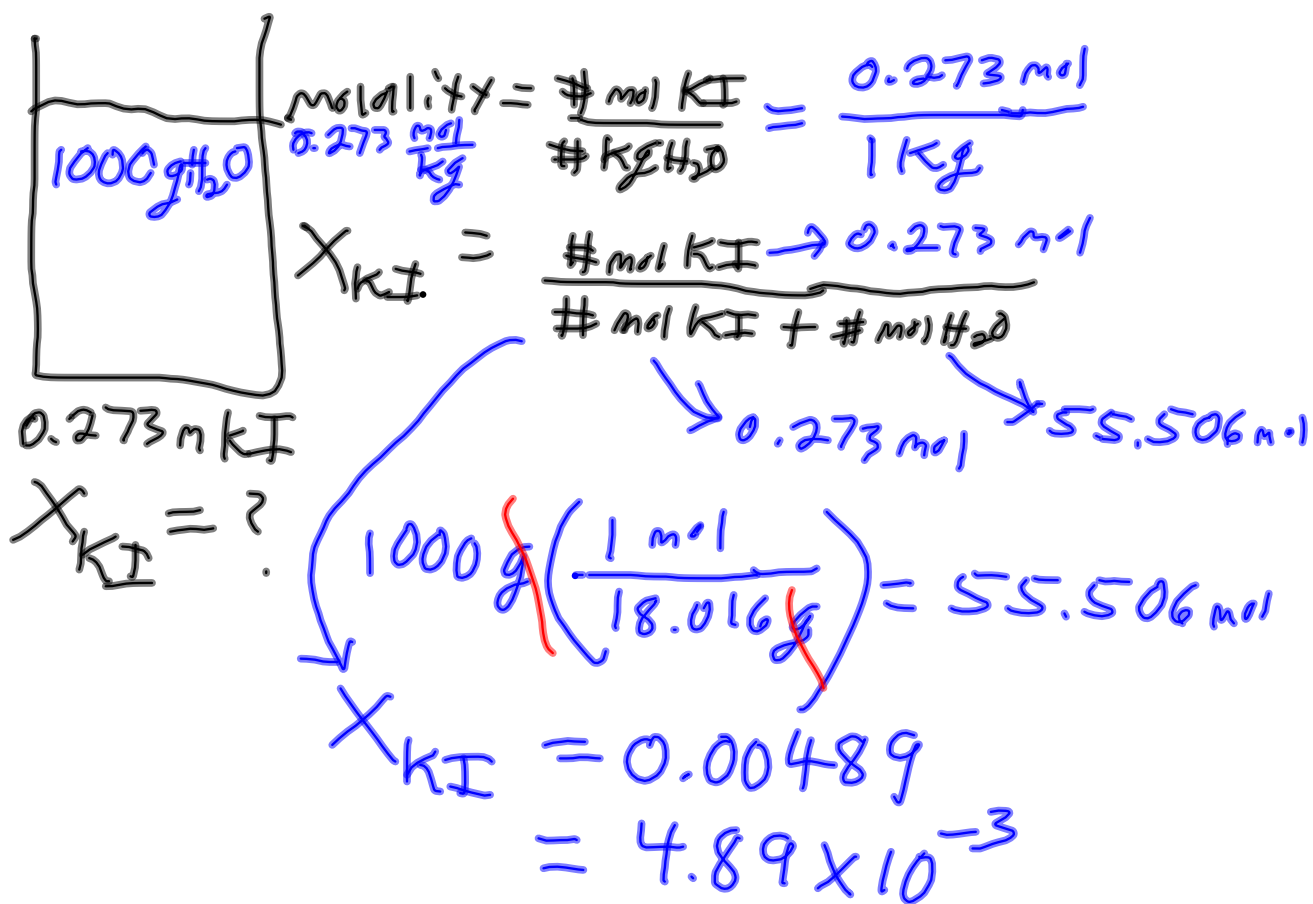
$$15.11 \text{ g} \left(\frac{1 \text{ mol}}{58.44 \text{ g}} \right) = 0.25856 \text{ mol}$$

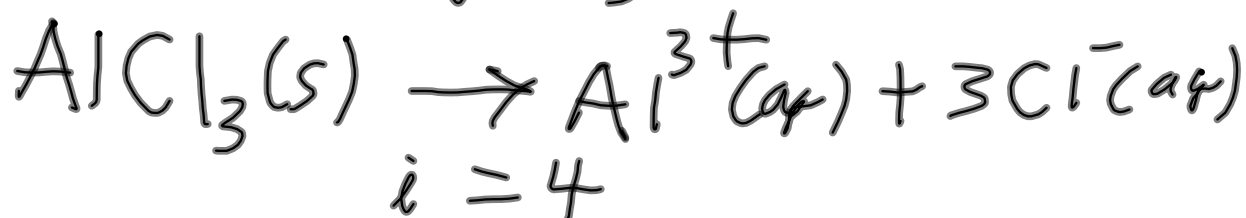
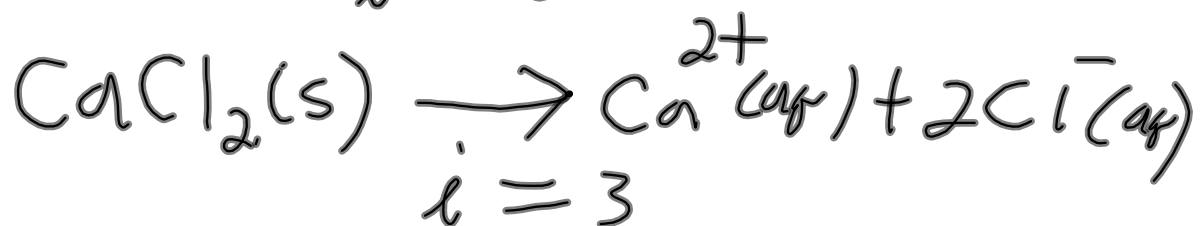
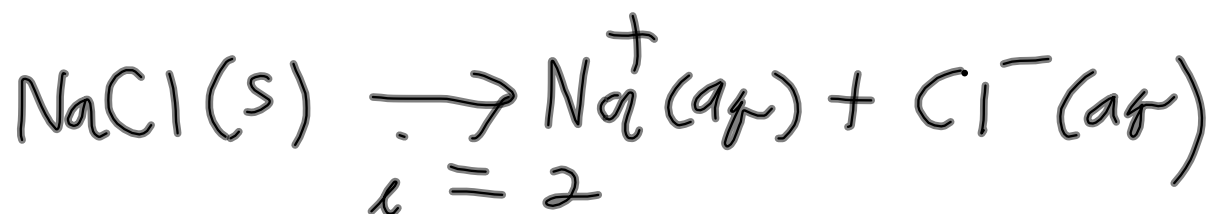
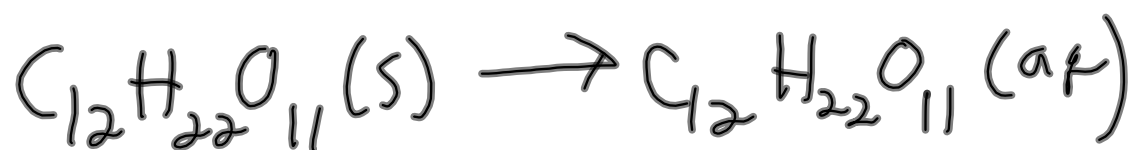
H₂O

$$275.2 \text{ g} \left(\frac{1 \text{ mol}}{18.016 \text{ g}} \right) = 15.27531 \text{ mol}$$

$$\begin{aligned} \text{TOTAL mol} &= 0.25856 \text{ mol} + 15.27531 \text{ mol} \\ &= 15.53387 \text{ mol} \end{aligned}$$

$$\begin{aligned} X_{\text{NaCl}} &= \frac{0.25856 \text{ mol}}{15.53387 \text{ mol}} = 0.0166 \\ &= 1.66 \times 10^{-2} \end{aligned}$$





Colligative properties

1. Vapor pressure lowering

