

$$1 \text{ atm} = 760 \text{ Torr}$$

$$R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$$

$$\ln\left(\frac{P_2}{P_1}\right) = \frac{-\Delta_{\text{VAP}}H}{R} \left(\frac{1}{T_2} - \frac{1}{T_1}\right)$$

$$P_{\text{solvent}} = X_{\text{solvent}} P_{\text{solvent}}^*$$

$$C_{\text{gas}} = KP_{\text{gas}}$$

$$\Delta T = iK_b m$$

$$\Delta T = -iK_f m$$

$$\Pi = iMRT$$

$$m = \frac{\text{moles solute}}{\text{kg solvent}}$$

$$M = \frac{\text{moles solute}}{\text{L solution}}$$

$$\ln\left(\frac{K_2}{K_1}\right) = \frac{-\Delta_R H^\circ}{R} \left(\frac{1}{T_2} - \frac{1}{T_1}\right)$$

$$\Delta_R G^\circ = -RT \ln K$$

$$\Delta_R G^\circ = \Delta_R H^\circ - T\Delta_R S^\circ$$

$$K_w = K_a K_b = [H^+][OH^-] = 10^{-14}$$

$$pH = -\log[H^+] \quad pOH = -\log[OH^-]$$

$$pH + pOH = 14$$

$$pK_a = -\log K_a$$

$$pH = pK_a + \log \frac{[A^-]}{[HA]}$$

$$[H^+] = C_a$$

$$[H^+] = \sqrt{C_a K_a}$$

$$[OH^-] = \sqrt{C_b K_b}$$

$$[H^+] = K_a \frac{C_{HA}}{C_{A^-}}$$

$$[OH^-] = K_b \frac{C_B}{C_{BH^+}}$$

$$[H^+] = \sqrt{K_{a1} K_{a2}}$$

$$E = E^\circ - \frac{0.0592V}{n} \log Q$$

$$\Delta_R G^\circ = -nFE^\circ$$

$$1 \text{ amp} = \text{C s}^{-1}$$

$$F = 96485 \text{ C mol}^{-1}$$

$$[A] = [A]_0 - akt$$

$$\ln[A] = \ln[A]_0 - akt$$

$$\frac{1}{[A]} = \frac{1}{[A]_0} + akt$$

$$\ln k = A e^{-E_a/RT}$$

$$\ln\left(\frac{k_1}{k_2}\right) = \frac{-E_a}{R} \left[\frac{1}{T_2} - \frac{1}{T_1}\right]$$