

CH302 Dr. VandenBout
Exam 2 Formula Sheet

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

$$[H^+][OH^-] = K_w$$

$$pH + pOH = pK_w$$

$$K_a K_b = K_w$$

$$K_w = 10^{-14} \text{ at } 25^\circ\text{C}$$

$$pH = -\log [H^+]$$

$$pOH = -\log [OH^-]$$

$$pK_a = -\log K_a$$

$$[H^+] = C_a$$

$$[OH^-] = C_b$$

$$[H^+] = (K_a C_a)^{1/2}$$

$$[OH^-] = (K_b C_b)^{1/2}$$

$$[H^+] = K_a (C_a / C_b)$$

$$pH = pK_a + \log(C_b / C_a)$$

$$[OH^-] = K_b (C_b / C_a)$$

$$pOH = pK_b + \log(C_a / C_b)$$

$$[H^+] = (K_{ax} K_{ay})^{1/2}$$

$$pH = 0.5(pK_{ax} + pK_{ay})$$