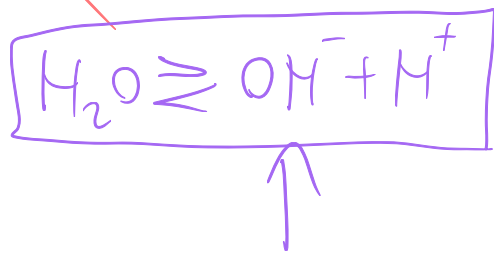
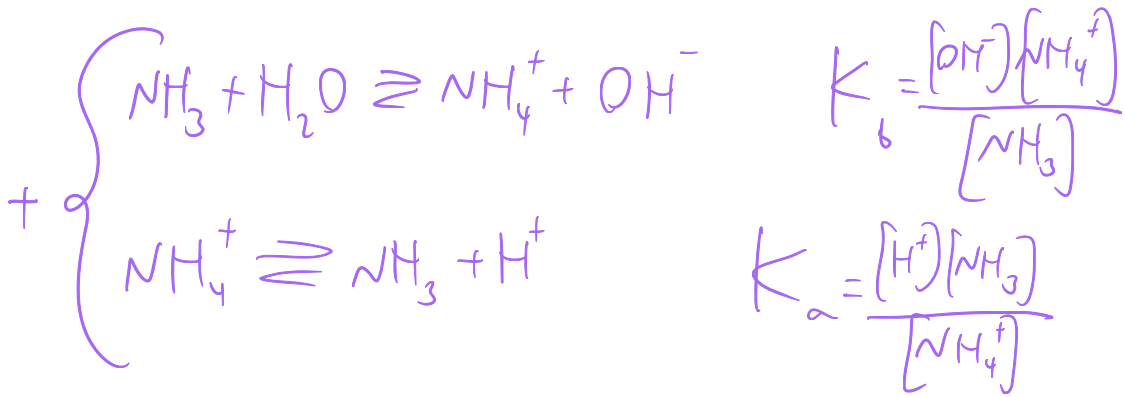


תגובת האוטופרוטונציה של המים



$$K = K_a \cdot K_b = \frac{[\text{OH}^-][\text{NH}_4^+]}{[\text{NH}_3]} \cdot \frac{[\text{H}^+][\text{NH}_3]}{[\text{NH}_4^+]}$$

$$K = [\text{OH}^-][\text{H}^+]$$



$$K = K_1 \cdot K_2 = \frac{[\text{B}]^2 [\text{C}]}{[\text{A}][\text{B}]} = \frac{[\text{B}][\text{C}]}{[\text{A}]}$$



$$K = \frac{[\text{B}]^2}{[\text{A}]}$$

$$K = \frac{[\text{C}]}{[\text{B}]}$$





$$K = \frac{[\text{H}^+][\text{OH}^-]}{[\text{H}_2\text{O}] \cdot [\text{H}_2\text{O}]}$$

$$K = 1.8 \cdot 10^{-16}$$

$$C = \frac{n}{V}$$

$$V = 1 \text{ L} = 1000 \text{ ml}$$

$$m = 1000 \text{ g}$$

$$m_w = 18 \frac{\text{g}}{\text{mol}}$$

$$n = \frac{1000 \text{ g}}{18 \frac{\text{g}}{\text{mol}}} = 55.56 \text{ mol}$$

$$C = \frac{n_{\text{H}_2\text{O}}}{V_{\text{H}_2\text{O}}} = \frac{55.56 \text{ mol}}{1 \text{ L}} = 55.56 \text{ M}$$

$$K_w = K \cdot [\text{H}_2\text{O}] = 1.8 \cdot 10^{-16} \cdot 55.56$$

$$K_w = 10^{-14}$$

$$K_w = [\text{H}^+][\text{OH}^-]$$