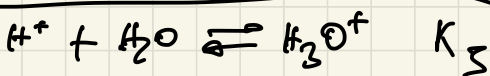
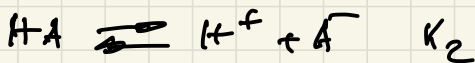
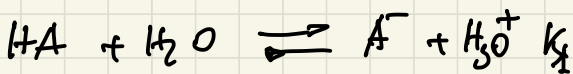


$$pH = -\lg [H^+]$$

$$pE = -\lg \{e^-\}$$

ACTIVITÄT ELECTRONICA

Säure - base



$$\Delta G^\circ = 0$$

$$K_3 = 1$$

$$K_1 = K_2 \cdot K_3 = K_2$$

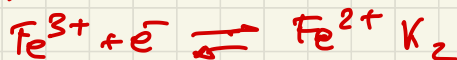
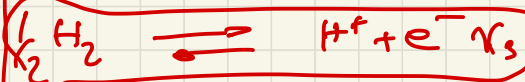
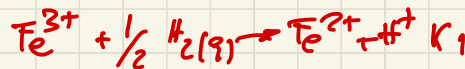
$$K_1 = \frac{[H^+][A^-]}{[HA]}$$

$$[H^+] = [H^+]$$

$$[H^+] = K_1 \cdot \frac{[HA]}{[A^-]}$$

$$\lg [H^+] = \lg K_1 + \lg \frac{[HA]}{[A^-]}$$

RED - OX



$$\Delta G^\circ = 0 \quad K_3 = 1$$

$$K_1 = K_2 \cdot K_3 = K_2 = \frac{[Fe^{2+}]}{[Fe^{3+}][e^-]}$$

$$[e^-] = \frac{[Fe^{2+}]}{[Fe^{3+}] \cdot K_1}$$

$$[e^-] \leftrightarrow [e^-]$$

$$-\lg [e^-] = -\lg \frac{1}{K_1} - \lg \frac{[Fe^{2+}]}{[Fe^{3+}]}$$

$$- \lg [H^+] = - \lg K_1 - \lg \frac{[HA]}{[A^-]}$$

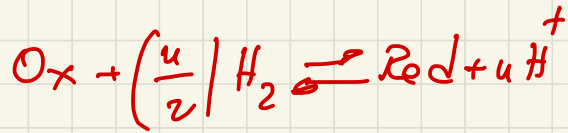
$$pH = pK_1 + \lg \frac{[A^-]}{[HA]}$$

$$- \lg [e^-] = - \lg \frac{1}{K_1} - \lg \frac{[E_{2+}]}{[Fe^{2+}]}$$

$$- \lg [e^-] = \underbrace{\lg K_1}_{pE^\circ} + \lg \frac{[Fe^{3+}]}{[Fe^{2+}]}$$

$$pE = \underbrace{pE^\circ}_{\uparrow} + \lg \frac{[Fe^{3+}]}{[Fe^{2+}]}$$

$$pE^\circ = \lg K_1$$



$$pE = pE^\circ + \frac{1}{n} \lg \frac{[Ox]}{[Red]}$$

$$pE^\circ = \frac{1}{n} \lg K$$

$$pE = pE^\circ + \frac{1}{n} \lg \frac{\prod [Ox]^{n_i}}{\prod [Red]^{m_j}}$$

$$pE^\circ = \frac{1}{n} \lg K$$

①

 $(pE?)$ 

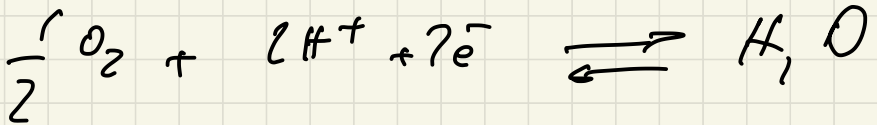
$$pE^0 = \lg K = 13$$

$$pE = pE^0 + \lg \frac{[Fe^{3+}]}{[Fe^{2+}]}$$

$$\downarrow 13 + \lg \frac{10^{-5}}{10^{-3}} = 11$$

pE?

pH 7.5



$$\lg K = 41.55$$

$$pE = pE^0 + \frac{1}{2} \lg \left( P_{O_2}^{\frac{1}{2}} \cdot [H^+]^2 \right)$$

$$= 20.78 + \frac{1}{2} \lg \left[ 0.2 \cdot (10^{-7.5})^2 \right]$$

$$\underline{= 13.43}$$