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

$$E_{cell} = E_{cathode} - E_{anode}$$

$$\frac{\Delta(\Delta pH/\Delta V)}{\Delta V}$$

$$E_{cell} = E^0 - \frac{0.0592}{n}\log Q$$

$$\alpha_{BH^+} = \frac{[H^+]}{[H^+] + K_{a(BH^+)}}$$

$$\log\gamma_i = \frac{-0.51 z_i^2\sqrt{\mu}}{1 + (\alpha\frac{\sqrt{\mu}}{305})}$$

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

$$E_{cell} = K' + \frac{0.059}{z_i}\log(a_i + \sum_j k_{i,j}^{pot} a_j^{z_i/z_j})$$

$K_{a1}\,K_{b3} = K_w$; $K_{a2}\,K_{b2} = K_w$; and $K_{a3}\,K_{b1} = K_w$

pH = 1/2 (pK_1 + pK_2)

$$\mu = \frac{1}{2}\sum_i c_i z_i^2$$

$$K_{eq} = \frac{[C]\gamma_C[D]\gamma_D}{[A]\gamma_A[B]\gamma_B}$$

$$\alpha_{Y^{-4}} = \frac{[Y^{-4}]}{F_{EDTA}} = \frac{[Y^{-4}]}{[H_6Y^{+2}]+[H_5Y^+]+[H_4Y]+[H_3Y^{-1}]+[H_2Y^{-2}]+[HY^{-3}]+[Y^{-4}]}$$

moles reacted = q/nF

$$\boxed{E^0 = \frac{RT}{nF}\ln(K)}$$

joules (work) = E (volts) x q (charge)

$E_{cell} = E_{ind} - E_{ref} = E_{working} - E_{ref} = E_+ - E_-$

$E_{cell} = K + (0.0592/z_i)\log(a_i)$

$E_{mem} = (0.0592/z_i)\log(a_i^{sample}/a_i^{int.soln})$

$E_{ccll} = (E_{int.ref.} + E_{mem}) - E_{ext.ref} = K + (0.0592/z_i)\log a_i^{sample}$