$$rh = \frac{p_w}{p_{ws}} \cdot 100$$

$C_P = \Delta H/\Delta T$, $C_V = \Delta U/\Delta T$

$$C_V = \frac{\delta Q_V}{dT} = \left(\frac{\partial U}{\partial T}\right)_V \qquad C_P = \frac{\delta Q_P}{dT} = \left(\frac{\partial H}{\partial T}\right)_P$$

$c_V = C_V/m$, $c_P = C_P/m$, $c_{V,m} = C_V/n$

$H = U + PV$, $\Delta H = \Delta U + P\Delta V$, $\Delta U = Q + W$, $W = -P\Delta V$

$dS = \delta Q_{rev}/T$, $\Delta S = Q/T$ $S = k_B \log W$

$G = H - TS$, $dG = dH - TdS$, $W_{max} = \Delta G$

$A = U - TS$, $dA = dU - TdS$

$$\mu_1 = \mu_1^* + RT \ln x_1 \qquad \mu_2 = \mu_2^* + RT \ln x_2$$

$aA + bB \leftrightarrow cC + dD \rightarrow \Delta_r G = (c\mu_C + d\mu_D) - (a\mu_A + b\mu_B)$

$\alpha = x\gamma$

$$\Delta_r G = \Delta_r G^\Theta + RT \ln \frac{a_C^c a_D^d}{a_A^a a_B^b}$$

$$Q = \frac{a_C^c a_D^d}{a_A^a a_B^b} \qquad K = \left(\frac{a_C^c a_D^d}{a_A^a a_B^b}\right)_{\iota\sigma o\rho} \qquad \Delta_r G^\Theta = -RT \ln K \qquad \ln \frac{K_2}{K_1} = \frac{\Delta_r H^\Theta}{R}\left(\frac{T_2 - T_1}{T_1 T_2}\right)$$

$$\upsilon = \frac{|\Delta[J]|}{\Delta t}\frac{mol}{L \cdot s} \qquad -\frac{d[J_1]}{dt} = k[J_1]^{x_1}[J_2]^{x_2}...[J_N]^{x_N} \qquad C(t) = C(0)e^{-\lambda t} \qquad \tau_{1/2} = \frac{0.693}{\lambda}$$

$$k = Ae^{-E_a/RT}$$

$$\frac{k_{\kappa\alpha\tau\alpha\lambda}}{k_{\mu\eta\ \kappa\alpha\tau\alpha\lambda}} = \frac{Ae^{-E_{a,\kappa\alpha\tau\alpha\lambda}/RT}}{Ae^{-E_{a,\mu\eta\ \kappa\alpha\tau\alpha\lambda}/RT}} = e^{-(E_{a,\kappa\alpha\tau\alpha\lambda} - E_{a,\mu\eta\ \kappa\alpha\tau\alpha\lambda})/RT} \qquad \frac{n_2}{n_1} = \frac{Ne^{-\varepsilon_2/kT}/Q}{Ne^{-\varepsilon_1/kT}/Q} = \frac{e^{-\varepsilon_2/kT}}{e^{-\varepsilon_1/kT}} = e^{-\Delta\varepsilon/kT}$$

$$\langle K \rangle = \left\langle \sum_{i=1}^{N} \frac{p_i^2}{2m_i} \right\rangle = \frac{1}{2} f k_B T$$

$\Delta G = -nFE$ $\qquad E_{cell} = E_{cell}^0 - \frac{RT}{zF}\ln Q$, $\quad E_{cell}^0 = E_{\kappa\alpha\theta}^0 - E_{\alpha\nu}^0$