

Constants:

$$R = 8.314 \frac{J}{mol \cdot K}, \quad 0.08206 \frac{Atm \cdot L}{mol \cdot K}, \quad 62.36 \frac{torr \cdot L}{mol \cdot K}$$

Test 3 Equations:

$$dU = TdS - PdV$$

$$dH = Tds + VdP$$

$$dA = -SdT - PdV$$

$$dG = -SdT + VdP$$

$$\Delta G = \Delta G^q + (mole)RT \ln Q$$

$$\frac{d \ln K}{dT} = \frac{\Delta H^q}{(mole)RT^2}$$

$$\ln K' = \ln K - \left(\frac{\Delta H^q}{(mole)R} \right) \left(\frac{1}{T'} - \frac{1}{T} \right)$$

$$\frac{dP}{dT} = \frac{\Delta S_m}{\Delta V_m}$$

$$\ln \left(\frac{P_2}{P_1} \right) = \frac{-\Delta H_{sub}}{R} \left(\frac{1}{T_2} - \frac{1}{T_1} \right)$$

$$\ln \left(\frac{P_2}{P_1} \right) = \frac{-\Delta H_v}{R} \left(\frac{1}{T_2} - \frac{1}{T_1} \right)$$

$$P_2 - P_1 = \frac{\Delta H_f}{\Delta V_f} \ln \left(\frac{T_2}{T_1} \right)$$

$$m_A(l) = m_A^*(l) + RT \ln(X_A)$$

$$\Delta T = m \cdot i \cdot K$$

$$P = X \cdot K$$

$$P = X \cdot P_{tot}$$