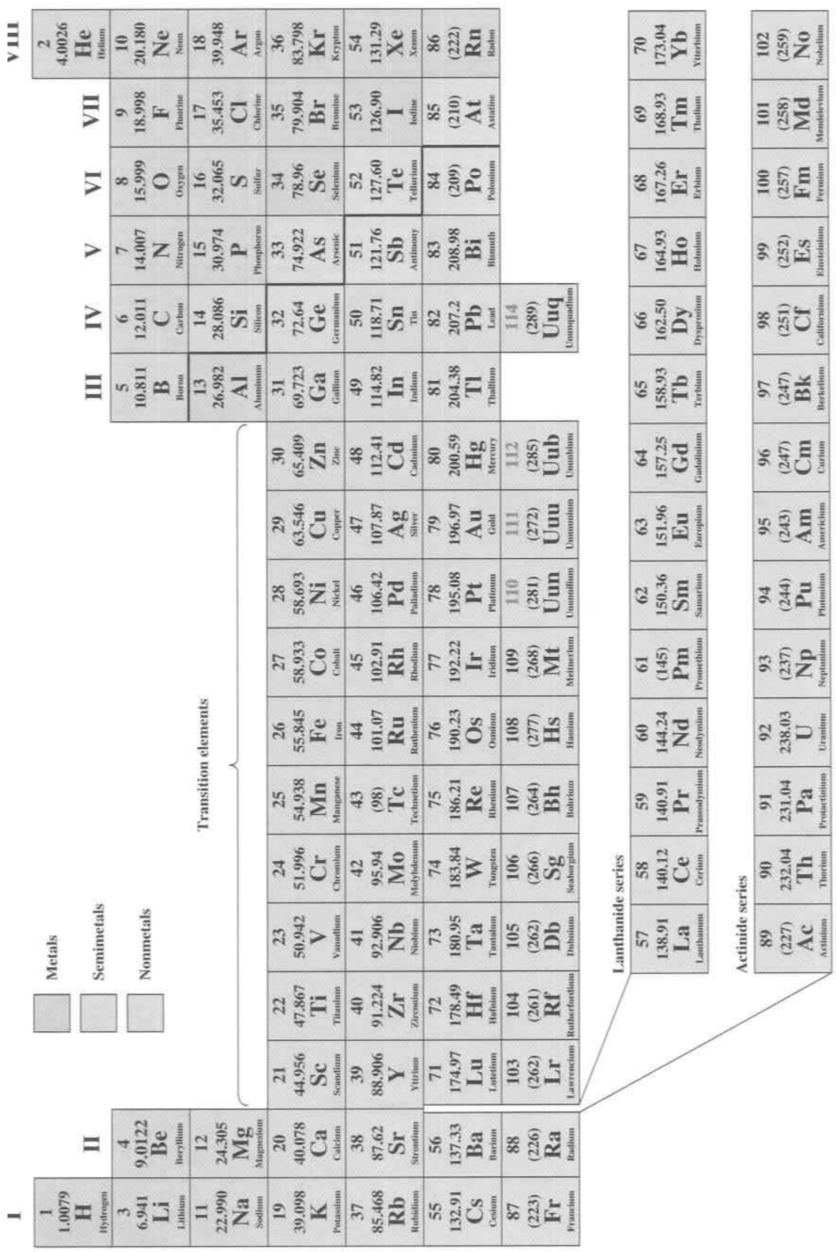

$\Delta H_r° = \Sigma\Delta H_{B(reactants)} - \Sigma\Delta H_{B(products)}$

$\Delta H_r° = \Sigma\Delta H_f°_{(products)} - \Sigma\Delta H_f°_{(reactants)}$

$\Delta S_r° = \Sigma S°_{(products)} - \Sigma S°_{(reactants)}$

$\Delta G_r° = \Sigma\Delta G_f°_{(products)} - \Sigma\Delta G_f°_{(reactants)}$

$\Delta G° = \Delta H° - T\Delta S°$

$\Delta G° = - RT \ln K$

$\Delta G = \Delta G° + RT \ln Q$

$\Delta G = RT \ln (Q/K)$

$\ln (K_2/K_1) = - (\Delta H°/R)(1/T_2 – 1/T_1)$

$PV = nRT$

$R = 8.314\ JK^{-1}mol^{-1}$

$R = 0.08206\ L\ atm\ K^{-1}\ mol^{-1}$

$x = [-b \pm (b^2 – 4ac)^{1/2}] / 2a$

$s = k_H P$

$14.00 = pH + pOH$ at $25^{\circ}C$

$pOH = -\log [OH^-]$

$pH = -\log [H_3O^+]$

$K_w = K_a K_b$

$K_w = 1.00 \times 10^{-14}$ at 25°C

$pK_a = -\log [K_a]$

$pK_b = -\log [K_b]$

$pH \approx pK_a – \log([HA]/[A^-])$

5.111 Principles of Chemical Science

Fall 2014