CH301 Equations and Constants to be Found on Exam 2

1 atm = 1.013×10^5 Pa = 760 torr

Water spec. heat = 4.18 J/g °C

R = 0.082 l atm/K mol

R= 1.987 cal/mol K

R = 8.314 J/mol K

N = 6.022×10^{23}

STP = 1 atm and 273K

Gases, liquids and solids equations

$K = PV$

$V = kT$

$V = kn$

$P_1V_1 = P_2V_2$

$V_1/T_1 = V_2/T_2$

$P_1V_1/T_1 = P_2V_2/T_2$

$V_1/n_1 = V_2/n_2$

$PV = nRT$

$n = g/MW$

$\rho = g/ml$

$M = n/V$

$KE = 0.5\ mv^2$

$v = (3RT/MW)^{0.5}$

$(P + n^2a/V^2)(V-nb) = nRT$

$m_1v_1^2 = m_2v_2^2$

$F \alpha q^+ q^- / d^2$

$\Delta H_{soln} = \Delta H_{solv} - \Delta H_{lattice}$

$m = mole_{solute}/kg_{solvent}$

$P_{gas} = kC_{gas}$

$P_{solv} = X_{solv}\ P^0_{solv}$

$\ln(P_2/P_1) = \Delta H/R(1/T_1-1/T_2)$

$P_{tot} = P_1 + P_2$