Chemistry Equation Sheet

Constants
$N = 6.022 \times 10^{23}$
$R = 8.31$ kPaL / molK ,
$= 0.0821$ atmL / molK,
$= 62.4$ mmHgL/molK
$c = 3.00 \times 10^{8}$ m/s
$h = 6.626 \times 10^{-34}$ Js
$\Delta H_{fus} = 334$ J/g
$\Delta H_{vap} = 2260$ J/g
$C_{sp\ ice} = 2.06$ J/gK
$C_{sp\ liq} = 4.184$ J/gK
$C_{sp\ steam} = 1.86$ J/gK

Dalton's Law of Partial Pressure

$P_{Atm} = P_{H20} + P_{Gas}$
$P_{Gas} = P_{Atm} - P_{H20}$
$P_{total} = P_1 + P_2 + P_3 \ldots$

Combined Gas Law
$P_1V_1/T_1 = P_2V_2/T_2$
At constant n

Ideal Gas Equation
$PV=nRT$

Thermodynamics
$q = mc_{sp}\Delta T$
$q = m\ \Delta H_{fus}$
$q = m\ \Delta H_{vap}$
$\Delta H°_f = \Sigma[\text{coeff}(\Delta H \text{ Products})] - \Sigma[\text{coeff}(\Delta H \text{ Reactants})]$
$\Delta S° = \Sigma[\text{coeff}(\Delta S \text{ Products})] - \Sigma[\text{coeff}(\Delta S \text{ Reactants})]$
$\Delta G = \Delta H - T\Delta S$
$\Delta E = q + w$

Light
$c = \lambda\nu$
$E = h\nu$

Kinetics and Equilibrium
$\text{Rate} = k[A]^x [B]^y$
$K_{eq} = [A]^a / [B]^b$
$pH = -\log [H^+]$
$pOH = -\log [OH^-]$