

These are the equations as they will appear on the last page of the final exam:

Assorted equations:

$$\begin{array}{lll}
 \Delta L = L_i \alpha \Delta T & PV = nRT = NK_B T & Q = mc\Delta T \\
 Q = L\Delta m & P = F/A & W = \int P dV \\
 W = nRT \ln \left(\frac{V_i}{V_f} \right) & \Delta E_{int} = Q - W & \Delta E_{int} = nC_V \Delta T \\
 Q = nC_V \Delta T & Q = nC_P \Delta T & \gamma = C_P/C_V \\
 C_P - C_V = R & PV^\gamma = C & P = \frac{2}{3}(N/V)(\frac{1}{2}m_0 \overline{v^2})
 \end{array}$$

Constants:

$$\begin{array}{lll}
 R = 8.314 \text{ J/mol}\cdot\text{K} & K_B = 1.381 \times 10^{-23} \text{ J/K} & 1 \text{ cal} = 4.186 \text{ J} \\
 T_{triplept} = 273.16 \text{ K}, 0.01^\circ \text{ C} & N_A = 6.0221 \times 10^{23} &
 \end{array}$$