

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

Assorted equations:

$$\Delta L = L_i \alpha \Delta T$$

$$Q = L \Delta m$$

$$W = nRT \ln \left(\frac{V_i}{V_f} \right)$$

$$Q = nC_V \Delta T$$

$$C_P - C_V = R$$

$$PV = nRT = NK_B T \quad Q = mc \Delta T$$

$$P = F/A$$

$$\Delta E_{int} = Q + W$$

$$Q = nC_P \Delta T$$

$$PV^\gamma = C$$

$$W = - \int P dV$$

$$\Delta E_{int} = nC_V \Delta T$$

$$\gamma = C_P / C_V$$

$$P = \frac{2}{3} (N/V) \left(\frac{1}{2} m_0 \overline{v^2} \right)$$

Constants:

$$R = 8.314 \text{ J/mol}\cdot\text{K}$$

$$K_B = 1.381 \times 10^{-23} \text{ J/K} \quad 1 \text{ cal} = 4.186 \text{ J}$$

$$T_{triplept} = 273.16 \text{ K}, 0.01^\circ \text{ C} \quad N_A = 6.0221 \times 10^{23}$$