Print Name (clearly)

Useful equations:

$$\sigma = \frac{F}{A_0} \qquad \sigma = E\varepsilon \qquad \varepsilon = \frac{\delta}{L_0} \qquad \nu = -\frac{\varepsilon_l}{\varepsilon} \qquad \varepsilon_L = \frac{-\delta L}{Wo} \qquad U_r \cong \frac{1}{2}\sigma_y \varepsilon_y \qquad \tau = G\gamma$$

$$\%EL = \frac{L_f - L_o}{L_o} \times 100 \qquad \%RA = \frac{A_o - A_f}{A_o} \times 100$$

$$W_L = \frac{M_L}{M_L + M_\alpha} = \frac{S}{R+S} = \frac{C_\alpha - C_0}{C_\alpha - C_L} \qquad W_\alpha = \frac{R}{R+S} = \frac{C_0 - C_L}{C_\alpha - C_L}$$

$$\sigma_y = \frac{\tau_{Crss}}{(cos\phi\ cos\lambda)_{max}} \qquad \theta = \cos^{-1}\left[\frac{u_1u_2 + v_1v_2 + w_1w_2}{\sqrt{(u_1^2 + v_1^2 + w_1^2)(u_2^2 + v_2^2 + w_2^2)}}\right]$$

$$\tau_R = \sigma\ cos\phi\ cos\lambda \qquad \sigma_{yield} = \sigma_0 + k_y d^{-1/2} \qquad \%CW = \frac{A_o - A_d}{A_o} \times 100$$

$$DP_n = \sum x_i n_i = \frac{\overline{M_n}}{m} \qquad DP_w = \sum w_i n_i = \frac{\overline{M_w}}{m} \qquad m = \Sigma f_i m_i \qquad \rho = \frac{n'(\Sigma A_C + \Sigma A_A)}{V_C N_A}$$

$$\rho = \frac{(\#\text{ of cations/UC})(\text{atomic wt. of cation}) + (\#\text{ of anions/UC})(\text{atomic wt. of anion})}{V_C N_A}$$

Useful constants:

Avogadro's #: 6.023 x 10^{23} atoms/mol. Velocity of Light: c = 3 x 10^8 m/s
Electronic charge: e = -1.61 x 10^{-19} C Electronic Mass: 9.11 x 10^{-31} kg
e/m_e ratio: 1.76 x 10^{11} C/kg
Boltzmann's constant: k = 1.38 x 10^{-23} J/atom-K = 8.62 x 10^{-5} eV/atom-K
Planck's constant: h = 6.625 x 10^{-34} J-s Bohr Magneton: m_B = 9.27 x 10^{-24} A-m^2
Gas Constant: R = 8.31 J/mol-K = 1.987 cal/mol-K
Permittivity of free space: e_0 = 8.85 x 10^{-12} F/m (or C^2/J-m)
Permeability of free space: m_0 = 4p x 10^{-7} H/m
Gravitational constant: g = 9.81 m/s^2 Faraday Constant: F = 96,487 C/mol