



Show that

$$\tau_1 = -\tau_2 = \tau_3 = -\tau_4$$

$$\sigma_1 = \sigma_3$$

$$\sigma_2 = \sigma_4$$

Normal and shear stress are independent for generalized plane stress, complementary property of shear

$$\Sigma F_x \Rightarrow \sigma_2 - \sigma_4 + \tau_1 - \tau_3 = 0 \quad (1)$$

$$\Sigma F_y \Rightarrow \sigma_1 - \sigma_3 + \tau_4 - \tau_2 = 0 \quad (2)$$

$$\Sigma M \Rightarrow -\tau_1 L - \tau_2 L - \tau_3 L - \tau_4 L = 0$$

$$\tau_1 + \tau_2 + \tau_3 + \tau_4 = 0 \quad (3)$$