

Chapter 7, Solution 16.

$$\tau = \frac{L_{\text{eq}}}{R_{\text{eq}}}$$

$$(a) \quad L_{\text{eq}} = L \quad \text{and} \quad R_{\text{eq}} = R_2 + \frac{R_1 R_3}{R_1 + R_3} = \frac{R_2(R_1 + R_3) + R_1 R_3}{R_1 + R_3}$$

$$\tau = \frac{L(R_1 + R_3)}{R_2(R_1 + R_3) + R_1 R_3}$$

$$(b) \quad \text{where } L_{\text{eq}} = \frac{L_1 L_2}{L_1 + L_2} \quad \text{and} \quad R_{\text{eq}} = R_3 + \frac{R_1 R_2}{R_1 + R_2} = \frac{R_3(R_1 + R_2) + R_1 R_2}{R_1 + R_2}$$

$$\tau = \frac{L_1 L_2 (R_1 + R_2)}{(L_1 + L_2)(R_3(R_1 + R_2) + R_1 R_2)}$$