

63. Since  $R_{\text{eq}} < R$ , the two resistors ( $R = 12.0\,\Omega$  and  $R_x$ ) must be connected in parallel:

$$R_{\text{eq}} = 3.00\,\Omega = \frac{R_x R}{R + R_x} = \frac{R_x (12.0\,\Omega)}{12.0\,\Omega + R_x}.$$

We solve for  $R_x$ :  $R_x = R_{\text{eq}} R / (R - R_{\text{eq}}) = (3.00\,\Omega)(12.0\,\Omega) / (12.0\,\Omega - 3.00\,\Omega) = 4.00\,\Omega$ .