

53. We use  $P_{\text{avg}} = I_{\text{rms}}^2 R = \frac{1}{2} I^2 R$ .

- $P_{\text{avg}} = 0$ , since  $R = 0$ .
- $P_{\text{avg}} = \frac{1}{2} I^2 R = \frac{1}{2} (0.600 \text{ A})^2 (50 \Omega) = 9.0 \text{ W}$ .
- $P_{\text{avg}} = \frac{1}{2} I^2 R = \frac{1}{2} (0.198 \text{ A})^2 (160 \Omega) = 3.14 \text{ W}$ .
- $P_{\text{avg}} = \frac{1}{2} I^2 R = \frac{1}{2} (0.151 \text{ A})^2 (160 \Omega) = 1.82 \text{ W}$ .