

67. The rms current in the motor is

$$I_{\text{rms}} = \frac{\mathcal{E}_{\text{rms}}}{Z} = \frac{\mathcal{E}_{\text{rms}}}{\sqrt{R^2 + X_L^2}} = \frac{420 \text{ V}}{\sqrt{(45.0 \, \Omega)^2 + (32.0 \, \Omega)^2}} = 7.61 \text{ A} .$$