90. (a) We observe that $\omega = 7540$ rad/s, and, consequently, $X_L = 377\ \Omega$ and $X_C = 15.3\ \Omega$. Therefore, Eq. 33-64 leads to

$$I_{\rm rms} = \frac{112\ \text{V}}{\sqrt{(35\,\Omega)^2 + (377\,\Omega - 15\,\Omega)^2}} = 0.308\ \text{A}\ .$$

(b) (c) (d) (e) (f) and (g) For the individual elements, we have:

$$\begin{aligned} V_{R,\rm rms} &= I_{\rm rms}R = 10.8\ \text{V} \\ V_{C,\rm rms} &= I_{\rm rms}X_C = 4.73\ \text{V} \\ V_{L,\rm rms} &= I_{\rm rms}X_L = 116\ \text{V} \end{aligned}$$

The capacitor and inductor are not dissipative elements; the only power dissipated (by definition) is in the resistor. If a coil, perhaps referred to as an inductor in building a circuit, is found to have an internal resistance, then the coil (for purposes of analysis) is taken to be an inductor plus a resistor. The power dissipated in the resistive element is $P_{\rm avg} = (0.308\ \text{A})^2(35\ \Omega) = 3.33$ W.