76. (a) From Eq. 33-65, we have

$$\phi = \tan^{-1}\left(\frac{V_L - V_C}{V_R}\right) = \tan^{-1}\left(\frac{V_L - (V_L/1.50)}{(V_L/2.00)}\right)$$

which becomes $\tan^{-1} 2/3 = 33.7^\circ$ or 0.588 rad.

(b) Since $\phi > 0$, it is inductive ($X_L > X_C$).

(c) We have $V_R = IR = 9.98$ V, so that $V_L = 2.00V_R = 20.0$ V and $V_C = V_L/1.50 = 13.3$ V. Therefore, from Eq. 33-60,

$$\mathcal{E}_m = \sqrt{V_R^2 + (V_L - V_C)^2}$$

we find $\mathcal{E}_m = 12.0$ V.