6-8 Soln)

A)

$$\tan\varphi = \frac{\chi_L - \chi_C}{R}$$

$$\chi_L = R\tan\varphi + \chi_C = \ 24(\tan(62^o) + 38 = 83.1\ \Omega$$

B)

$$I_{MAX} = \frac{\mathcal{E}_{MAX}}{Z} = \frac{\mathcal{E}_{MAX}}{\sqrt{R^2 + (\chi_L - \chi_C)^2}} = \frac{5}{\sqrt{24^2 + (83 - 38)^2}} = 0.098\ \text{Amps}$$