Single Device in AC Circuit: Application (2)

Consider an ac generator $\mathcal{E}(t) = \mathcal{E}_{max}\cos(\omega t)$, $\mathcal{E}_{max} = 25\text{V}$, $\omega = 377\text{rad/s}$ connected to an inductor with inductance $L = 12.7\text{H}$.

(a) Find the maximum value of the current.

(b) Find the current when the emf is zero and decreasing.

(c) Find the current when the emf is -12.5V and decreasing.

(d) Find the power supplied by the generator at the instant described in (c).