

$$v(t) = R \cdot i(t)$$

$$p(t) = v(t) \cdot i(t) = R \cdot i^2(t)$$

$$\bar{p} = \frac{1}{T} \int_0^T R i^2(t) dt = R \cdot \frac{1}{T} \int_0^T i^2(t) dt = R \cdot I_{RMS}^2$$

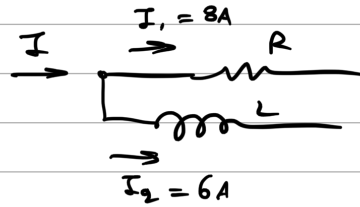
$$I_{RMS} = \sqrt{\frac{1}{T} \int_0^T i^2(t) dt} \Rightarrow i(t) = \sqrt{2} I_s \sin(\omega t) \Rightarrow I_{RMS} = I_s$$

$$V(t) = \sqrt{2} V_s \cdot \cos(\omega t)$$

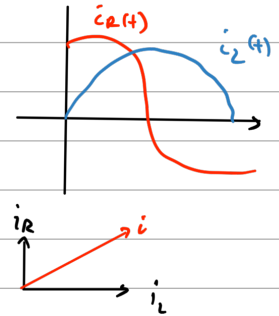
$$i_R(t) = \frac{\sqrt{2} V_s}{R} \cdot \cos(\omega t) \rightarrow 8A$$

$$i_L(t) = \frac{\sqrt{2} V_s}{\omega L} \sin(\omega t) \rightarrow 6A$$

$$V_L(t) = L \frac{di_L(t)}{dt} \rightarrow i(t) = \frac{1}{L} \int v(t) dt$$



$$I = 10A$$



$$S = V_{RMS} \cdot I_{RMS} = V_s \cdot I_s = 230V \cdot 10A = 2300 VA$$

$$P = V_{RMS} \cdot I_{P,RMS} = 230 \cdot 8 = 1840 W$$