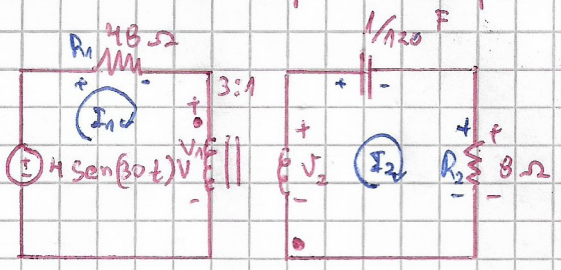
Halle el valor de la potencia promedio absorbida por la resistencia de 8 Ω



$$\frac{V_2}{V_1} = -\frac{1}{3} \rightarrow -V_1 = 3V_2$$

$$\frac{I_2}{I_1} = -3 \rightarrow I_1 = -\frac{I_2}{3}$$

$V_s = 4\angle 90^\circ \quad w = 30$

$$Z_C = \frac{1}{30\left(\frac{1}{120}\right)j} = -4j\ \Omega$$

Malla 1

(1) $4j - 48I_1 - V_1 = 0 \rightarrow -V_1 = 3V_2 ;\ I_1 = -\frac{I_2}{3} \rightarrow 16I_2 + 3V_2 = -4j$ (3)

Malla 2

(2) $V_2 + 4jI_2 - 8I_2 = 0 \rightarrow V_2 = (8 - 4j)I_2$

(2) → (3)

$16I_2 + 3(8 - 4j)I_2 = -4j$

$I_2(40 - 12j) = -4j$

$$I_2 = \frac{-1j}{10 - 3j}$$

$$I_2 = \frac{3 - 10j}{109} = 0.0275 - 0.0917j = 95.78\angle -73.3^\circ \text{ (mA)}$$

$V_{R_2} = 0.22 - 0.7336j = 0.76626\angle -73.3^\circ$ [V]

$I_{R_2\,rms} = 67.7267\angle -73.3^\circ$ (mA)

$V_{R_2\,rms} = 0.5418\angle -73.3^\circ$ [V]

$P = \frac{1}{2} I_{R_2\,rms}\, V_{R_2\,rms} = 18.348$ (mW)