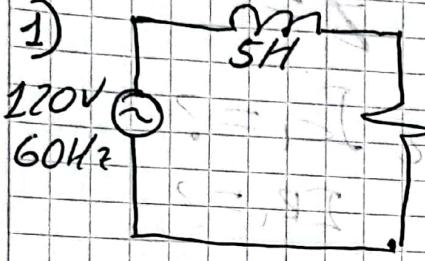
JOSE FELIPE PETRO | 12 | 05 | 2022

1)



$I_T = ?$ $\theta = ?$
$V_L = ?$ $V_T = ?$
$V_R = ?$ $I = ?$

$X_L = 2\pi FL = 2(3.14)(60)(5)$

$X_L = 1884\ \Omega$

$Z = \sqrt{(1884)^2 + (1200)^2}$

$\boxed{Z = 2233.7\Omega}$

$V_T = I_T \times Z \Rightarrow I_T = \frac{V_T}{Z} = \frac{120v}{2233.7\Omega}$

$\boxed{I_T = 0.0537A} = I_R \Rightarrow V_R = I_R \times R$

$V_R = (0.0537)(1200)$

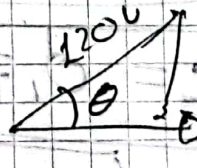
$\boxed{V_R = 64.44V}$

$V_T = \sqrt{V_L^2 + V_R^2}$

$V_L = \sqrt{V_T^2 - V_R^2}$

$V_L = \sqrt{(120)^2 - (64.44)^2}\ V$

$\boxed{V_L = 101.2V}$



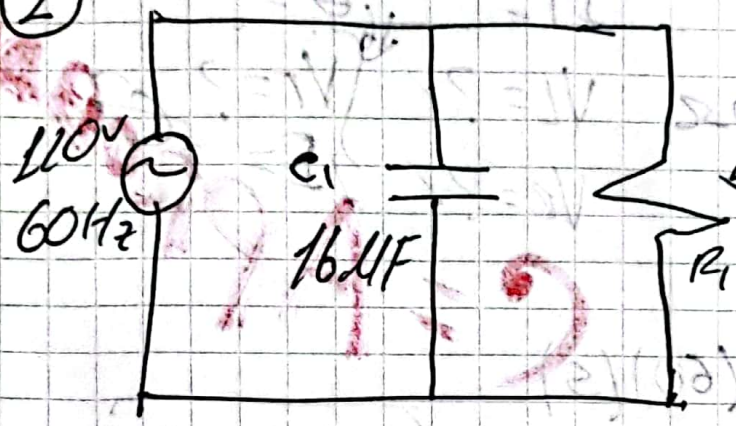
$\theta = \cos^{-1}\left(\frac{64.44}{120}\right)$

$\boxed{\theta = 57.5^\circ}$

$\theta = \cos^{-1}\left(\frac{V_R}{V_T}\right)$

Escaneado con CamScanner

(2)



$Z = ?$

$I_{C_1} = ?$

$I_{R_1} = ?$

$P_{ef} = ?$

$P_T = V_T \cdot I_T$

$X_C = \frac{1}{2\pi f C}$ $C = 16\,\mu F$ $C = 0{,}000016\,F$

$X_C = \frac{1}{2(3{,}14)(60)(0{,}000016)} = 165{,}8\,\Omega$

$Z = \frac{165{,}8 \times 500}{\sqrt{(165{,}8)^2 + (500)^2}}$ $Z = \frac{X_C R}{\sqrt{X_C^2 + R^2}}$

$Z = 157{,}3\,\Omega$

$I_R = \frac{V_T}{R}$

$I_{R_1} = \frac{120\,v}{500\,\Omega}$

$I_{R_1} = 0{,}24\,A$

$I_C = 0{,}723\,A$

$V_C = I_C X_C$

$I_C = \frac{V_C}{X_C}$

$I_C = \frac{120}{165{,}8} = 0{,}723\,A$

$I_T = \sqrt{(0{,}723)^2 + (0{,}24)^2}$

$I_T = 0{,}761\,A$

$P_T = (120)(0{,}761\,A) = 91{,}32\,VA$

$P_T = 91{,}32\,W$

Escaneado con CamScanner