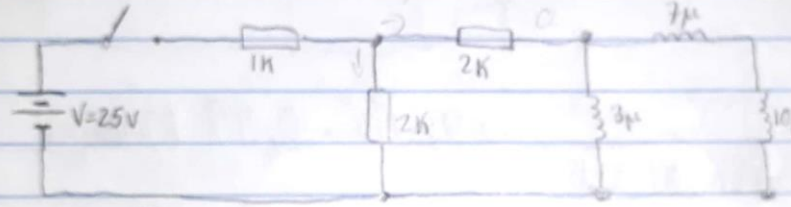
Edmundo Henrique de Paiva Silva GEB 675

1) $V = 100\angle 72°$ $Z = 45\angle -50°$ $I = \frac{V}{Z} \Rightarrow \frac{100\angle 72}{45\angle -50} \Rightarrow 2{,}22\angle 122°$ $2{,}22\sin(1000t + 122°)A$

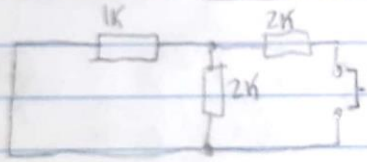
2) $Z = 45\angle -50° \Rightarrow Rec(45, -50) = 28{,}93 - j34{,}47$

$R = 28{,}93\Omega$ $34{,}47 = \frac{1}{2000.C} \Rightarrow 68940 = \frac{1}{C} \Rightarrow C = 14{,}51\mu F$

3)



$\frac{3.17}{20} = 2{,}55\mu H$



$R = (1K // 2K) + 2K$

$R = 666{,}67 + 2K \Rightarrow 2{,}67K$

$\frac{R}{L} = \frac{2{,}67K}{2{,}55\mu} \Rightarrow 1{,}05 \times 10^9$

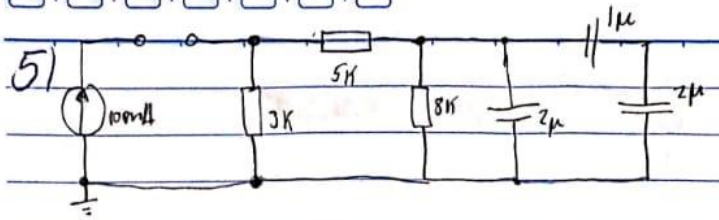
$It = \frac{25}{1 \times 10^3} = 25mA$ $\left(\frac{2K}{4K}\right).25mA = 12{,}5mA$

p/ $t = 0$ $V = 25e^{1{,}05 \times 10^9}$ e $12{,}5 - 12{,}5e^{1{,}05 \times 10^9}$

DOM SEG TER QUA QUI SEX SÁB

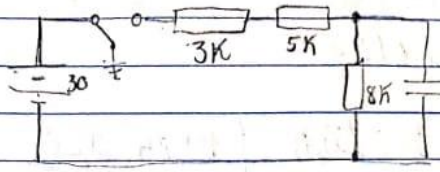
2×10^{11}

5)



$(1\mu + 2\mu) // 2\mu = 666{,}67\,nF$

Aplicando Norton:

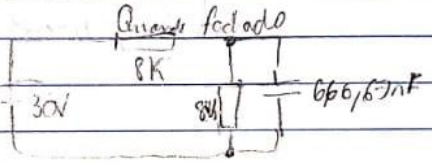


$V = 10mA \cdot 3K\Omega$

$V = 30V$

P/ V=30V Qts R?

$10mA = \frac{30V}{R} \Rightarrow R = 30K$



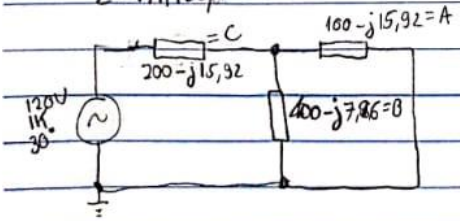
$\left(\frac{8K}{16K}\right) \cdot 30 = 15\,V$ nos capacitores.

$i(t) = \frac{-15}{4 \times 10^3} e^{-\frac{t}{RC}} = -3{,}75\, e^{-\frac{t}{RC}} \quad v(t) = 15\, e^{-\frac{t}{RC}}$

$RC =$

b) $X_C = \frac{1}{2\pi \cdot 1K \cdot 10\mu} = 15{,}92\,\Omega \quad Z_C = -j\,15{,}92\,\Omega$

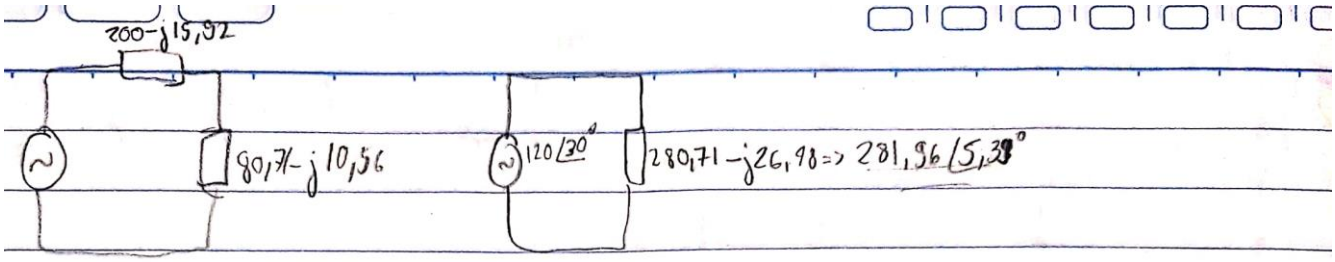
$X_C = \frac{1}{2\pi \cdot 1K \cdot 20\mu} = 7{,}96\,\Omega \quad Z_C = -j\,7{,}96\,\Omega$



$(A // B) + C$

$\frac{(100 - j15{,}92)(400 - j7{,}96)}{500 - j23{,}88} = \frac{40K - j796 - j368 + 1267}{500 - j23{,}88}$

$\frac{40{,}12K - j7{,}16K}{500 - j23{,}88} = \frac{40{,}75K \angle -10{,}19°}{506{,}57 \angle -2{,}73°} = 81{,}9 \angle -7{,}96° \Rightarrow 80{,}71 - j\,10{,}56$



$$I = \frac{120/30^\circ}{281,96/-5,39^\circ} = 0,42/35,39^\circ = I_T$$

$$0,42/35,39^\circ \cdot \left(\frac{101,26/-9,05^\circ}{500,57/-2,73} \right) = 84,96/29,07^\circ \text{ mA aproximadamente}$$