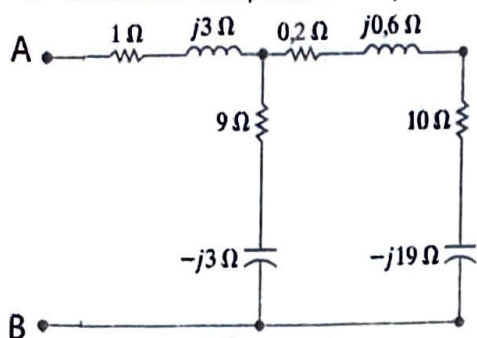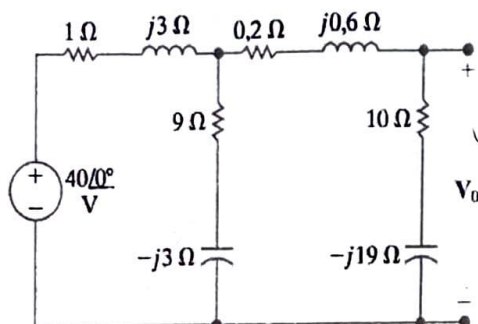1. Determine a Impedância Equivalente (Z_T) entre A e B.

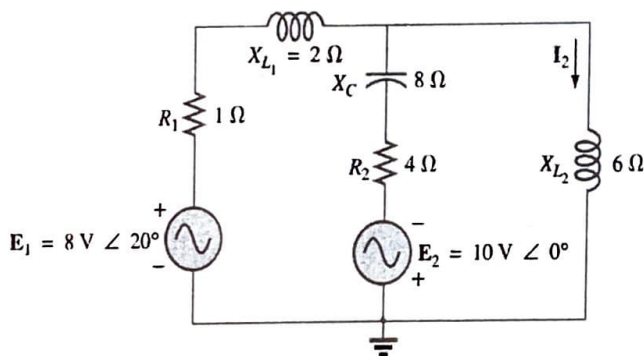
$$Z_T = (6,93 - j0,61)\ \Omega$$

2. Determine V_0
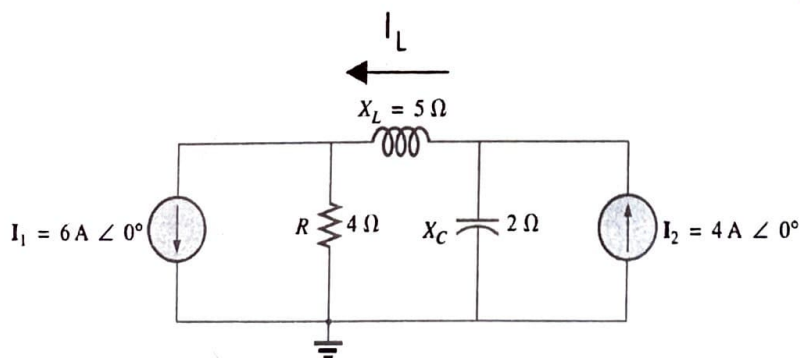

$$V_0 = 40,74 \angle -27,55°\ V$$

3. Qual a corrente I_2 do circuito abaixo:

$$I_2 = 1,27 \angle -86,95°\ A$$

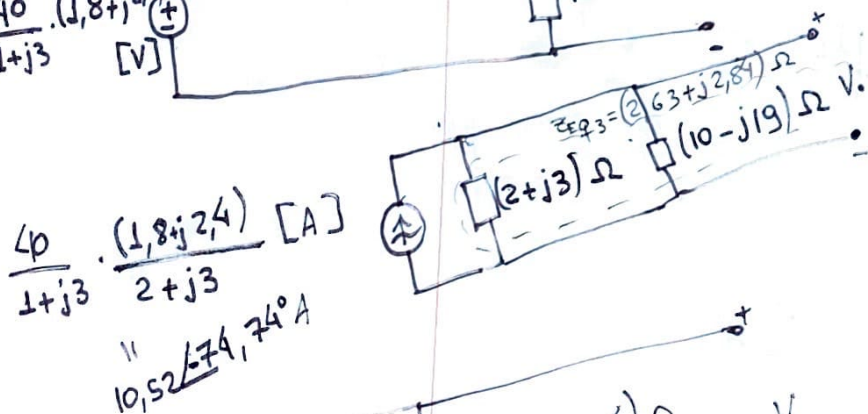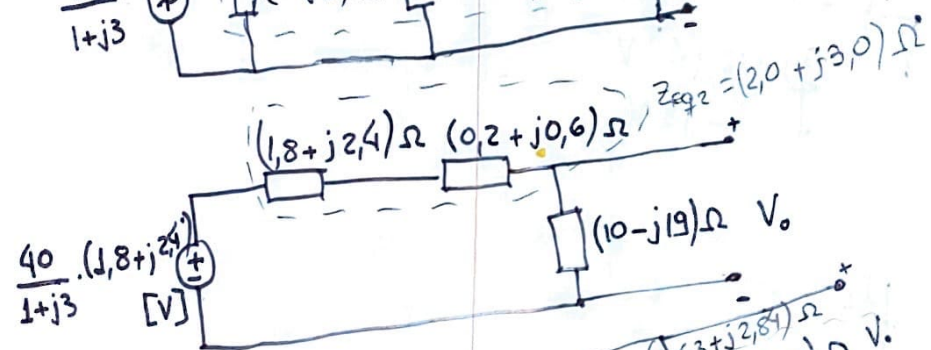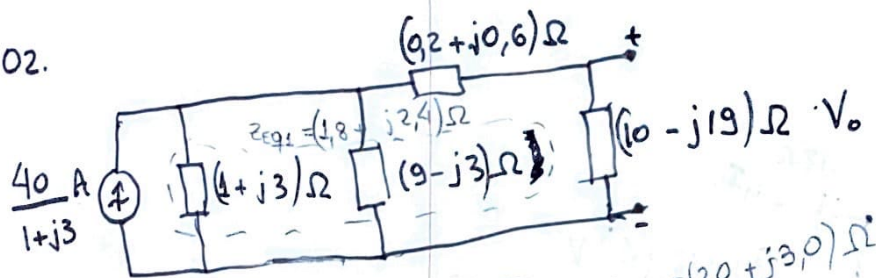4. Qual o valor de I_L

$$I_L = 5,06 \angle -55,30°\ A$$

$Z_T = (1\,\Omega) + (j\,3\,\Omega) + \left[(9\,\Omega - j3\,\Omega) \| (0,2\,\Omega + j0,6\,\Omega + 10\,\Omega - j\,19\,\Omega)\right.$

$Z_T = (1 + j3)\,\Omega + \left[(9 - j3)\,\Omega \| (10,2 - j\,18,4)\,\Omega\right]$

$$Z_T = (1 + j3)\,\Omega + \cfrac{1}{\cfrac{1}{(9-j3)\,\Omega} + \cfrac{1}{(10,2 - j\,18,4)\,\Omega}}$$

$Z_T = (6,93 - j0,61)\,\Omega$

02.

$\dfrac{40}{1+j3}$ A

$Z_{eq1} = (1,8 + j2,4)\,\Omega$

$(1+j3)\,\Omega \qquad (9-j3)\,\Omega$

$(0,2 + j0,6)\,\Omega$

$(10 - j19)\,\Omega \quad V_o$

$(1,8 + j2,4)\,\Omega \quad (0,2 + j0,6)\,\Omega \qquad Z_{eq2} = (2,0 + j3,0)\,\Omega$

$\dfrac{40}{1+j3} \cdot (1,8 + j24)$ [V]

$(10 - j19)\,\Omega \quad V_o$

$Z_{eq3} = (2,63 + j2,84)\,\Omega \quad V_o$

$(2 + j3)\,\Omega \qquad (10 - j19)\,\Omega$

$\dfrac{40}{1+j3} \cdot \dfrac{(1,8+j24)}{2+j3}$ [A]

$= 10,52\angle{-74,74°}\,A$

$10,52\angle{-74,74°}$

$(2,63 + j2,84)\,\Omega \qquad V_o$

$V_o = (10,52\angle{-74,74°}) \left[(2,63 + j2,84)\,\Omega\right]$

$V_o = 40,74\angle{-27,55°}$ V

03.

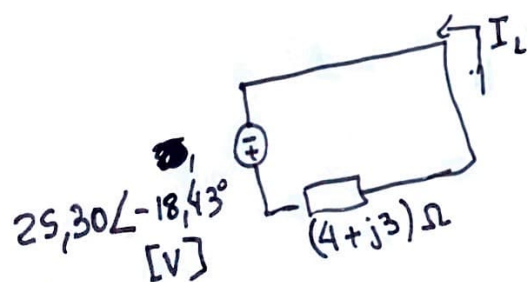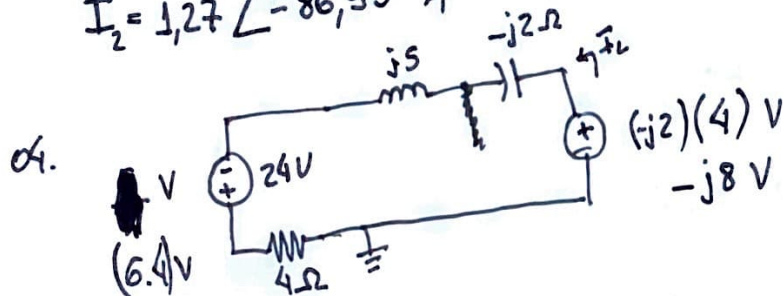$$V = \dfrac{\dfrac{8\angle 20^\circ}{1+j2} \,,- \dfrac{10\angle 0^\circ}{4-j8}}{\dfrac{1}{1+j2} + \dfrac{1}{4-j8} + \dfrac{1}{j6}} \; V$$

~~V = 7,63~~

$V = 7,64\angle 3,05^\circ \; V$ ✓

$I_2 = V/(j6\,\Omega)$ ✓

$I_2 = 1,27\angle -86,95^\circ \; A$

α.

$I_L = \dfrac{205,30\angle -18,43^\circ}{4+j3} \; A$

$I_L = 5,06\angle -55,30^\circ \; A$ ✓

$I = \dfrac{V}{Z}$