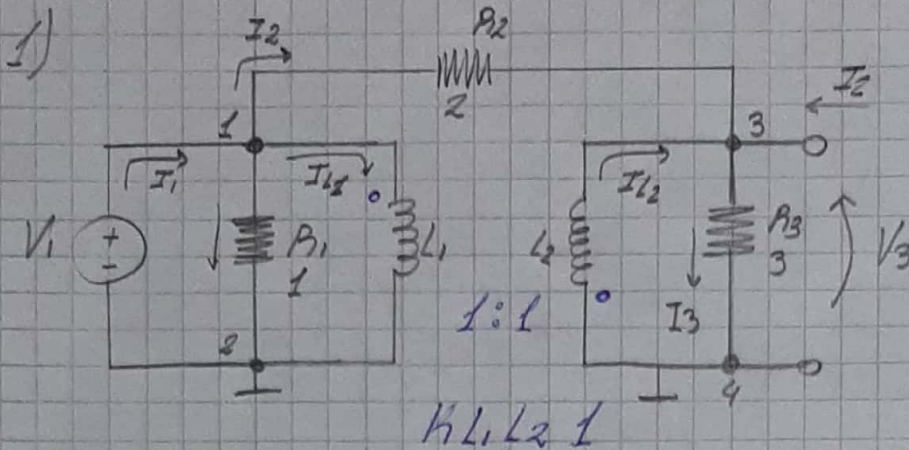


Tarea semanal 6



trafo ideal (barras no homólogos)

parámetros Z

$$\begin{cases} V_1 = -V_3 & (1) \\ I_{L1} = I_{L2} & (2) \end{cases}$$

$$\begin{cases} V_1 = Z_{11} I_1 + Z_{12} I_2 \\ V_2 = Z_{21} I_1 + Z_{22} I_2 \end{cases}$$

Nodos

$$\begin{cases} I_1 = \frac{V_1}{R_1} + \frac{(V_3 - V_1)}{R_2} + I_{L1} & (3) \end{cases}$$

$$\begin{cases} \frac{V_3}{R_3} = I_2 + \frac{(V_3 - V_1)}{R_2} + I_{L2} & (4) \end{cases} \rightarrow I_{L2} = \frac{V_3}{R_3} - \frac{(V_3 - V_1)}{R_2} - I_2 \quad (5)$$

(5) en (3)

$$I_1 = \frac{V_1}{R_1} + \frac{(V_3 - V_1)}{R_2} + \frac{V_3}{R_3} - \frac{(V_3 - V_1)}{R_2} - I_2$$

$$(1) \rightarrow I_1 = \frac{V_1}{R_1} - I_2 - \frac{V_1}{R_3} \quad (6)$$

$$Z_{11} = \frac{V_1}{I_1} \bigg|_{I_2=0} \rightarrow \text{de (6)} \quad I_1 = V_1 \left(\frac{1}{R_1} - \frac{1}{R_3} \right)$$

$$Z_{11} = \frac{1}{\frac{1}{R_1} - \frac{1}{R_3}} = \frac{3}{2}$$