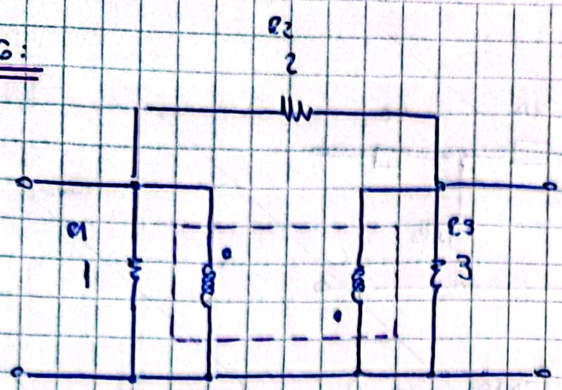
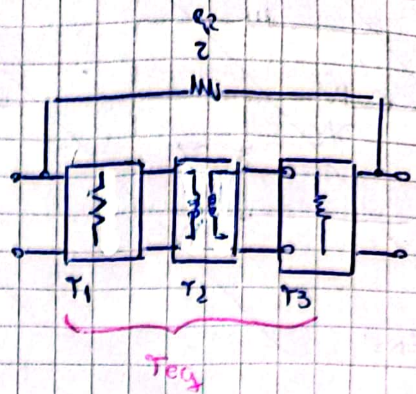
TSG:

1)



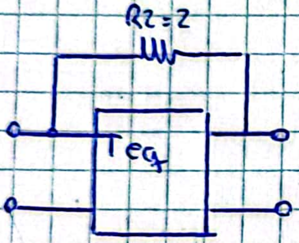


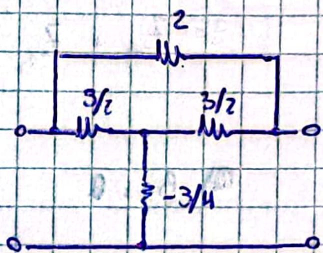
$$T_{eq} = T1 \cdot T2 \cdot T3 = \begin{pmatrix} 1 & 0 \\ 1 & 1 \end{pmatrix}\begin{pmatrix} -a & 0 \\ 0 & -1/a \end{pmatrix}\begin{pmatrix} 1 & 0 \\ 1/3 & 1 \end{pmatrix} = \begin{pmatrix} -1 & 0 \\ -\frac{4}{3} & -1 \end{pmatrix} \rightarrow \Delta T = 1$$

$$z = \frac{1}{C}\begin{pmatrix} A & \Delta T \\ 1 & D \end{pmatrix} = \begin{pmatrix} 3/4 & -3/4 \\ -3/4 & 3/4 \end{pmatrix}$$

$\hookrightarrow B = 0 \rightarrow Y$ indefinido

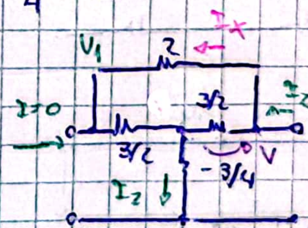
$C \neq 0 \rightarrow z$ definidos





Forma 1: $\rightarrow$ Por definición

$$z_{11} = \left.\frac{V_1}{I_1}\right|_{I_2=0} = \left[3/2 \,//\, (2+3/2)\right] - 3/4 = \frac{21}{20} = 1{,}05 - \frac{3}{4} = 3/10$$



$$z_{12} = \left.\frac{V_1}{I_2}\right|_{I_1=0} = \frac{21}{20} \cdot \frac{3/2}{3/2+2} - 3/4 = -3/10$$

$$Z_{21} = -3/10$$

$$Z_{22} = \frac{21}{20} - \frac{3}{4} = 3/10$$

$$\boxed{z = \begin{pmatrix} 0{,}3 & -0{,}3 \\ -0{,}3 & 0{,}3 \end{pmatrix}}$$

$R_x = (2+3/2) \,//\, 3/2 = \frac{21}{20}$

$V = I_2 \cdot (R_x)$ $\qquad V_1 = V \cdot \frac{3/2}{3/2+2} + I_2\left(-\frac{3}{4}\right)$

$\frac{V_1 - V}{3/2} = I_2 \rightarrow 0$ $\qquad V_1 \frac{2}{3} - I_2\left(-\frac{3}{4}\right)\frac{2}{3} = I_2$

$V_1 \frac{2}{3} = I_2 \cdot \frac{1}{2}$

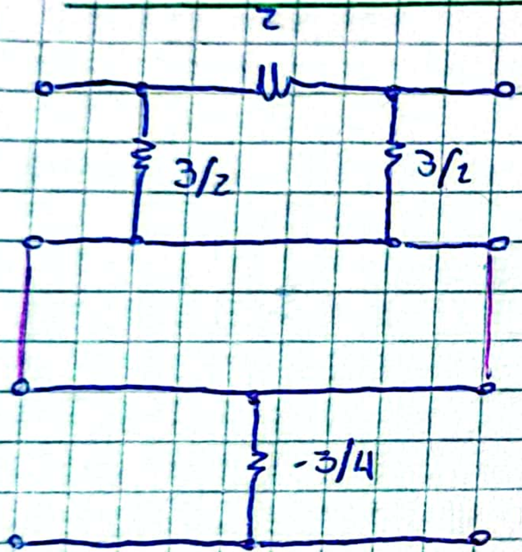
$\frac{V_1}{I_2} = \frac{3}{4}$

NOTA

HOJA N°

FECHA

Forma 2: Interconexión Cuadripolos



$$Z = Z_\pi + Z_n$$

$$Z_\pi = Y_\pi^{-1} = \begin{pmatrix} 7/6 & -1/2 \\ -1/2 & 7/6 \end{pmatrix}^{-1} \rightarrow \Delta Y_\pi = \frac{7}{6}^2 - \frac{1}{2}^2 = \frac{10}{9}$$

$$Z_\pi = \frac{9}{10} \begin{pmatrix} 7/6 & 1/2 \\ 1/2 & 7/6 \end{pmatrix} = \begin{pmatrix} 21/20 & 9/20 \\ 9/20 & 21/20 \end{pmatrix}$$

$$Z_n = \begin{pmatrix} -3/4 & -3/4 \\ -3/4 & -3/4 \end{pmatrix}$$

$$\boxed{Z = Z_\pi + Z_n = \begin{pmatrix} 3/10 & -3/10 \\ -3/10 & 3/10 \end{pmatrix}}$$