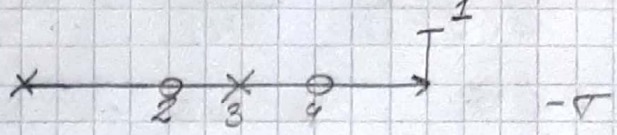
2)

$$T = \frac{V_2}{V_1}\Big|_{I_2=0} = K\frac{(s+1)}{(s+2)(s+4)} = \frac{Z_{21}}{Z_{11}} = -\frac{Y_{21}}{Y_{22}}$$

- Excito con V_1 ⇒ 1° comp en serie
- $I_2 = 0$ tengo que terminar en derivación

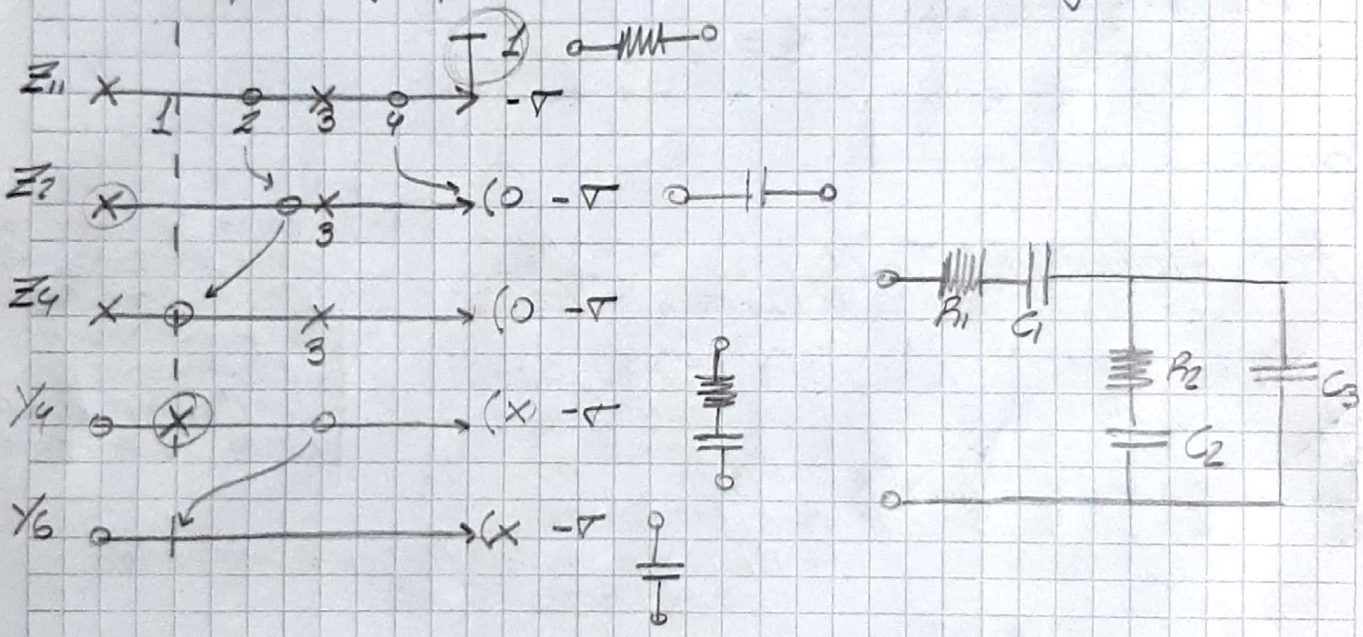
$$Z_{11} = \frac{(s+2)(s+4)}{s(s+3)}$$



El valor en cero tiene que ser mayor que el valor en inf. (Z_{inc})

$$Z_{21} = \frac{(s+1)}{s(s+3)}$$

↳ Impone que tengo que hacer remociones en -1 y en inf



$$Z_2\Big|_{s\to\infty} = Z_{11} - R_1 = 0 \qquad \lim_{s\to\infty} Z_{11} = 1 \Rightarrow R_1 = 1$$

$$Z_2 = \frac{(s+2)(s+4)}{s(s+3)} - 1 = \frac{s^2+6s+8-s^2-3s}{s(s+3)}$$

$$Z_2 = \frac{3s+8}{s(s+3)} = \frac{3(s+8/3)}{s(s+3)}$$

$$Z_4\Big|_{s=-1} = Z_2 - \frac{R_0}{s} = 0 \qquad R_0 = \lim_{s\to-1} Z_2 s = 3\frac{(-1+8/3)}{-1+3} = \frac{5}{2}$$

$$Z_4 = \frac{3(s+8/3)}{s(s+3)} - \frac{5/2}{s} = \frac{3(s+8/3) - 5/2(s+3)}{s(s+3)} \qquad C_1 = 2/5$$

$$Z_4 = \frac{3s+8-5/2s-15/2}{s(s+3)} = \frac{1/2(s+1)}{s(s+3)}$$

NOTA

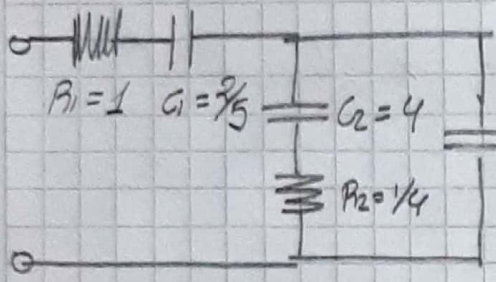
$$Y_4 = \frac{5(5+8)}{1/2(5+1)} \quad ; \quad Y_6 = Y_4 - \frac{R_1 5}{5+1}$$

$$\lim_{5\to -1} Y_4 \frac{(5+1)}{5} = \frac{(-1+3)}{1/2} = 4 \quad ; \quad Y_3 = \frac{1}{\frac{1}{R_1} + \frac{1}{\frac{R_1}{1}5}}$$

$$Y_6 = \frac{5(5+8)}{1/2(5+1)} - \frac{45}{(5+1)} = \frac{5(5+3)-25}{1/2(5+1)} = \frac{5\cancel{(5+1)}}{1/2\cancel{(5+1)}}$$

$$Y_6 = 25 \Rightarrow C_3 = 2$$

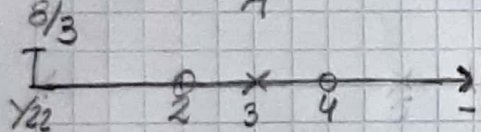
$$R_2 = 1/R_1 = Y_4 \quad ; \quad C_2 = R_1 = 4$$



Por Admitancia: $T = \frac{V_2}{V_1}\Big|_{I_2=0} = -\frac{Y_{21}}{Y_{22}}$

$$Y_{21} = \frac{5+1}{A} \quad \wedge \quad Y_{22} = \frac{(5+2)(5+4)}{A}$$

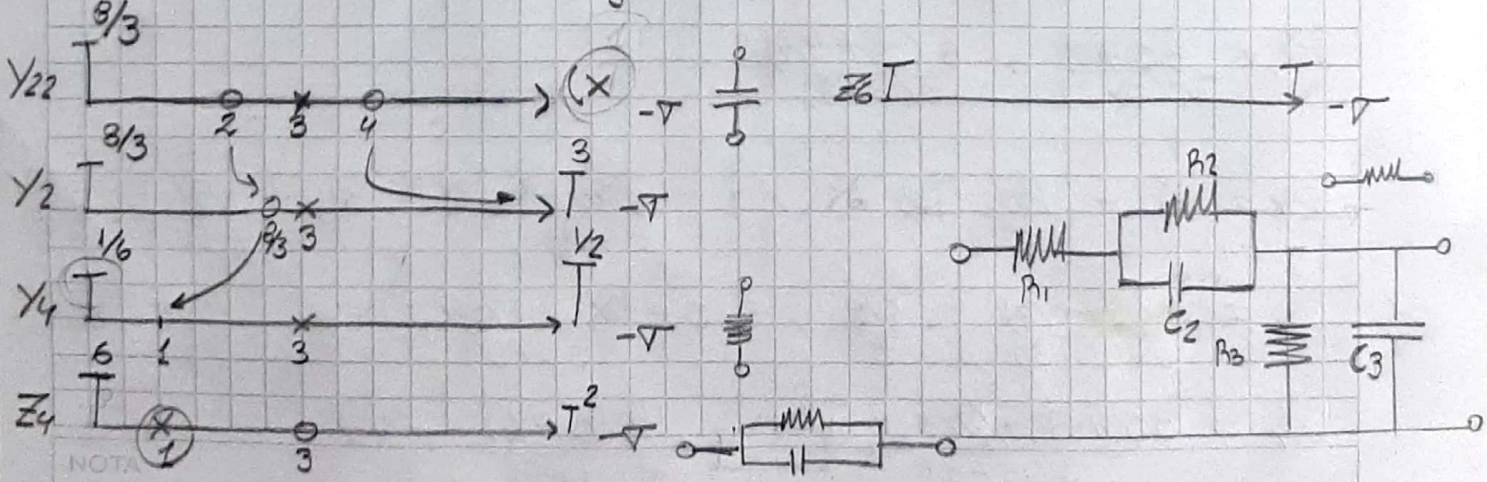
- Como la cond. de carga es $I_2=0$ $\Rightarrow$ 1° comp desde la der Va en derivación
- Excito con V_1 $\therefore$ 1° comp desde la izq. Va en serie.



↳ FRP
↳ Alternancia
↳ El valor en cero tiene que ser menor que el valor en inf

$$A = (5+8) \Rightarrow Y_{22} = \frac{(5+2)(5+4)}{(5+3)} = \frac{8}{3}$$

$$Y_{21} = \frac{(5+1)}{(5+3)}$$ → tengo que hacer remociones en -1 y en inf



$Y_2 = Y_{22} - K_\infty s$ $\quad \lim_{s\to\infty} \frac{Y_{22}}{s} = \frac{(s+2)(s+4)}{s(s+3)} = 1$

$Y_2 = \frac{s^2+6s+8}{s+3} - s = \frac{s^2+6s+8-s^2-3s}{s+3}$

$Y_2 = \frac{3s+8}{s+3} = 3\frac{(s+8/3)}{s+3}$ $\quad \Rightarrow C_3 = 1$

$Y_4 = Y_2 - Y_3$ $\quad Y_4|_{s=-1} = 0 = 3\frac{(-1+8/3)}{-1+3} - Y_3$

$\Rightarrow Y_4 = \frac{3s+8}{s+3} - \frac{5}{2}$ $\quad \Rightarrow Y_3 = 5/2$

$\Rightarrow R_3 = 2/5$

$Y_4 - \frac{3s+8-5/2(s+3)}{s+3} = \frac{1/2(s+1)}{s+3}$

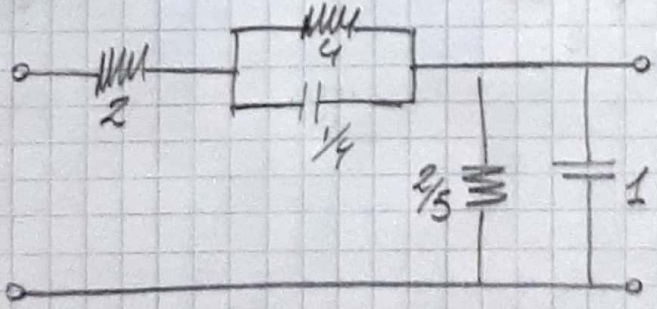
$Z_4 = \frac{2(s+3)}{(s+1)}$

$Z_6 = Z_4 - \frac{K_1}{(s+1)}$ $\quad \Rightarrow \lim_{s\to -1} Z_6(s+1) = 4$

$Z_6 = \frac{2s+6-4}{(s+1)} = \frac{2(s+1)}{s+1} = 2$ $\quad \Rightarrow R_1 = 2$

$Z_5 = \frac{K_1}{s+1} = \frac{1}{\frac{s}{K_1}+\frac{1}{K}}$ $\quad \Rightarrow C_2 = 1/K_1 = 1/4$

$R_2 = K_1 = 4$



$$T = \begin{pmatrix} 1 & R_1 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 1 & Z_2 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 1 & 0 \\ C_3 & 1 \end{pmatrix}\begin{pmatrix} 1 & 0 \\ 5C_5 & 0 \end{pmatrix}$$

$A = \frac{V_1}{V_2}\Big|_{I_2=0}$ $\quad \Rightarrow T = \frac{1}{A}$ $\quad \rightarrow$ Verifico en python.

NOTA