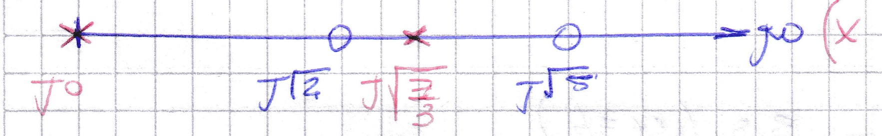
HOJA Nº

FECHA

2) $$Y(s) = \frac{3.s.(s^2+7/3)}{(s^2+2)(s^2+5)}$$

$$Z(s) = \frac{1}{Y(s)} = \frac{(s^2+2)(s^2+5)}{3.s\left(s^2+\frac{7}{3}\right)}$$



Realizamos una remoción parcial del polo en continua para ubicar un cero en $\omega = 1$.

$$K'_0 = Z(s).s\Big|_{s=j1}$$

$$K'_0 = \frac{(s^2+2)(s^2+5)}{3.s.\left(s^2+\frac{7}{3}\right)}.s\Big|_{s=j1} = 1.$$

Por lo tanto, $C_1 = 1$.

$$Z_2(s) = Z(s) - \frac{K'_0}{s} = \frac{(s^2+2)(s^2+5)}{3.s.\left(s^2+\frac{7}{3}\right)} - \frac{1}{s} = \frac{s^4+4s^2+3}{3.s.\left(s^2+\frac{7}{3}\right)}$$

$$Y_2(s) = \frac{3.s.\left(s^2+\frac{7}{3}\right)}{s^4+4s^2+3}$$

$$2.K'_1 = Y_2(s).\frac{s^2+1}{s}\Big|_{s=j1} = \frac{3.s.\left(s^2+\frac{7}{3}\right)}{s^4+4s^2+3}.\frac{(s^2+1)}{s}\Big|_{s=j1}$$

$$= \frac{3s.(s^2+7/3)}{(s^2+1)(s^2+3)}.\frac{s^2+1}{s}\Big|_{s=j1} = \frac{3.(s^2+7/3)}{s^2+3}\Big|_{s=j1} = 2$$

NOTA

$$\boxed{K_1' = 1}$$

Se remueve una de las ramas LC que resuena en $j1$.

$$C_2 = \frac{2K_1'}{\omega_1^2} = 2$$

$$L_2 = \frac{1}{2K_1'} = \frac{1}{2}$$

Para la otra rama:

$$Y_4(s) = Y_2(s) - \frac{2.s}{s^2+1} = \frac{3.s.(s^2+7/3)}{(s^2+1)(s^2+3)} - \frac{2s}{s^2+1}$$

$$= \frac{1}{s^2+1} \cdot \left(\frac{3s(s^2+7/3)}{s^2+3} - 2s \right)$$

$$Y_4(s) = \frac{1}{s^2+1} \cdot \left(\frac{3.s.(s^2+7/3) - 2.s.(s^2+3)}{s^2+3} \right)$$

$$= \frac{1}{s^2+1} \cdot \frac{s^3+s}{s^2+3} = \frac{1}{\cancel{s^2+1}} \cdot \frac{s.\cancel{(s^2+1)}}{s^2+3} = \frac{s}{s^2+3} = \frac{1}{\frac{s^2+3}{s}}$$

$$= \frac{1}{1.s + \frac{1}{\frac{1}{3}.s}}$$

$$\boxed{C_3 = \frac{1}{3}} \quad \text{y} \quad \boxed{L_3 = 1}$$