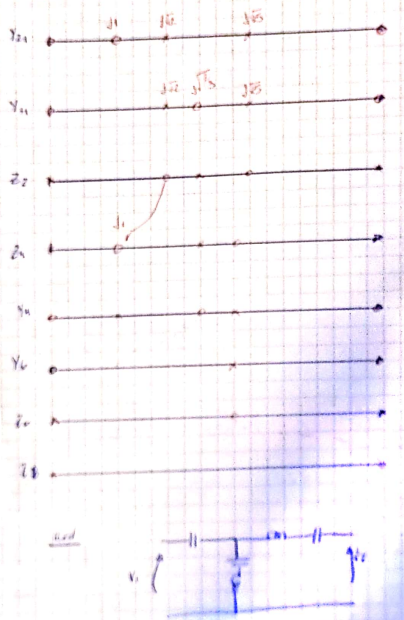
$$Y_{21} = \frac{I_2}{V_1}\Big|_{V_2=0} = \frac{3s\,(s^2+1)}{(s^2+2)\,(s^2+5)}$$

$$Y_{11} = \frac{I_1}{V_1}\Big|_{V_2=0} = \frac{3s\,(s^2+\frac{7}{3})}{(s^2+2)\cdot(s^2+5)}$$

Síntesis gráfica



$$z_2 = \frac{(s^2+2)(s^2+5)}{3s(s^2+\frac{7}{3})}$$

$$z_4 = z_2 = \frac{A_\infty}{s} \qquad A_\infty = \lim_{s\to\infty} s\, z_2 = \frac{(-1+2)(-1+5)}{3(-1+\frac{7}{3})} = 1$$

$$z_4 = \frac{s^4+7s^2+10}{3s(s^2+\frac{7}{3})} - \frac{1}{s} = \frac{s^4+7s^2+10-3s^2-7}{3s(s^2+\frac{7}{3})} = \quad \text{Cancelar 1F con el cero}$$

$$z_4 = \frac{s^4+4s^2+3}{3s(s^2+\frac{7}{3})} = \frac{(s^2+1)(s^2+3)}{3s(s^2+\frac{7}{3})}$$

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

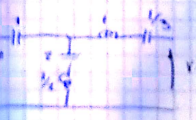
$$Y_6 = Y_4 - \frac{K_1 s}{s^2+\omega_0^2} \qquad K_1 = \lim_{s^2\to -1} Y_4 \frac{(s^2+1)}{s} = \frac{3(s^2+\frac{7}{3})}{s^2+3}\Big|_{s^2=-1} = \frac{3(-1+\frac{7}{3})}{(-1+3)} = \frac{3}{2}$$

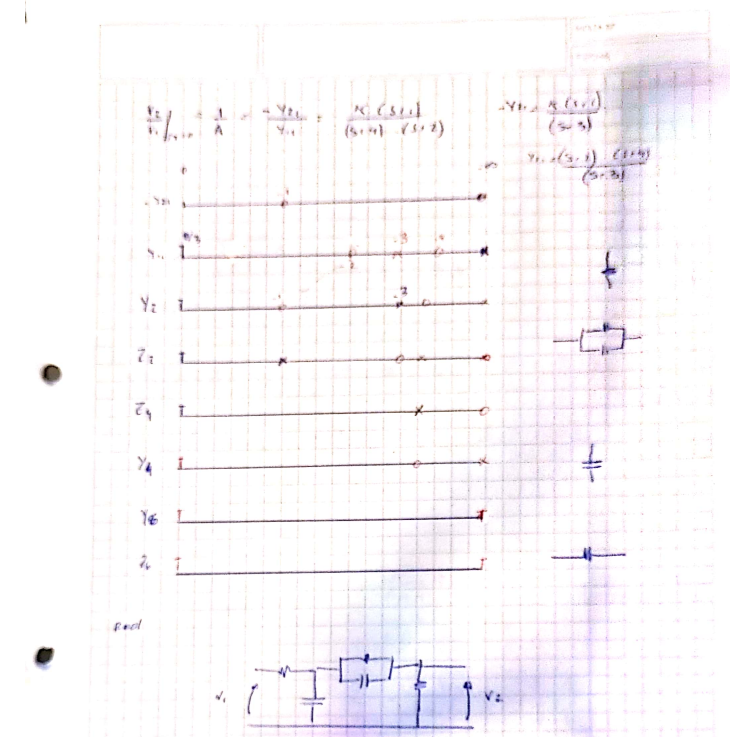
$$2\,\frac{1}{\frac{1}{2}\,\Omega} = \frac{K_1 s}{s^2+\omega_0^2} = \frac{2s}{s^2+1} = \frac{sL}{s^2+\frac{1}{C}} \Rightarrow L = \frac{1}{2}\ \text{H} \qquad C = 2$$

$$Y_6 = \frac{3s(s^2+\frac{7}{3})}{(s^2+1)(s^2+3)} - \frac{2s}{s^2+1} = \frac{3s(s^2+\frac{7}{3}) - 2s(s^2+3)}{(s^2+1)(s^2+3)}$$

$$Y_6 = \frac{3s^3+7s-2s^3-6s}{(s^2+1)(s^2+3)} = \frac{s^3+s}{(s^2+1)(s^2+3)} = \frac{s(s^2+1)}{(s^2+1)(s^2+3)} = \frac{s}{s^2+3}$$

$$Z_6 = \frac{s^2+3}{s} = \frac{s^2}{s} + \frac{3}{s} = s + \frac{3}{s}$$





Escaneado con CamScanner

Síntesis analítica

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

$$Y_2 = Y_{11} - K_1$$

$$K_1 = \lim_{s\to -1} Y_{11} = \frac{3}{2}$$

$$Y_2 = Y_{11} - \frac{3}{2} = \frac{s^2+6s+8}{(s+3)} - \frac{3}{2} = \frac{2s^2+12s+16-3s-9}{2(s+3)}$$

$$Y_2 = \frac{2s^2+9s+7}{2(s+3)} = \frac{s^2+\frac{9}{2}s+\frac{7}{2}}{(s+3)} = \frac{(s+1)(s+7/2)}{(s+3)}$$

$$Z_2 = \frac{s+3}{(s+1)(s+7/2)}$$

$$Z_4 = Z_2 - \frac{K_2}{(s+1)} \qquad K_2 = \lim_{s\to -1} Z_2\cdot(s+1) = \frac{s+3}{s+7/2} \quad (s=1)$$

$$K_2 = \frac{2}{5/2} = \frac{4}{5}$$

$$\equiv \frac{1/C}{s+\frac{1}{RC}} = \frac{4/5}{s+1} \qquad C = \frac{5}{4} \qquad R = 4/5$$

$$Z_{44} = \frac{5(s+2)}{(s+1)(s+7/2)} = \frac{4}{5(s+1)} = \frac{5s^2+15-4s-14}{5(s+1)(s+7/2)} = \frac{s+1}{5(s+1)(s+7/2)}$$

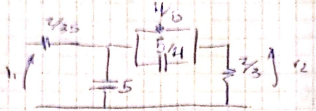
$$Z_4 = \frac{1}{5\left(s+\frac{7}{2}\right)}$$

$$Y_4 = 5\left(s+\frac{7}{2}\right) \qquad Y_6 = Y_4 - K_3 \cdot s \qquad K_3 = \lim_{s\to\infty} \frac{5(s+\frac{7}{2})}{s} = 5$$

$Y_1 = Y_4 = 5S = 5S + \frac{2S}{2} + 5S = \frac{25}{2}$

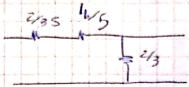
$Y_B = \frac{5}{2S}$

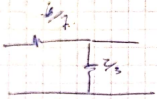
Red final



K)

En la red para $S \to 0$





$\frac{V_2}{V_1} = \frac{2/3}{\frac{2}{3} + \frac{8}{7}} = \frac{7}{16}$

En la expresión A:

$\frac{V_2}{V_1} = \frac{K(S+1)}{(S+2)\cdot(S+4)} \Rightarrow \lim_{S \to 0} = \frac{K}{8}$

$\frac{K}{8} = \frac{7}{16} \qquad K = 8 \cdot \frac{7}{16 \cdot 2} = \boxed{\frac{7}{2} = K}$