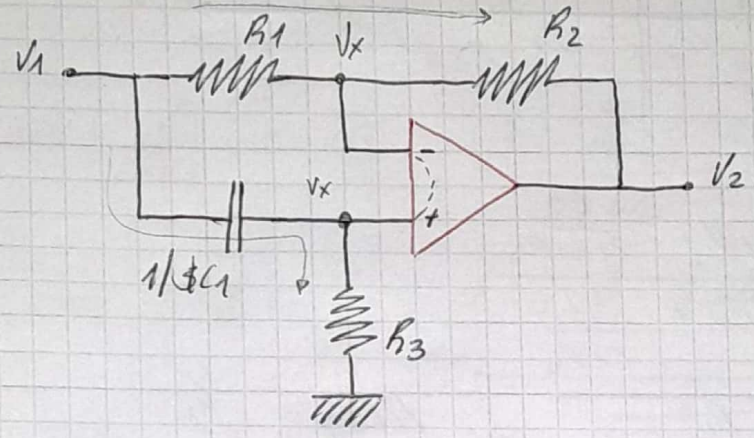
HOJA Nº

FECHA

Trabajo Semanal 1



1) $V_x \cdot (G_1 + G_2) = V_1 \cdot G_1 + V_2 \cdot G_2$ (1)

$V_x \cdot (\$C_1 + G_3) = V_1 \cdot \$C_1$; $V_x = V_1 \cdot \frac{\$C_1}{\$C_1 + G_3}$ (2)

(2) en (1) $\Rightarrow$ $V_1 \cdot \frac{\$C_1}{\$C_1 + G_3} (G_1 + G_2) = V_1 G_1 + V_2 \cdot G_2$

$V_1 \cdot \left(\frac{\$C_1(G_1 + G_2)}{\$C_1 + G_3} - G_1 \right) = V_2 \cdot G_2$

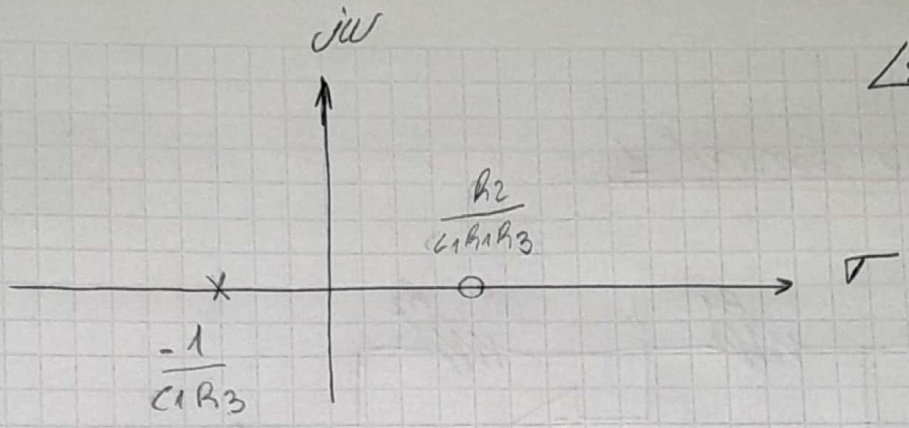
$V_1 \cdot \frac{\$C_1 G_1 + \$C_1 G_2 - \$C_1 G_1 - G_1 G_3}{\$C_1 + G_3} = V_2 \cdot G_2$

$V_1 \cdot \frac{\$C_1 G_2 - G_1 G_3}{\$C_1 + G_3} = V_2 \cdot G_2$

$T(\$) = \frac{V_2}{V_1} = \frac{\$C_1 G_2 - G_1 G_3}{\$C_1 G_2 + G_2 G_3} = \frac{C_1 G_2}{C_1 G_2} \cdot \frac{\$ - \frac{G_1 G_3}{C_1 G_2}}{\$ + \frac{G_2 G_3}{C_1 G_2}}$

$$\boxed{T(\$) = \frac{\$ - \frac{R_2}{C_1 R_1 R_3}}{\$ + \frac{1}{C_1 R_3}}}$$

NOTA



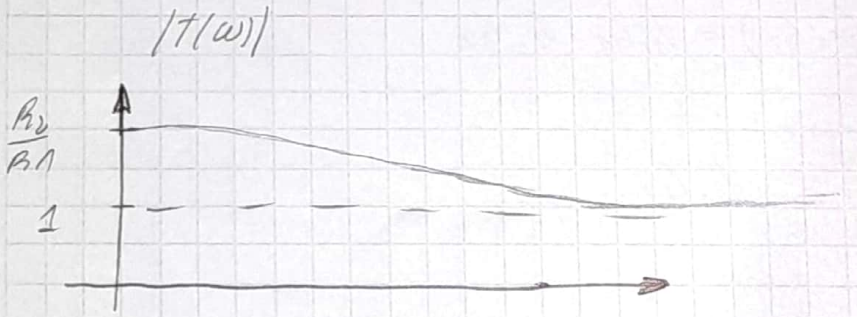
$$T(\omega) = T(s)\Big|_{s=j\omega} = \frac{j\omega - \frac{R_2}{C_1R_1R_3}}{j\omega + \frac{1}{C_1R_3}}$$

$$|T(\omega)| = \frac{\sqrt{\omega^2 + \frac{R_2^2}{C_1^2R_1^2R_3^2}}}{\sqrt{\omega^2 + \frac{1}{C_1^2R_3^2}}}$$

$|T(\phi)| = \frac{R_2}{R_1}$

$|T(\frac{1}{C_1R_3})| = ?$

$|T(\to\infty)| = 1$



$$\varphi(\omega) = \arctan\left(\frac{\omega \cdot C_1R_1R_3}{R_2}\right) - \arctan\left(\omega \cdot C_1R_3\right)$$

2) Parecería ser un pasabanda, que para continua presenta una ganancia regulable por R_1 y R_2.

NOTA

3) $T(\$) = \dfrac{\$ - \dfrac{R_2}{C_1 R_1 R_3}}{\$ + \dfrac{1}{C_1 R_3}}$

Si $w_0 = \dfrac{1}{C_1 R_3} \Rightarrow T(\$) = \dfrac{\$ - \frac{R_2}{R_1} \cdot w_0}{\$ + w_0}$

$\Omega_w = w_0 \; ; \; \# = \dfrac{\$}{\Omega_w} = \dfrac{\$}{w_0} \Rightarrow \underline{\$ = \#.w_0}$

$\therefore T(\$) = \dfrac{\#.w_0 - \frac{R_2}{R_1} \cdot w_0}{\#.w_0 + w_0} \; ; \boxed{T(\$) = \dfrac{\# - R_2/R_1}{\# + 1}}$

La norma de frecuencia es $\Omega_w = w_0 = \dfrac{1}{C_1 R_3}$

Circuitalmente, creo que puede tener que ver con la resonancia

NOTA