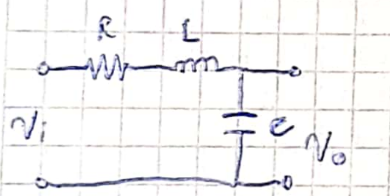
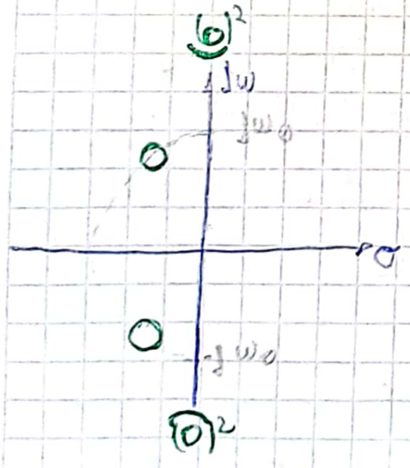
Análisis de un pasabajos: $T(s) = V_o / V_i$



$$V_i = V_o \cdot \frac{1/sC}{R + sL + 1/sC} \Rightarrow T(s) = \frac{1}{LC(s^2 + sR/L + 1/LC)}$$

$$T(s) = \frac{1/LC}{s^2 + s\,R/L + 1/LC} = \frac{\omega_0^2}{s^2 + s\frac{\omega_0}{Q} + \omega_0^2}$$

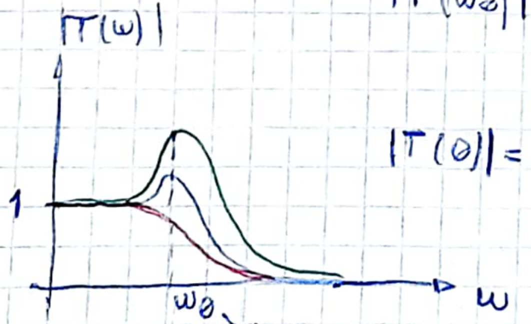


$$T(s)\big|_{s=j\omega} = \frac{\omega_0^2}{-\omega^2 + j\omega\frac{\omega_0}{Q} + \omega_0^2}$$

$$|T(s)|_{s=j\omega} = \frac{\omega_0^2}{\sqrt{(\omega_0^2 - \omega^2)^2 + \frac{\omega^2\omega_0^2}{Q^2}}}$$

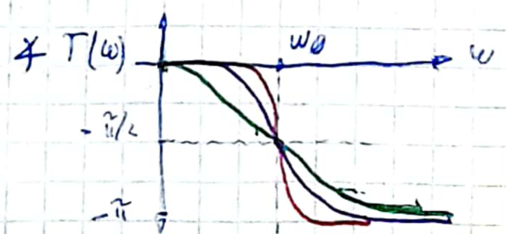
$$|T(\omega_0)| = \frac{\omega_0^2}{\sqrt{\frac{\omega_0^4}{Q^2}}} = Q \rightarrow \text{si } Q > 1 \text{ tengo amplif}$$

con elementos pasivos



$\omega_0 \rightarrow$ No está el máximo acá

$$|T(0)| = \frac{\omega_0^2}{\sqrt{(\omega_0^2 - 0)^2}} = 1$$



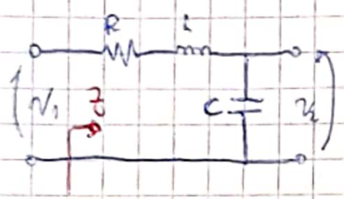
NOTA

FECHA

Normalización de Redes: → Escalar para manejar valores más accesibles

- Frecuencia
- Impedancia

$\Omega_\omega = \omega_0$



$$T(s) = \frac{V_2(s)}{V_1(s)} = \frac{\omega_0^2}{s^2 + s\frac{\omega_0}{Q} + \omega_0^2}$$

$$\$ = \frac{s}{\omega_0} = \frac{s}{\Omega_\omega}$$

$$T(\$) = \frac{\omega_0^2}{(\$\omega_0)^2 + \$\omega_0\frac{\omega_0}{Q} + \omega_0^2} = \frac{1}{\$^2 + \$\cdot\frac{1}{Q} + 1}$$

$$Z_1 = sL + R = \$\overbrace{\omega_0 L}^{L'} + R$$

$$Z_2 = \frac{1}{sC} = \frac{1}{\$\underbrace{\omega_0 C}_{C'}}$$

$$L' = \omega_0 L \longrightarrow L = \frac{L'}{\omega_0}$$

$$C' = \omega_0 C \longrightarrow C = \frac{C'}{\omega_0}$$

$$Z = R + sL + \frac{1}{sC}$$

$$Z = \frac{Z}{\Omega_Z} = \overbrace{\frac{R}{\Omega_Z}}^{R''} + \overbrace{\frac{sL}{\Omega_Z}}^{L''} + \overbrace{\frac{1}{sC\Omega_Z}}^{C''}$$

$$R = R''\Omega_Z$$

$$L = L''\Omega_Z$$

$$C = \frac{C''}{\Omega_Z}$$

Ω_Z

Ω_ω

$$L = L^\circ \cdot \Omega_Z \cdot \Omega_\omega$$

$$C = \frac{C^\circ \cdot \Omega_\omega}{\Omega_Z}$$

$$R = R^\circ \cdot \Omega_Z$$

NOTA