$\left.\begin{matrix} \omega_{s_1} = 0{,}1 \\ \omega_{s_2} = 10 \end{matrix}\right\} \alpha = 15\,dB$ $\quad \alpha_{máx} = 2{,}5\,dB \quad Q = 3$

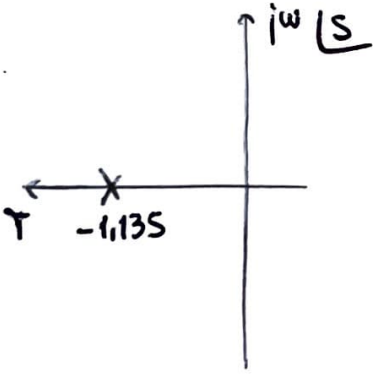
LP: $\Omega_s = Q \cdot \frac{\omega_s^2 - 1}{\omega_s} = 3 \cdot \frac{0{,}1^2 - 1}{0{,}1} = -29{,}7$ → se ignora el signo → igual para ambos ω_s, ya que $\omega_{s_1} \omega_{s_2} = 1$

$\varepsilon^2 = 10^{\alpha_{máx}/10} - 1 = 0{,}7783$

$\alpha_{mín} = 10 \log\left(1 + \varepsilon^2 \cosh^2\left[n \cosh^{-1}(\Omega_s)\right]\right)$ → $n = 1 \Rightarrow \alpha = 28{,}372$ → polo simple

$\sigma = -\operatorname{senh}(a) \operatorname{sen}\left(\frac{\pi}{2n}\right) = -1{,}1335$ $\qquad \omega = \cosh(a) \cos\left(\frac{\pi}{2n}\right) = 0$

$a = \frac{1}{n} \operatorname{senh}^{-1}\left(\frac{1}{\varepsilon}\right) = 0{,}9727$



$$T_{LP}(s) = \frac{1{,}135}{s + 1{,}135}$$

BP: $\Omega(\omega) = Q \cdot \frac{\omega^2 - 1}{\omega}$ → $\Phi(s) = Q \cdot \frac{s^2 + 1}{s}$

$$T_{BP}(s) = \frac{1{,}135}{3 \cdot \frac{s^2+1}{s} + 1{,}135} = \frac{s \cdot \frac{1{,}135}{3}}{s^2 + s \cdot \frac{1{,}135}{3} + 1} = \frac{s \cdot 0{,}378}{s^2 + s \cdot 0{,}378 + 1}$$