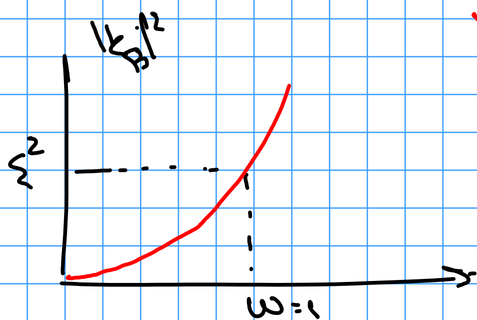
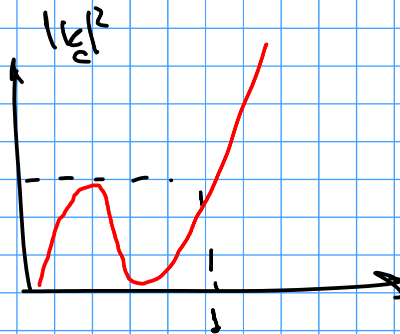
· Aproximaciones de Chebyshev

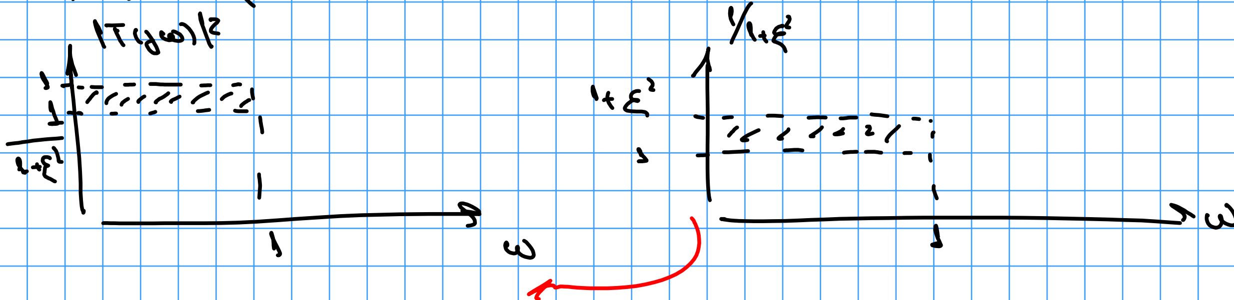
· $|T(j\omega)|^2 = \dfrac{1}{1+\underbrace{\varepsilon^2\omega^{2n}}_{|K|^2}}$

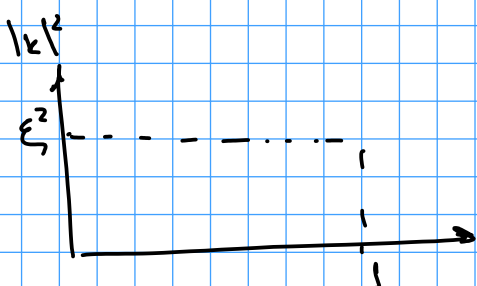


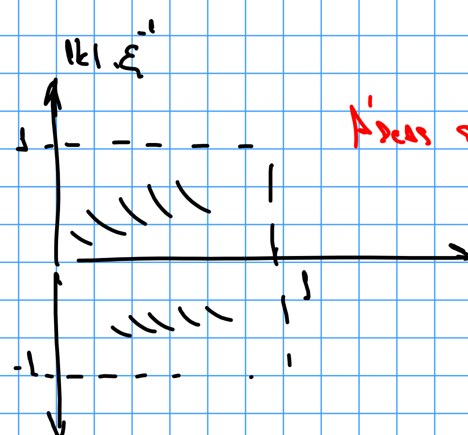


· Función Transferencia

· Máxima planicidad







Áreas simétricas

· K tiene que ser función Trigonométrica

· Por paridad par → Cosenoidal

· $-1 < y < 1 \Rightarrow$ Dominio de la imagen

· $\varepsilon^{-1}|K| = y$

$y = \varepsilon \cdot \cos(n x)$

· $x = \cos^{-1}(\omega)$

· $|K| = \varepsilon\cos[n\cos^{-1}(\omega)]$

· $\cos^{-1}\omega = jz \quad ; |\omega|>1$

$\omega = \cos jz = \dfrac{e^{j(jz)}+e^{-j(jz)}}{2} = \cosh(z)$

$\omega = \cosh(z) \rightarrow z = \cosh^{-1}\omega$

$|K| = \varepsilon \cos[j \cosh^{-1}(\omega)] = \varepsilon \cosh[\cosh^{-1}(\omega)]$

$|K| = \varepsilon \cosh[n . \cosh^{-1}(\omega)]$ → Forma General

. Generalizando el dominio $\forall \omega$

. $|K| = C_n(\omega) = \varepsilon . \cosh[n . \cosh^{-1}(\omega)]$

. $|T(j\omega)|^2 = \dfrac{1}{1 + C_n^2(\omega)}$ → Función Aproximación

$$. \cos n.\theta = 2^{n-1} . \cos^n \theta - \frac{n}{1!} . 2^{n-3} . \cos^{n-2} \theta + \frac{n(n-3)}{2!} . 2^{n-5} . \cos^{n-4} \theta -$$

$$- \frac{n.(n-3)(n-5)}{3!} . 2^{n-7} \cos^{n-6} \theta + \dots$$

. Si $\theta = \cos^{-1} \omega$

$$\cos[n . \cos^{-1}(\omega)] = 2^{n-1} . \omega^n - \frac{n}{1!} . 2^{n-3} . \omega^{n-2} + \dots$$

. C_n admite expresión polinomica

$C_n(\omega) = 2.\omega . C_{n-1}(\omega) - C_{n-2}(\omega)$

. $C_0(\omega) = 1$

. $C_1(\omega) = \omega$

. $C_2(\omega) = 2\omega.\omega - 1 = 2\omega^2 - 1$

. $C_3(\omega) = 2\omega(2\omega^2 - 1) - \omega = 4\omega^3 - 2\omega - \omega = 4\omega^3 - 3\omega$