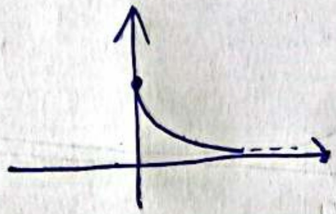
ES. 4

CONSIDERIAMO $X(\omega) = \frac{A t_0}{1+j\omega t_0}$ TRASFORMATA DEGLI $t>0$ DELLA CUSPIDE DELL'ES. 3



- $V(\omega) = \frac{|X(\omega)|}{\pi} \qquad \omega \geq 0$

$$\rightarrow |X(\omega)| = \frac{|A t_0|}{|1+j\omega t_0|} = \frac{A t_0}{\sqrt{1+\omega^2 t_0^2}}$$

• t_0 SEMPRE POSITIVO
• A SEMPRE > 0 ?

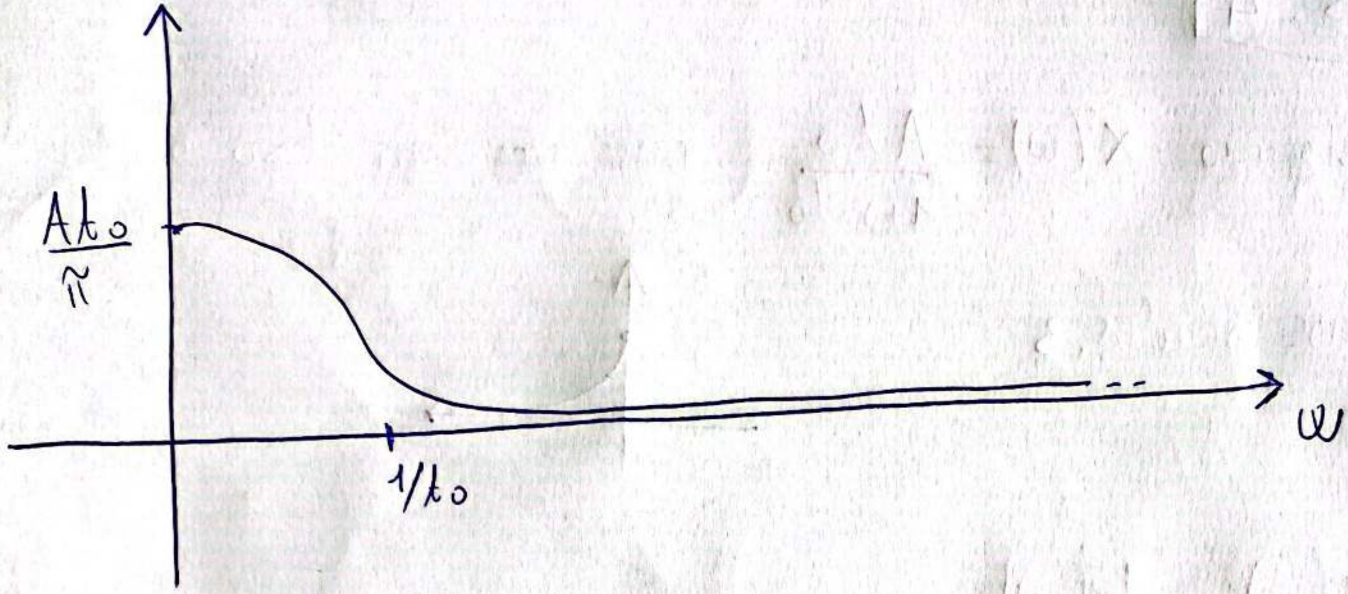
$|z| = \sqrt{a^2+b^2}$

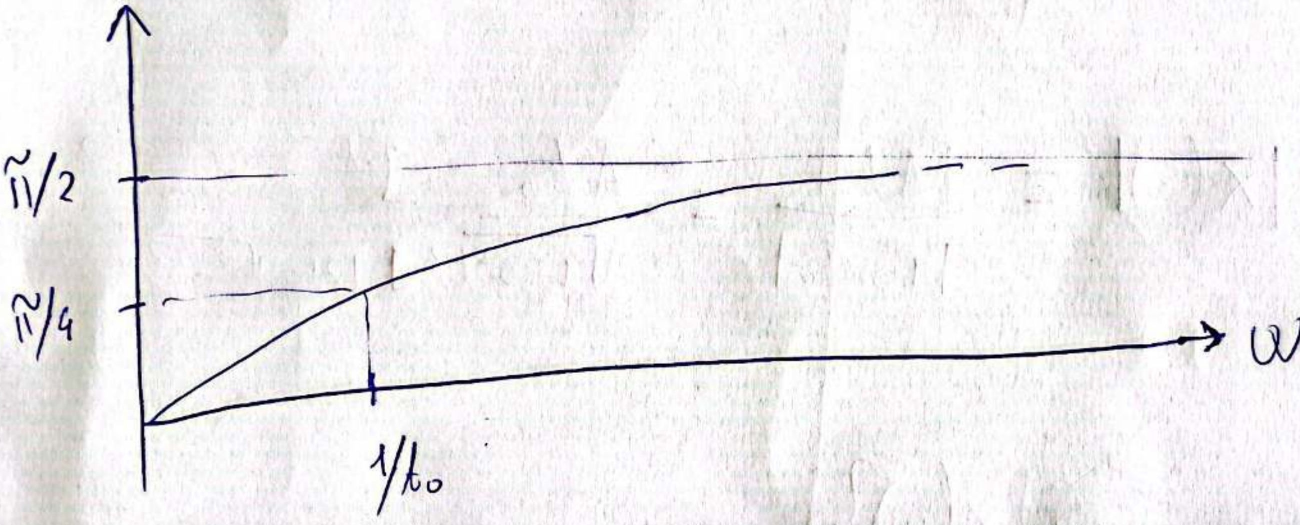
- $\varphi_m = -\arg\{X(\omega)\}$

$$\rightarrow = -\arg\left\{\frac{A t_0}{1+j\omega t_0}\right\} = \underbrace{-\arg\{A t_0\}}_{=0 \text{ PERCHÉ REALE}} + \arg\{1+j\omega t_0\}$$

$$= \cancel{\arg}\ \mathrm{arctg}(\omega t_0)$$

$$\boxed{\begin{array}{ll} \theta = \mathrm{arctg}\frac{b}{a} & , a>0 \\ \theta = \mathrm{arctg}\frac{b}{a} + \pi & , a<0 \\ (a=1,\ b=\omega t_0) & \end{array}}$$





$$\operatorname{arctg}(\omega t_0) = \frac{\pi}{2} \iff (\omega t_0) \to +\infty$$

$$\operatorname{arctg}(\omega t_0) = \frac{\pi}{4} \iff (\omega t_0) = 1$$