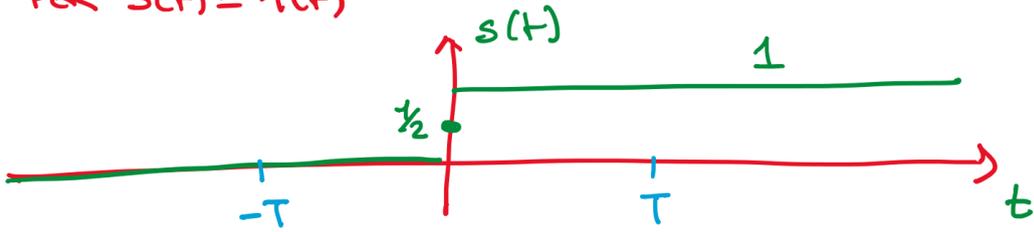


Es1 TROVARE A_s, m_s, E_s, P_s

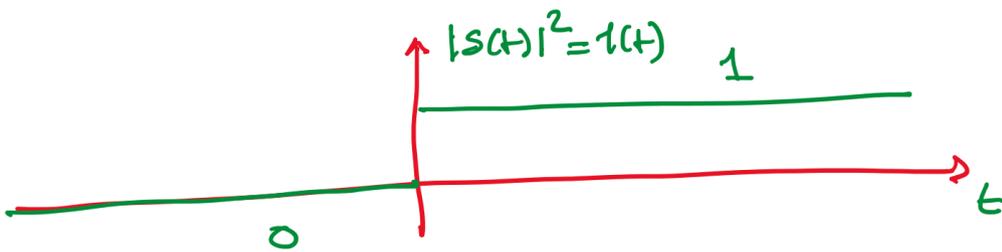
PER $s(t) = 1(t)$



$$A_s = \int_{-\infty}^{+\infty} s(t) dt = \int_{-\infty}^{+\infty} 1 dt = t \Big|_0^{+\infty} = \infty$$

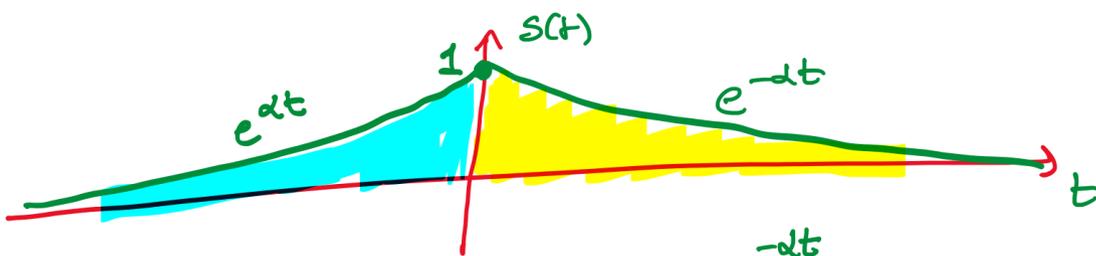
$$m_s = \lim_{T \rightarrow \infty} \frac{1}{2T} \int_{-T}^T s(t) dt = \lim_{T \rightarrow \infty} \frac{\int_0^T 1 dt}{2T} = \lim_{T \rightarrow \infty} \frac{T}{2T} = \frac{1}{2}$$

$$|s(t)|^2 = \begin{cases} 1 & t > 0 \\ 0 & t < 0 \end{cases} \quad s(t) = \begin{cases} 1 & t > 0 \\ 0 & t < 0 \end{cases}$$



$E_s = \infty$ $P_s = \frac{1}{2}$

Es2 A_s, m_s, E_s, P_s PER $s(t) = e^{-\alpha|t|}$, $\alpha > 0$



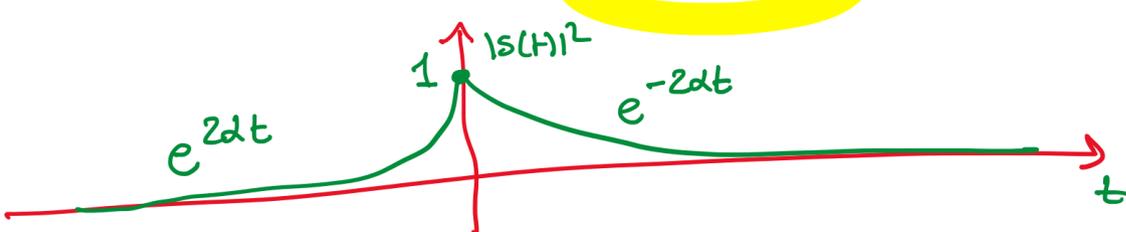
$$s(t) = \begin{cases} e^{-\alpha t} & t > 0 \\ e^{\alpha t} & t < 0 \end{cases}$$

$$A_s = \int_{-\infty}^{+\infty} s(t) dt = \int_{-\infty}^0 e^{\alpha t} dt + \int_0^{+\infty} e^{-\alpha t} dt = 2 \int_0^{+\infty} e^{-\alpha t} dt = 2 \cdot \frac{e^{-\alpha t}}{-\alpha} \Big|_0^{+\infty} = \frac{2}{\alpha} \cdot (0 - 1) = \frac{2}{\alpha}$$

$m_s = 0$

$$|s(t)|^2 = |e^{-\alpha|t|}|^2 = (e^{-\alpha|t|})^2 = e^{-2\alpha|t|}$$

$(e^x)^2 = e^x \cdot e^x = e^{2x}$



$A_s = \frac{2}{\alpha}$ $m_s = 0$

$E_s = \frac{2}{2\alpha} = \frac{1}{\alpha}$ $P_s = 0$