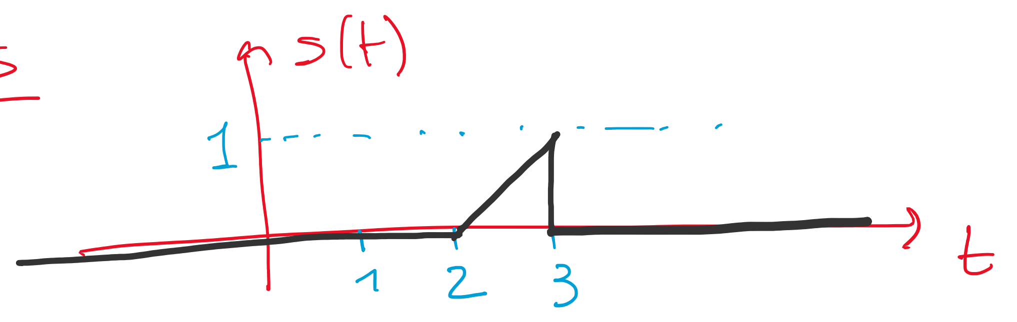
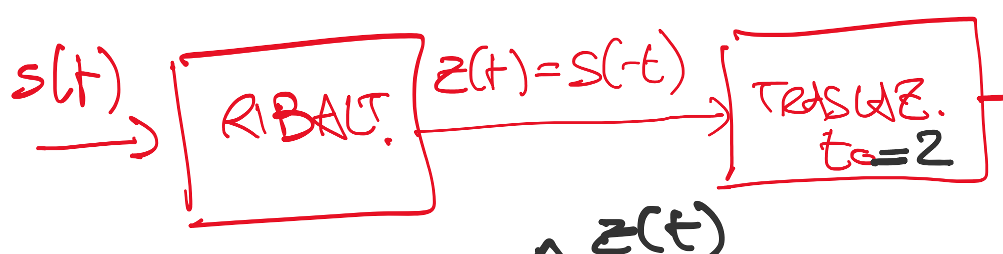
Le4

Thursday, 2 March 2023 09:26

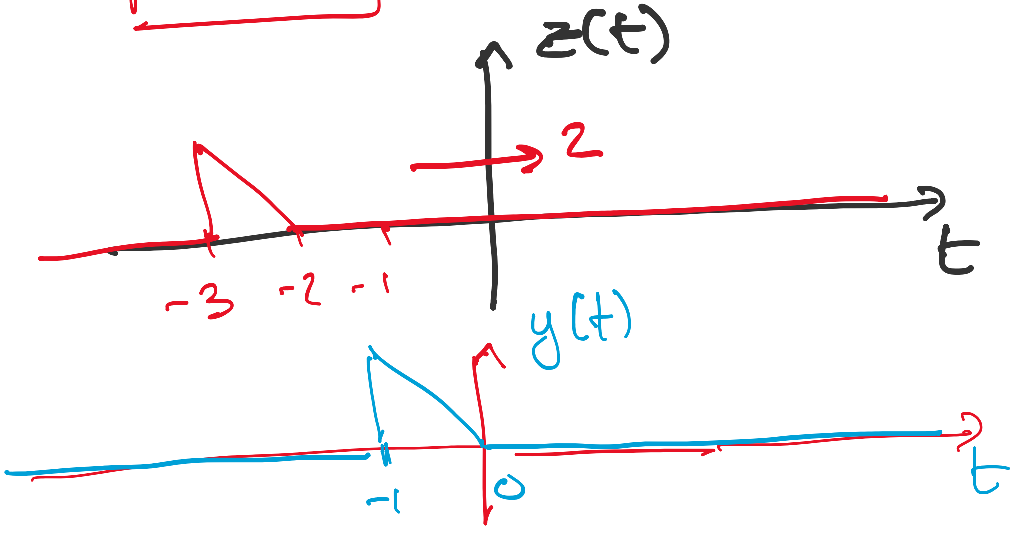
ES



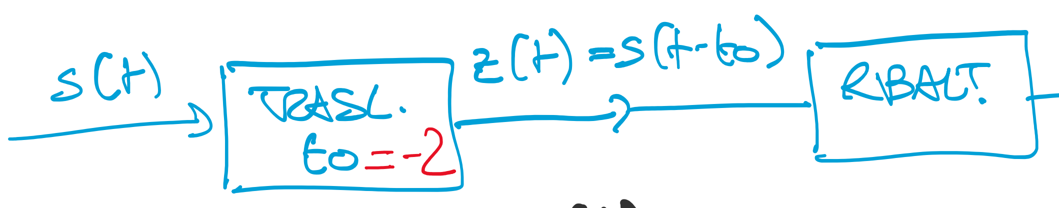
DISEGNARE $y(t) = s(-t+2)$



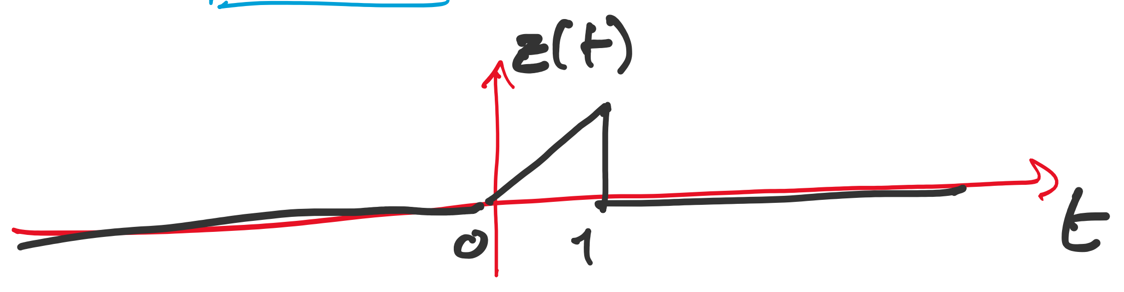
$y(t) = z(t-t_0) = s(-(t-t_0)) = s(-t+t_0)$



PROVIAMO AD INVERTIRE



$y(t) = z(-t) = s(-t-t_0)$



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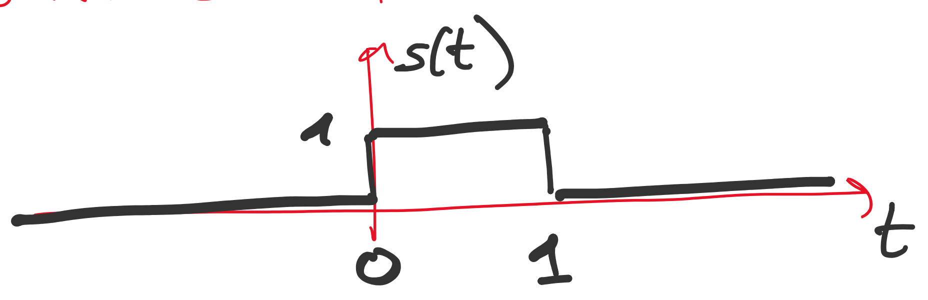
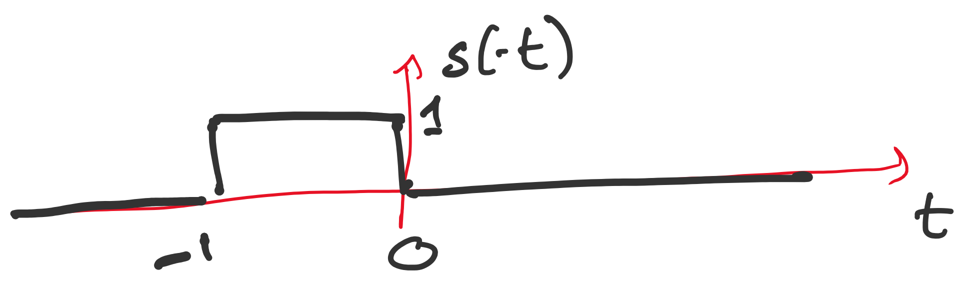
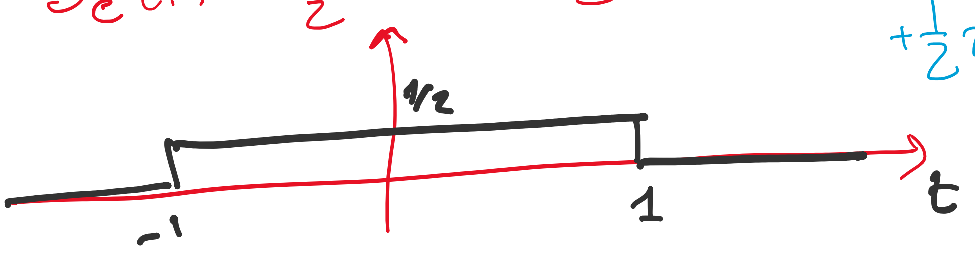


$s(t) = \text{rect}\left(t - \frac{1}{2}\right)$



$s(-t) = \text{rect}\left(-t + \frac{1}{2}\right) = \text{rect}\left(-t - \frac{1}{2}\right) = \text{rect}\left(-(t + \frac{1}{2})\right) = \text{rect}\left(t + \frac{1}{2}\right) = \text{rect}\left(t + \frac{1}{2}\right)$

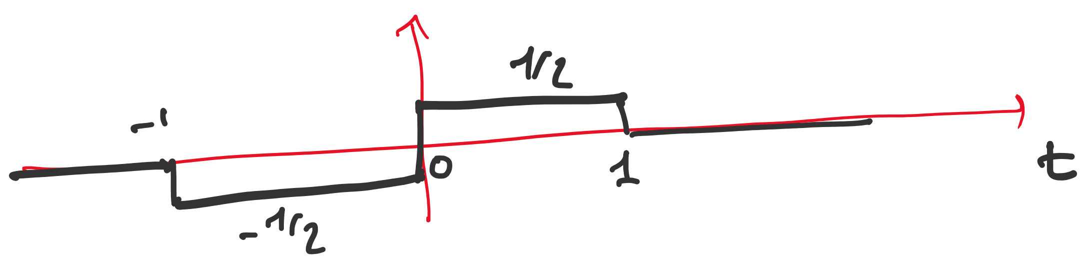
$s_e(t) = \frac{1}{2} s(t) + \frac{1}{2} s(-t) = \frac{1}{2}\text{rect}(t - 1/2) + \frac{1}{2}\text{rect}\left(t + \frac{1}{2}\right)$



$= \frac{1}{2}\text{rect}(t/2)$

$s_o(t) = \frac{1}{2} s(t) - \frac{1}{2} s(-t) = \frac{1}{2}\text{rect}(t - 1/2) - \frac{1}{2}\text{rect}(t + 1/2)$

$= \frac{1}{2}\text{rect}(t/2)\,\text{sign}(t)$



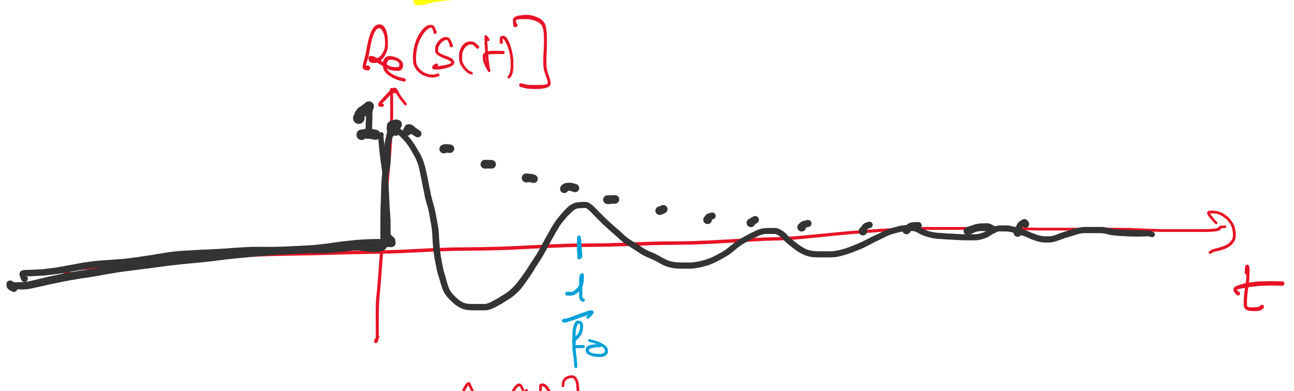
ES TROVARE A_s, m_s, E_s, P_s PER $s(t) = e^{(\sigma_0 + j\omega_0)t}\, 1(t)$, $\sigma_0 < 0$

$s(t) = e^{\sigma_0 t} e^{j\omega_0 t} 1(t)$

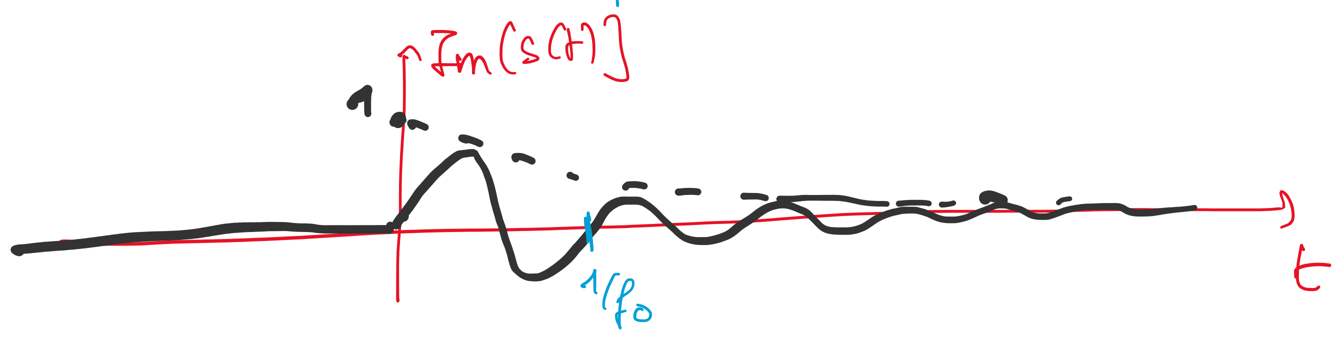
$= e^{-|\sigma_0| t}\left(\cos(\omega_0 t) + j\sin(\omega_0 t)\right) 1(t)$

$= e^{-|\sigma_0| t}\cos(\omega_0 t)\, 1(t) + j\, e^{-|\sigma_0| t}\sin(\omega_0 t)\, 1(t)$

$Re[s(t)]$ $\omega_0 = 2\pi f_0$



$Im[s(t)]$



$s(t) = e^{(\sigma_0 + j\omega_0)t}\, 1(t) = e^{p_0 t}\, 1(t)$ $p_0 = \sigma_0 + j\omega_0$

$A_s = \int_{0}^{+\infty} e^{p_0 t}\, dt = \left[\frac{e^{p_0 t}}{p_0}\right]_0^{+\infty} = \frac{0 - 1}{p_0} = \frac{-1}{\sigma_0 + j\omega_0}$

$m_s = 0$

$|s(t)|^2 = |e^{\sigma_0 t} e^{j\omega_0 t} 1(t)|^2$

$= |e^{\sigma_0 t}|^2 |e^{j\omega_0 t}|^2 |1(t)|^2$

$= e^{2\sigma_0 t} \cdot 1 \cdot 1(t)$

$= e^{-2|\sigma_0| t} \cdot 1(t)$

QUINDI $E_s = \frac{1}{2|\sigma_0|}$ $P_s = 0$