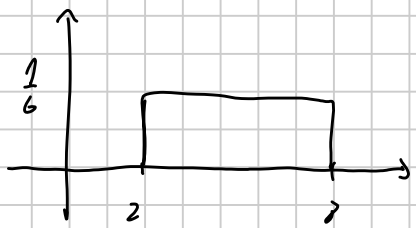
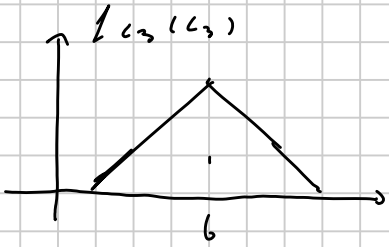
FILA C

C_1 $\quad f_{C_1}(c_1)$



$C_2 \qquad f_{C_2}(c_2) = \frac{1}{6} e^{-6/c_2} u(c_2)$

$C_3 \qquad f_{C_3}(c_3)$



$$P_r\{A\} = \frac{1}{3}\,\frac{2}{6} + \frac{1}{3}\int_0^4 \frac{1}{6} e^{-\frac{c_2}{6}}\,dc_2 + \frac{1}{3}\,2\cdot\frac{1}{5}\left(1-\frac{2}{5}\right) =$$

$$= \frac{1}{9} + \frac{1}{3}\left(1 - e^{-\frac{2}{3}}\right) + \frac{6}{75}$$

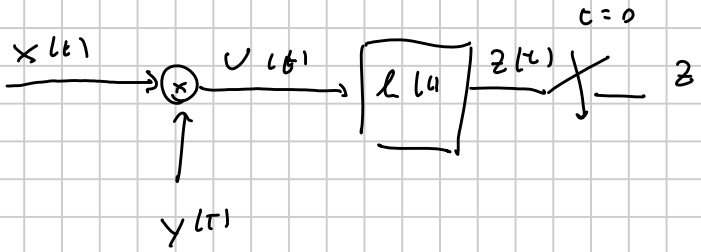
ESERCIZIO 2

$$x(t) = \frac{A}{T}\,\mathrm{sinc}\left(\frac{t}{T}\right)\cos(2\pi f_0 t)$$

$$y(t) = \cos(2\pi f_0 t + \theta)$$

$A \in \mathcal{U}(0,1)$

$\theta \in \mathcal{U}(-\pi, \pi)$



$$v(t) = x(t)\,y(t) = \frac{A}{T}\,\mathrm{sinc}\left(\frac{t}{T}\right)\cos(2\pi f_0 t)\cos(2\pi f_0 t + \theta) =$$

$$= \frac{1}{2T} A \, \mathrm{sinc}\left(\frac{t}{T}\right)\left[\cos(4\pi f_0 t + \theta)\right]$$

$$z(t) = \frac{1}{2T} A \, \mathrm{sinc}\left(\frac{t}{T}\right) \cos(\theta)$$

$$z(0) = z = \frac{1}{2T} A \cos(\theta)$$

$$E\{z\} = E\left\{\frac{1}{2T} A \cos(\theta)\right\} = \frac{1}{2T} E\{A\} \underbrace{E\{\cos\theta\}}_{0} = 0$$

$$E\{z^2\} = \frac{1}{4T^2} E\{A^2\} \underbrace{E\{\cos^2\theta\}}_{\frac{1}{2}} = \frac{1}{4T^2} \frac{1}{3} =$$

ESERCIZIO 3 | vedi Lez. A

$$E_s = \frac{1}{2} E_p \left(\frac{2}{2} + 1\right) + \frac{1}{2} E_p (1)$$

$$= E_p \frac{1}{4}3 = \frac{1}{4}3 B$$

$$P_E(b) = \frac{1}{2} Q\left(\frac{3/\Gamma}{\sqrt{N_0 B}}\right) + \frac{1}{2} Q\left(\frac{2/\Gamma}{\sqrt{N_0 B}}\right) + Q\left(\frac{1/\Gamma}{\sqrt{N_0 B}}\right)$$

ESERCIZIO 4 |

1) NO (valori negativi)

2) NO

3) NO LA TRASFORMATA HA TRATTI < 0