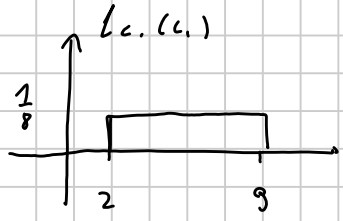
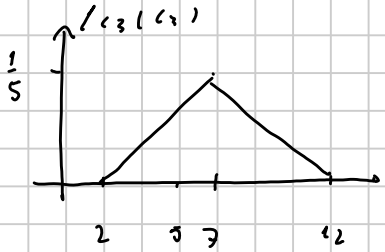
FILA B

C1



C2 $\quad f_{C_2}(c_2) = \frac{1}{6} e^{-\frac{c_2}{6}} u(c_2)$

C3



$$P_n\{A\} = \frac{1}{3} \cdot \frac{3}{8} + \frac{1}{3}\left[\int_0^5 \frac{1}{6} e^{-\frac{c_2}{6}} dc_2\right] + \frac{1}{3} \frac{9}{50}$$

$$\frac{1}{6}\int_0^5 e^{-\frac{c_2}{6}} dc_2 = -\frac{1}{6} 6 \; e^{-\frac{c_2}{6}}\Big|_0^5 = -e^{-\frac{5}{6}} + 1$$

ESERCIZIO 2 | vedi Mod. A

$$E\{Z\} = 0$$

$$E\{Z^2\} = E\{A^2\} \frac{1}{4\pi} E\{\cos^2\theta\} = \frac{8}{3}^2 \frac{1}{4\pi} \frac{1}{3} = \frac{2}{9} \frac{1}{\pi}$$

$$E\{A^2\} = \int_0^2 A^2 \, da = \frac{A^3}{3}\Big|_0^2 = \frac{8}{3}$$

ESERCIZIO 3

vedi tabella A con $\alpha = 2$ in 1000

$$E_S = \frac{1}{2} E_p \left(2 + \frac{1}{2}\right) + \frac{1}{2} E_p \left(\frac{1}{2} + \frac{9}{2}\right) =$$

$$= E_p \left(\frac{5}{4} + \frac{10}{4}\right) = \frac{15}{4} E_p$$

$$P_E^{(A)}(b) = \frac{1}{2} Q\left(\frac{1/5}{\sqrt{N_0 B}}\right) + \frac{1}{2} Q\left(\frac{2/5}{\sqrt{N_0 B}}\right)$$

$$P_E^{(B)}(b) = \frac{1}{2} Q\left(\frac{1/5}{\sqrt{N_0 B}}\right) + \frac{1}{2} Q\left(\frac{3/5}{\sqrt{N_0 B}}\right)$$

ESERCIZIO 4

1) NO (NO massimo in $\emptyset$)

2) NO

3) NO perché antitrasformata non è reale