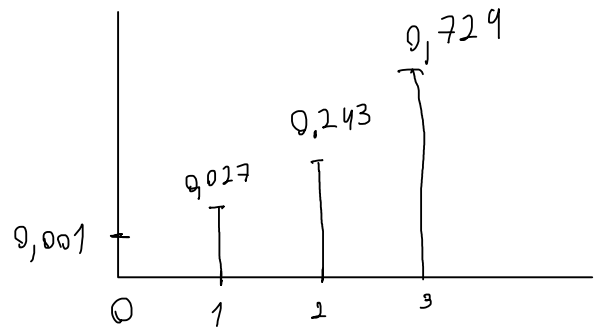
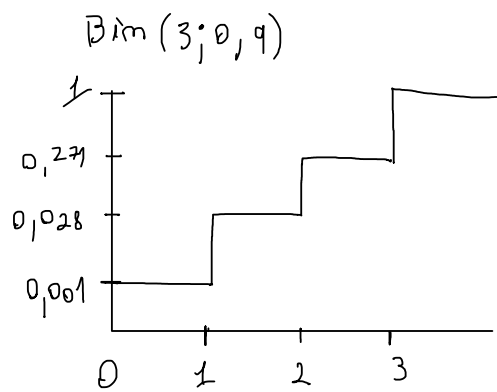


3.1)



$$P(0=x) = (0,1)^3 = 0,001$$

$$P(1=x) = 3(0,1)^2(0,9) = 0,027$$

$$P(2=x) = 3(0,1)(0,9)^2 = 0,243$$

$$P(3=x) = (0,9)^3 = 0,729$$

Valor esperado

$$E(x) = \sum_i P(i=x) \cdot i = n \cdot p = 2,7$$

Moda:

$$\mu_0 = 3$$

Mediana:

$$P(x \leq m) \geq \frac{1}{2}$$

$$m = 3$$

Variancia:

$$E(x^2) - [E(x)]^2 = n p (1-p) = 0,27$$

3.2) $P_{\text{aimom}}(\lambda=10)$

$$P(x \leq 7) = 0,3328 = 33,28\%$$

3.3) $X \sim N(\mu, \sigma^2)$

$$Z_x = \frac{x - \mu}{\sigma} \quad \left\{ \begin{array}{l} \rightarrow Z_8 = \frac{8-10}{2} = -1 \\ \rightarrow Z_{12} = \frac{12-10}{2} = 1 \end{array} \right.$$

$$\mu = 10$$

$$\sigma = 2$$

$$P(8 < x < 12) = \Phi(Z_{12}) - \Phi(Z_8) = \Phi(1) - 1 + \Phi(1) = 2\Phi(1) - 1 = 2(0,8413) - 1 = 0,6826$$

3.4) $\mu = 0,5$ $f_x(x) = \begin{cases} 2e^{-2x} & x \geq 0 \\ 0 & \text{c.c.} \end{cases} \rightarrow F_x = \begin{cases} 1 - e^{-2x} & x \geq 0 \\ 0 & x < 0 \end{cases}$

a) $\lambda = 2$

$$b) P(x > 0,5 + 1 | x > 0,5) = e^{-\lambda} = e^{-2}$$