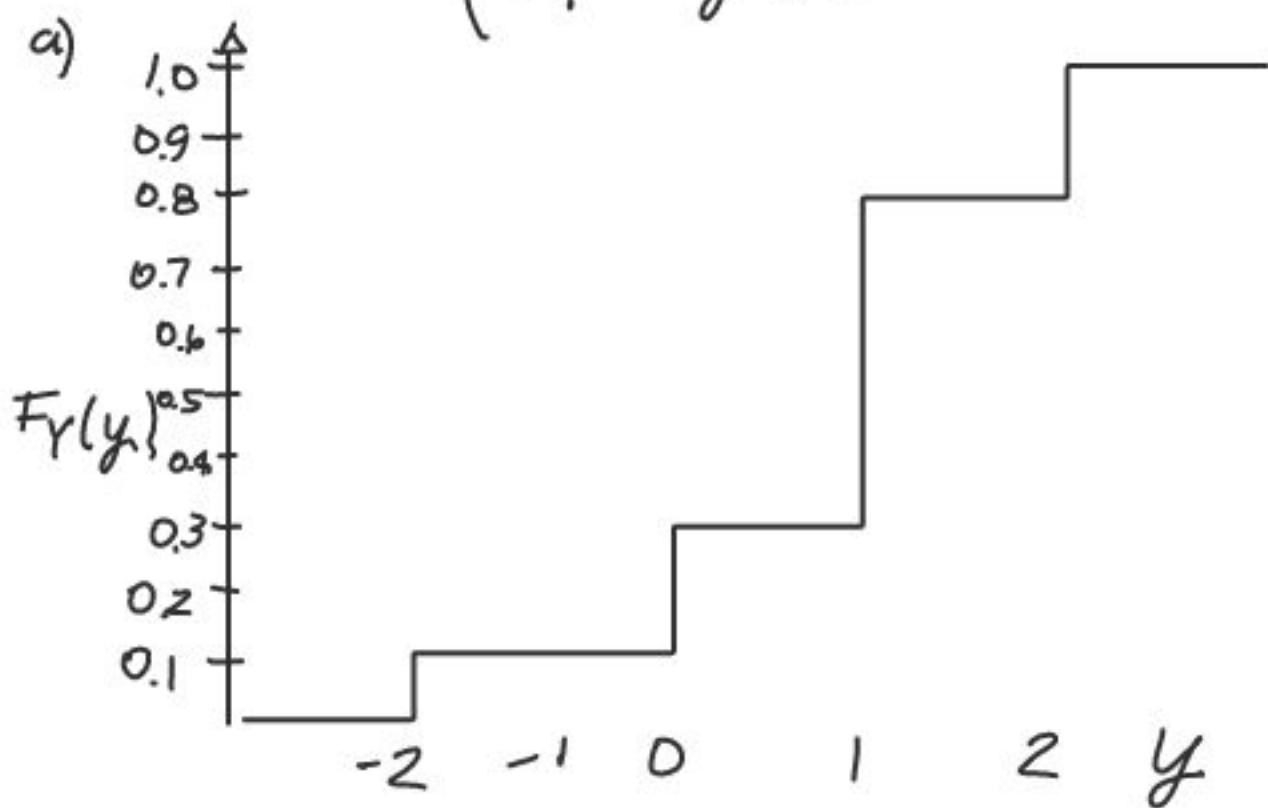
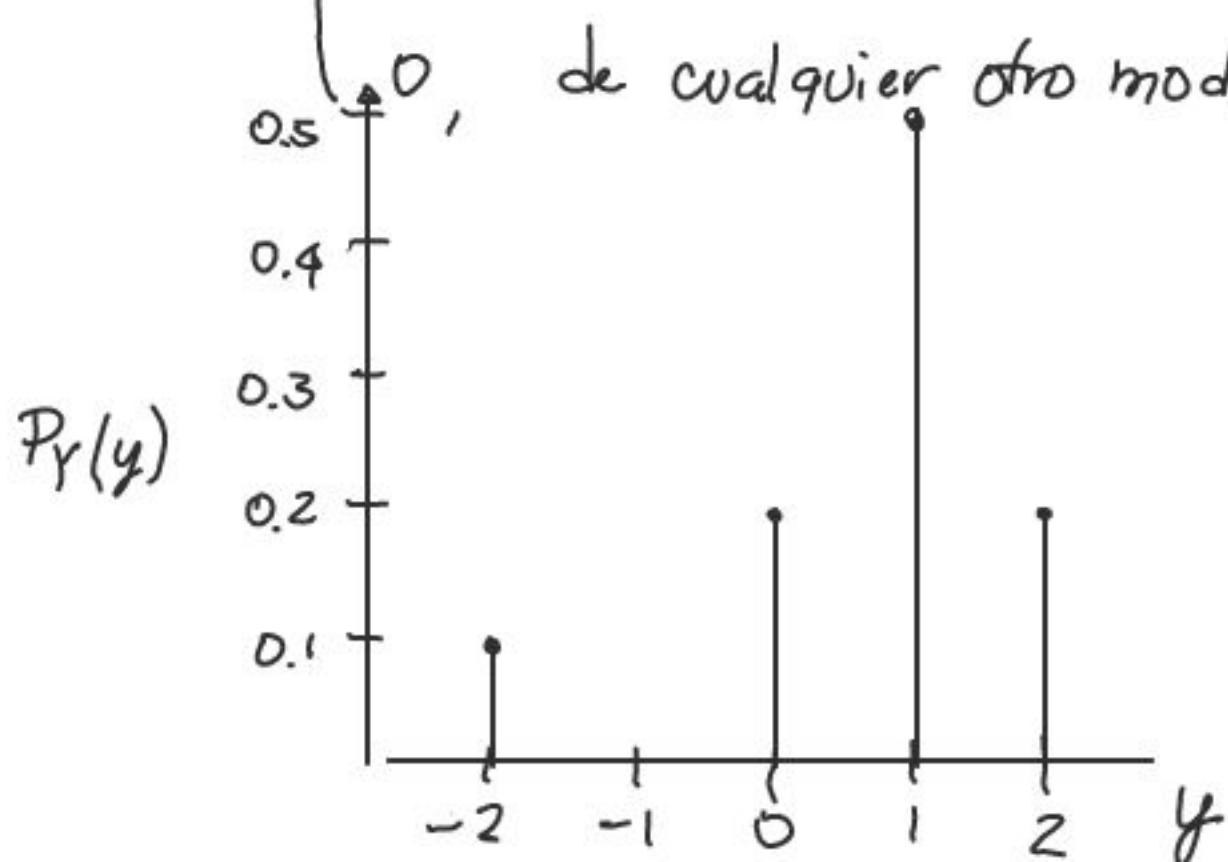


$$\textcircled{1} \quad F_Y(y) = \begin{cases} 0, & y < -2 \\ 0.1, & -2 \leq y < 0 \\ 0.3, & 0 \leq y < 1 \\ 0.8, & 1 \leq y < 2 \\ 1, & y \geq 2 \end{cases}$$



b)

$$P_Y(y) = \begin{cases} 0.1, & y = -2 \\ 0.2, & y = 0 \\ 0.5, & y = 1 \\ 0.2, & y = 2 \\ 0, & \text{de cualquier otro modo} \end{cases}$$



$$c) E[Y] = -2(0.1) + 0(0.2) + 1(0.5) + 2(0.2)$$

$$= 0.7$$

$$d) \text{Var}[Y] = (-2-0.7)^2(0.1) + (0-0.7)^2(0.2) + (1-0.7)^2(0.5)$$

$$+ (2-0.7)^2(0.2)$$

$$= 1.21$$

$$e) \text{STD}[Y] = \sqrt{\text{Var}[Y]}$$

$$= 1.1$$

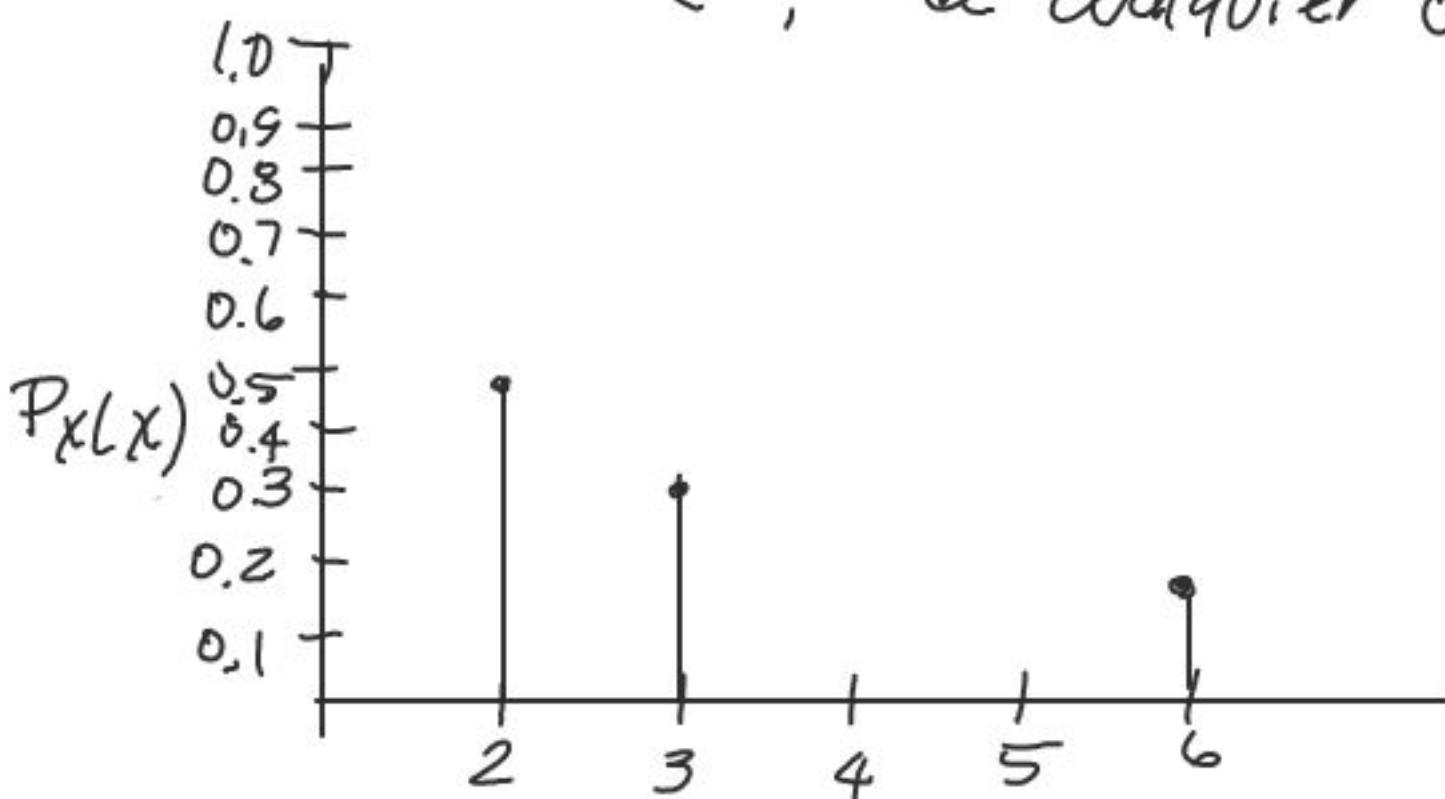
$$\textcircled{2} \quad P_X(x) = \begin{cases} \frac{C}{x}, & x = 2, 3, 6 \\ 0, & \text{de cualquier otro modo} \end{cases}$$

$$\text{a}) \quad \frac{C}{2} + \frac{C}{3} + \frac{C}{6} = 1$$

$$\frac{3C + 2C + C}{6} = 1$$

$$\frac{6C}{6} = 1$$

$$\text{b}) \quad P_X(x) = \begin{cases} \frac{C}{2}, & x = 2 \\ \frac{1}{3}, & x = 3 \\ \frac{1}{6}, & x = 6 \\ 0, & \text{de cualquier otro modo} \end{cases}$$



$$\text{c}) \quad P[X=3] = \frac{1}{3}$$

$$\text{d}) \quad P[X \leq 3] = \frac{1}{2} + \frac{1}{3}$$

$$= \frac{5}{6} = 0.833$$

$$e) P[3 \leq X \leq 6] = \frac{1}{3} + \frac{1}{6}$$
$$= \frac{1}{2} = 0.5$$

(3)

ξ	cc	cs	sc	ss
$X(\xi)$	2	1	1	0

$$S_X = \{0, 1, 2\}$$

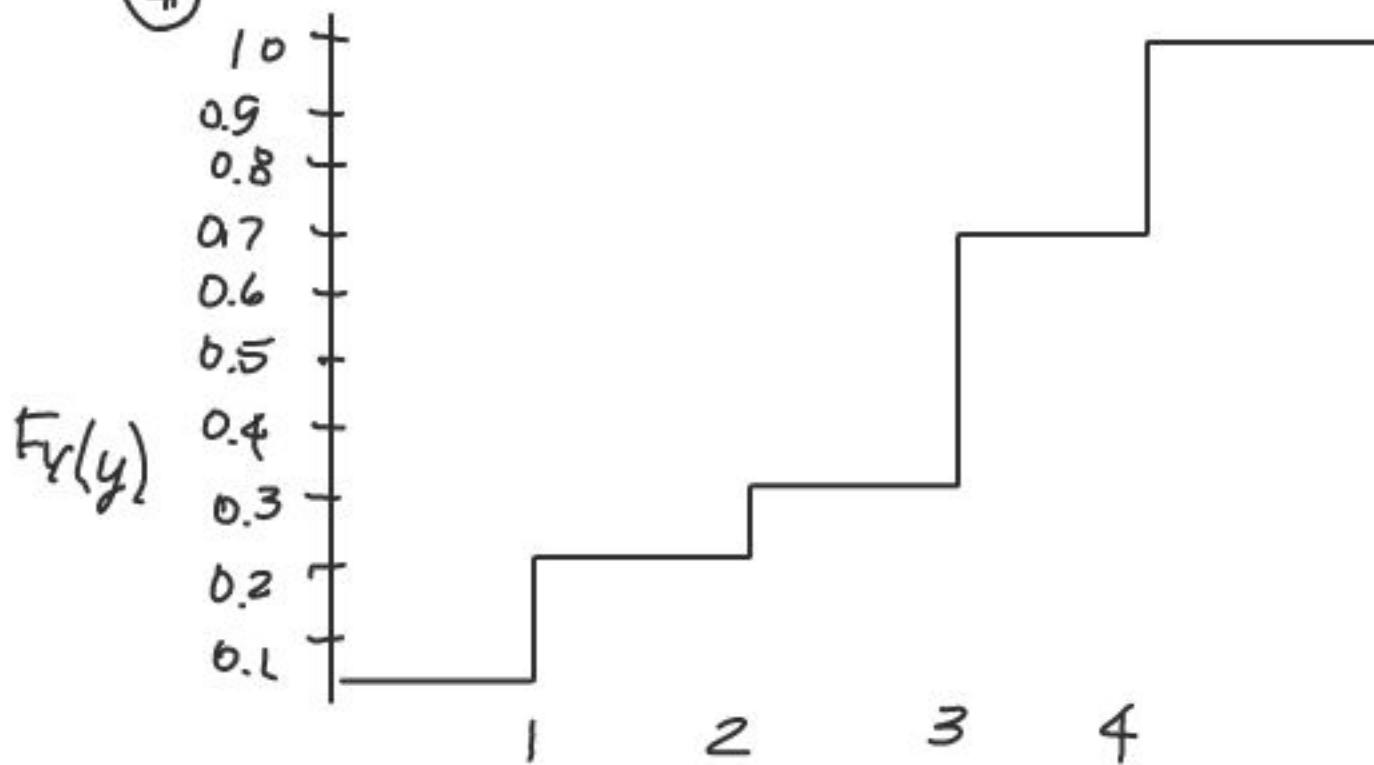
$$\begin{aligned} b) P[X=1] &= \frac{1}{4} + \frac{1}{4} \\ &= 0.50 \end{aligned}$$

$$\begin{aligned} c) E[X] &= 2\left(\frac{1}{4}\right) + 1\left(\frac{1}{4}\right) + 1\left(\frac{1}{4}\right) + 0\left(\frac{1}{4}\right) \\ &= 1 \end{aligned}$$

$$\begin{aligned} d) \text{VAR}[X] &= (2-1)^2\left(\frac{1}{4}\right) + (1-1)^2\left(\frac{1}{4}\right) + (1-1)^2\left(\frac{1}{4}\right) + (0-1)^2\left(\frac{1}{4}\right) \\ &= 0.25 + 0.25 \\ &= 0.5 \end{aligned}$$

$$\begin{aligned} e) \text{STD}[X] &= \sqrt{\text{VAR}[X]} \\ &= \sqrt{0.5} \\ &= 0.707 \end{aligned}$$

(4)



a) $P[Y < 1] = 0$

b) $P[Y > 2] = 1 - F_Y(2) = 1 - P[Y \leq 2]$

$$= 1 - 0.3$$

$$= 0.7$$

c) $P[Y \geq 2] = 1 - P[Y < 2]$

$$= 1 - 0.2$$

$$= 0.8$$

d) $P[Y = 3] = F_Y(3) - F_Y(3^-)$

$$= 0.7 - 0.3$$

$$= 0.4$$

e) $P[Y = 4] = F_Y(4) - F_Y(4^-)$

$$= 1 - 0.7$$

$$= 0.3$$