

# práctica 6

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1.

a.

$$\begin{aligned}P(X \leq 2, Y = 1) &= P(X = 0, Y = 1) + P(X = 1, Y = 1) + P(X = 2, Y = 1) \\&= \frac{0+1}{30} + \frac{1+1}{30} + \frac{2+1}{30} \\&= \frac{1}{5}\end{aligned}$$

b.

$$\begin{aligned}p_x(0) &= \sum_{y=0}^2 p(0, y) = \frac{1}{10} \\p_x(1) &= \sum_{y=0}^2 p(1, y) = \frac{1}{5} \\p_x(2) &= \sum_{y=0}^2 p(2, y) = \frac{3}{10} \\p_x(3) &= \sum_{y=0}^2 p(3, y) = \frac{2}{5}\end{aligned}$$

$$\begin{aligned}p_y(0) &= \sum_{x=0}^3 p(x, 0) = \frac{1}{5} \\p_y(1) &= \sum_{x=0}^3 p(x, 1) = \frac{1}{3} \\p_y(2) &= \sum_{x=0}^3 p(x, 2) = \frac{7}{15}\end{aligned}$$

c.

$$\begin{aligned}p(0, 0) &= 0 \\p_x(0) * p_y(0) &= \frac{1}{10} * \frac{1}{5} = \frac{1}{50} \\&\text{no son independientes}\end{aligned}$$

d.

$$\rho_{xy} = \frac{E\{[X - E(X)][Y - E(Y)]\}}{\sqrt{V(X)V(Y)}}$$