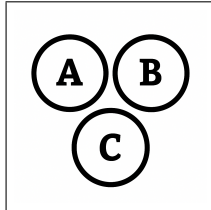


PMF and CDF



$$P_0 = P_1 = P_2 = 1/4$$

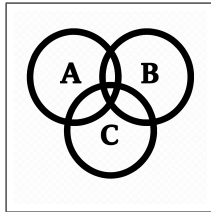
$$X : \Omega \rightarrow \mathbb{R}$$

$$X(1, 1) = 1 + 1 = 2 = \Omega_2$$

$$X(1, 0) = 1 + 0 = 1 = \Omega_1$$

$$X(0, 1) = 0 + 1 = 1 = \Omega_1$$

$$X(0, 0) = 0 + 0 = 0 = \Omega_0$$



PMF

$$P(X = 0) = |\Omega_0| \times P_0 = 1 \times 1/4 = 1/4$$

$$P(X = 1) = |\Omega_1| \times P_1 = 2 \times 1/4 = 1/2$$

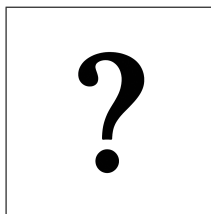
$$P(X = 2) = |\Omega_2| \times P_2 = 1 \times 1/4 = 1/4$$

CDF

$$F(X = 0) = P(X = 0) = 1/4$$

$$F(X = 1) = P(X = 0) + P(X = 1) = 3/4$$

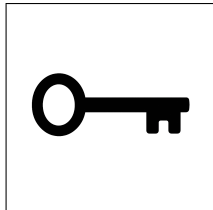
$$F(X = 2) = P(X = 0) + P(X = 1) + P(X = 2) = 1$$



$$P(x) = c \times x^2, \quad x = 1, 2, 3, 4$$

$$c = ?$$

PMF and CDF



$$P(x) = c \times x^2, \quad x = 1, 2, 3, 4$$
$$c = ?$$

$$\sum_{x=1}^4 P(x) = 1$$

$$\sum_{x=1}^4 c \times x^2 = 1$$

$$c \times (1^2 + 2^2 + 3^2 + 4^2) = 1$$

$$c \times (1 + 4 + 9 + 16) = 1$$

$$c \times 30 = 1$$

$$c = \frac{1}{30}$$