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Discrete Distribution PMF



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

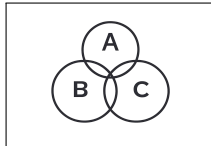
$$X : \Omega \rightarrow \mathbb{R}$$

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

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

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

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



PMF

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

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

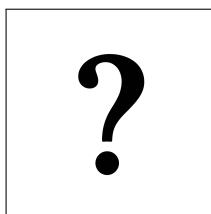
$$P(X = 2) = |\Omega_2| \times P_2 = 1 \times 1/4 = 1/4$$

CDF

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

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

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



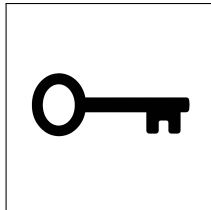
$$N \in \{1, 2, 3, 4, 5\}$$

$$p(n) = K \times n$$

$$K = ?$$

$$PMF = ?$$

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Discrete Distribution
PMF

$$N \in \{1, 2, 3, 4, 5\}$$

$$p(n) = K \times n$$

$$K = ?$$

$$PMF = ?$$

$$\sum_{n=1}^5 K \times n = 1$$

$$K(1 + 2 + 3 + 4 + 5) = 1$$

$$K \times 15 = 1$$

$$K = \frac{1}{15}$$

$$p(n) = \frac{n}{15}, \quad n = 1, 2, 3, 4, 5$$

$$P(X = 1) = 1/15$$

$$P(X = 2) = 2/15$$

$$P(X = 3) = 3/15$$

$$P(X = 4) = 4/15$$

$$P(X = 5) = 5/15$$