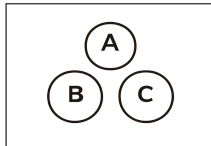


22

Discrete Distribution Geometric Variable

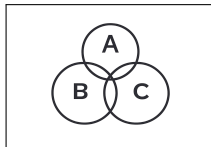


$$p = 0.25$$

$$X = \{1, 2, 3, \dots\}$$

$$PMF = ?$$

$$E[X] = ?$$



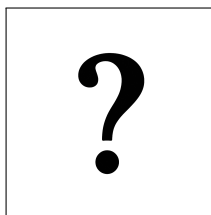
$$P(X = x) = (1 - p)^{x-1}p$$

$$P(X = 1) = 0.25$$

$$P(X = 2) = 0.75(0.25) = 0.1875$$

$$P(X = 3) = 0.75^2(0.25) = 0.1406$$

$$E[X] = 1/p = 1/0.25 = \boxed{4}$$

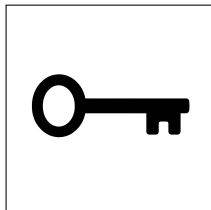


$$p = 0.4$$

$$X = \{1, 2, \dots\}$$

$$P(X \geq 6) = ?$$

22 Discrete Distribution Geometric Variable



$$\begin{aligned}p &= 0.4 \\X &= \{1, 2, \dots\} \\P(X \geq 6) &= ?\end{aligned}$$

$$P(X \geq 6) = (1 - p)^5 = (0.6)^5 \approx \boxed{0.07776}$$