

22

Discrete Distribution Geometric Variable

B

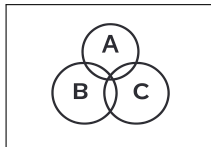


$$p = 0.25$$

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

$$PMF = ?$$

$$E[X] = ?$$



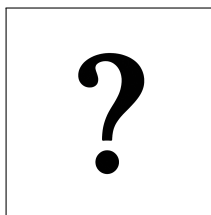
$$P(X = x) = (1 - p)^{x-1}p$$

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

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

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

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



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

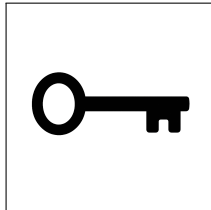
$$p = 0.10$$

$$P(X \geq 10) = ?$$

22

Discrete Distribution
Geometric Variable

B



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

$$p = 0.10$$

$$P(X \geq 10) = ?$$

$$P(X \geq 10) = (1 - p)^9 = 0.9^9 \approx \boxed{0.3874}$$