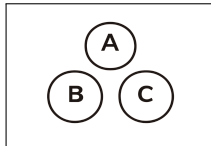


22

Discrete Distribution Geometric Variable

A

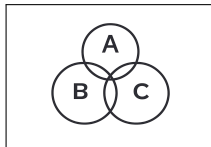


$$p = 0.25$$

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

$$PMF = ?$$

$$E[X] = ?$$



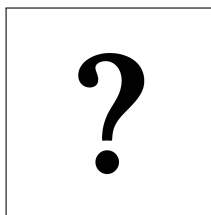
$$P(X = x) = (1 - p)^{x-1}p$$

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

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

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

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



$$p = 0.10$$

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

$$P(X = 1) = ?$$

$$P(X = 2) = ?$$

22

Discrete Distribution
Geometric Variable

A



$$p = 0.10$$

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

$$P(X = 1) = ?$$

$$P(X = 2) = ?$$

$$P(X = n) = (1 - p)^{n-1} p = 0.9^{n-1} \times 0.1$$

$$P(X = 1) = p = 0.1$$

$$P(X = 2) = (1 - p) p = 0.9 \times 0.1 = 0.09$$