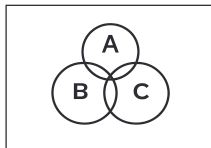


**B**

# Geometric Random Variable

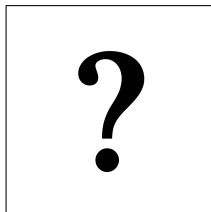
**B**

$$p = 0.25$$
$$X = \{1, 2, 3, \dots\}$$
$$PMF = ?$$
$$E[X] = ?$$



$$P(X = x) = (1 - p)^{x-1}p$$
$$P(X = 1) = 0.25$$
$$P(X = 2) = 0.75(0.25) = 0.1875$$
$$P(X = 3) = 0.75^2(0.25) = 0.1406$$

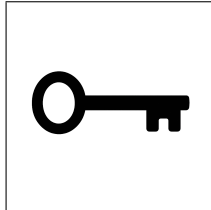
$$E[X] = 1/p = 1/0.25 = \boxed{4}$$



$$X = \{1, 2, 3, \dots\}$$
$$p = 0.10$$
$$P(X \geq 10) = ?$$

**B**

## Geometric Random Variable

**B**

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

$$p = 0.10$$

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

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