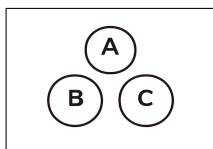


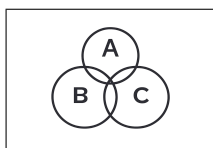
# O

## Geometric Random Variable

# O

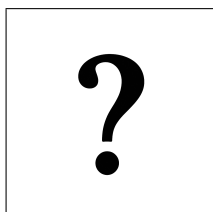


$$p = 0.25$$
$$X = \{1, 2, 3, \dots\}$$
$$PMF = ?$$
$$E[X] = ?$$



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

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

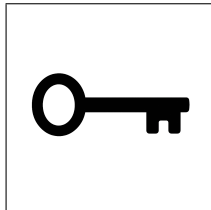


$$X = \{1, 2, \dots\}$$
$$p = 0.25$$
$$P(X > 3) = ?$$

# O

## Geometric Random Variable

# O



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

$$p = 0.25$$

$$P(X > 3) = ?$$

---

$$P(X > 3) = (1 - p)^3 = (0.75)^3 \approx \boxed{0.42}$$