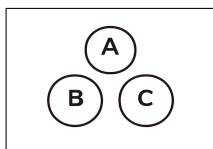


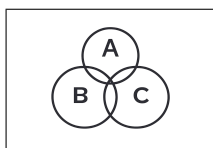
A

Geometric Random Variable

A

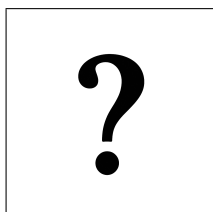


$$p = 0.25$$
$$X = \{1, 2, 3, \dots\}$$
$$PMF = ?$$
$$E[X] = ?$$



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

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

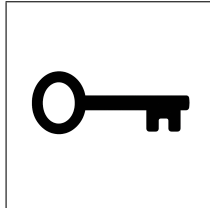


$$p = 0.10$$
$$n = \{1, 2, 3, \dots\}$$
$$P(X = 1) = ?$$
$$P(X = 2) = ?$$

A

Geometric Random Variable

A



$$p = 0.10$$

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

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

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

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

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

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