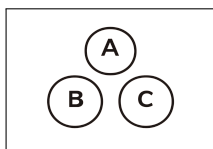


19

Discrete Distribution Bernoulli Trials

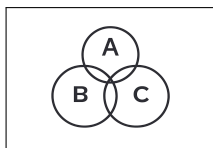
H



$$n = 2$$

$$p = 0.50$$

$$k = 1$$

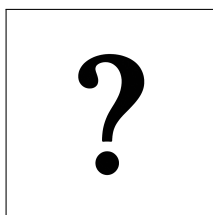


$$P(X = k) = \binom{n}{k} (p)^k (1 - p)^{n-k}$$

$$P(X = 1) = \binom{2}{1} (0.50)^1 (0.50)^1$$

$$P(X = 1) = 2 \times 0.50 \times 0.50$$

$$P(X = 1) = \boxed{0.50}$$



$$n = 10$$

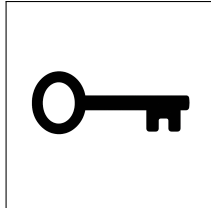
$$p = 0.20$$

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

19

Discrete Distribution
Bernoulli Trials

H



$$\begin{aligned}n &= 10 \\p &= 0.20 \\P(X \geq 2) &= ?\end{aligned}$$

$$\begin{aligned}P(X \geq 2) &= 1 - P(X < 2) = 1 - [P(X = 0) + P(X = 1)] \\P(X = 0) &= (0.8)^{10} \\P(X = 1) &= \binom{10}{1} (0.2)^1 (0.8)^9 = 10 \times 0.2 \times (0.8)^9 \\P(X \geq 2) &= 1 - [(0.8)^{10} + 10 \cdot 0.2 \cdot (0.8)^9]\end{aligned}$$

$$\begin{aligned}0.8^{10} &\approx 0.107374 \\10 \cdot 0.2 \cdot 0.8^9 &\approx 0.268435\end{aligned}$$

$$P(X \geq 2) \approx 1 - (0.107374 + 0.268435) \approx 0.62419$$