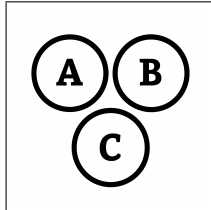


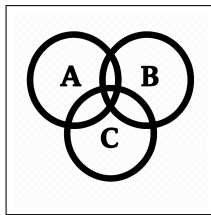
O

Bernoulli Trials

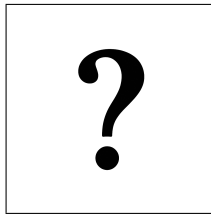
O



$$n = 2$$
$$p = 0.50$$
$$k = 1$$



$$P(X = k) = \binom{n}{k} (p)^k (1 - p)^{n-k}$$
$$P(X = 1) = \binom{2}{1} (0.50)^1 (0.50)^1$$
$$P(X = 1) = 2 \times 0.50 \times 0.50$$
$$P(X = 1) = \boxed{0.50}$$



$$n = 10$$
$$p = 0.20$$
$$P(X \geq 2) = ?$$
$$E[X] = ?$$

O

Bernoulli Trials

O



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

$$\begin{aligned}P(X \geq 2) &= 1 - P(X \leq 1) \\P(X \geq 2) &= 1 - [P(X = 0) + P(X = 1)] \\P(X = 0) &= (0.8)^{10} \approx 0.107374 \\P(X = 1) &= \binom{10}{1}(0.2)(0.8)^9 = 10 \cdot 0.2 \cdot 0.8^9 \approx 0.268435 \\P(X \geq 2) &\approx 1 - (0.107374 + 0.268435) \approx \boxed{0.62419}\end{aligned}$$

$$E[X] = np = 10 \times 0.2 = \boxed{2}$$