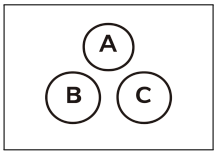
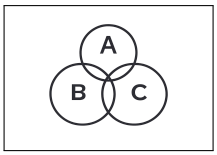
19 Discrete Distribution Bernoulli Trials O



$n = 2$

$p = 0.50$

$k = 1$

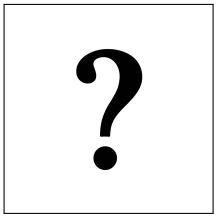


$$P(X = k) = \binom{n}{k}(p)^k(1-p)^{n-k}$$

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

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

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



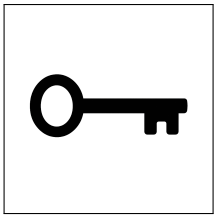
$n = 10$

$p = 0.20$

$P(X \geq 2) = ?$

$E[X] = ?$

19 Discrete Distribution Bernoulli Trials O



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

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

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