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Discrete Distribution Bernoulli Trials

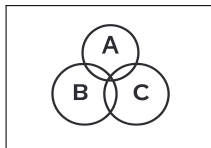
K



$$n = 2$$

$$p = 0.50$$

$$k = 1$$

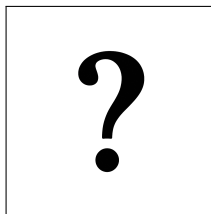


$$P(X = k) = \binom{n}{k} (p)^k (1 - p)^{n-k}$$

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

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

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



$$n = 10$$

$$p = 0.10$$

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

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$$n = 10$$

$$p = 0.10$$

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

$$P(X \geq 2) = 1 - P(X < 2) = 1 - [P(X = 0) + P(X = 1)]$$

$$P(X = 0) = (0.9)^{10}$$

$$P(X = 1) = \binom{10}{1} (0.1)^1 (0.9)^9 = 10 \cdot 0.1 \cdot 0.9^9$$

$$P(X \geq 2) = 1 - [0.9^{10} + 0.9^9]$$

$$P(X \geq 2) \approx 1 - [0.348678 + 0.387420]$$

$$P(X \geq 2) \approx \boxed{0.2639}$$