

B

Negative Binomial Random Variable

B



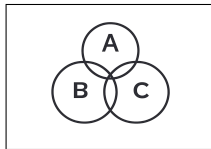
$$p = 0.5$$

$$r = 2$$

$$n = 3$$

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

$$P(X = 3) = ?$$

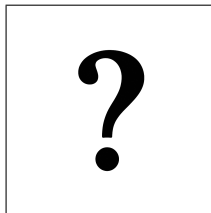


$$P(X = 3) = \binom{3-1}{2-1} (0.5)^2 (0.5)^{3-2}$$

$$P(X = 3) = \binom{2}{1} (0.5)^3$$

$$P(X = 3) = 2 \times 0.125$$

$$P(X = 3) = \boxed{0.25}$$



$$p = 0.2$$

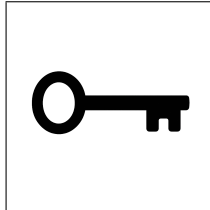
$$r = 3$$

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

$$P(X = 5) = ?$$

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$$p = 0.2$$

$$r = 3$$

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

$$P(X = 5) = ?$$

$$P(X = 5) = \binom{5-1}{3-1} (0.2)^3 (0.8)^{5-3}$$

$$P(X = 5) = \binom{4}{2} (0.2)^3 (0.8)^2$$

$$P(X = 5) = 6 \times 0.008 \times 0.64$$

$$P(X = 5) = \boxed{0.03072}$$