

Answer to Question #75171, Math / Statistics and Probability

Task

Find the mean, variance, and standard deviation of the binomial distribution with the given values of n and p.

n equals 80 n=80, p equals 0.3 p=0.3

Solution

Suppose we have $X \sim B(n, p)$, where $n = 80$; $p = 0.3$

Mean of the Binomial distribution can be counted as follows:

$$\text{Mean}(X) = n \times p = 80 \times 0.3 = 24$$

Variance of the Binomial distribution can be counted as follows:

$$\text{Var}(X) = np(1 - p) = 80 \times 0.3 \times (1 - 0.3) = 24 \times 0.7 = 16.8$$

Standard deviation of the Binomial distribution can be counted as follows:

$$\text{std}(X) = \sqrt{\text{Var}(X)} = \sqrt{16.8} \approx 4.1$$

Answer

$$\text{Mean}(X) = 24$$

$$\text{Var}(X) = 16.8$$

$$\text{std}(X) = 4.1$$

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