How do I use the BINOM.DIST function in Excel?

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The BINOM.DIST function in Excel is a statistical function that allows you to calculate the probability of a specific number of successes in a given number of trials, using the binomial distribution. To use this function, you need to provide the number of trials, the probability of success, and the desired number of successes. The function will then return the probability of obtaining that exact number of successes in the given number of trials. This function is useful for analyzing and predicting outcomes in situations where there are only two possible outcomes, such as in coin tosses or product sales. By utilizing the BINOM.DIST function, you can easily and accurately calculate the likelihood of a desired outcome, helping you make informed decisions in your data analysis.

Returns the individual term binomial distribution probability. Use BINOM.DIST in problems with a fixed number of tests or trials, when the outcomes of any trial are only success or failure, when trials are independent, and when the probability of success is constant throughout the experiment. For example, BINOM.DIST can calculate the probability that two of the next three babies born are male.

Syntax

BINOM.DIST(number_s,trials,probability_s,cumulative)

The BINOM.DIST function syntax has the following arguments:

Number_s Required. The number of successes in trials.

Trials Required. The number of independent trials.

Probability_s Required. The probability of success on each trial.

Cumulative Required. A logical value that determines the form of the function. If cumulative is TRUE, then BINOM.DIST returns the cumulative distribution function, which is the probability that there are at most number_s successes; if FALSE, it returns the probability mass function, which is the probability that there are number_s successes.

Remarks

Number_s and trials are truncated to integers.

If number_s, trials, or probability_s is nonnumeric, BINOM.DIST returns the #VALUE! error value.

If number_s < 0 or number_s > trials, BINOM.DIST returns the #NUM! error value.

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If probability_s < 0 or probability_s > 1, BINOM.DIST returns the #NUM! error value.

The binomial probability mass function is:

where:

$$\binom{n}{x}$$

is COMBIN(n,x).

The cumulative binomial distribution is:

$$B(x;n,p) = \sum_{y=0}^{x} b(y;n,p)$$

Example

Copy the example data in the following table, and paste it in cell A1 of a new Excel worksheet. For formulas to show results, select them, press F2, and then press Enter. If you need to, you can adjust the column widths to see all the data.

Data	**Description**	
6	Number of successes in trials	
10	Number of independent trials	
0.5	Probability of success on each trial	
Formula	**Description**	**Result**
=BINOM.DIST(A2,A3,A4,FALSE)	Probability of exactly 6 of 10 trials being successful.	0.2050781

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