How To use the HYPGEOM.DIST function in Excel?

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The HYPGEOM.DIST function in Excel allows you to calculate the probability of obtaining a specific number of successes in a sample from a population. To use this function, simply open an Excel spreadsheet and follow these steps: enter the formula =HYPGEOM.DIST(x, n, M, N, cumulative) in a cell, replacing the x, n, M, N, and cumulative values with the appropriate numbers. Press Enter to calculate the result, which will appear in the cell. You can also use this function in a formula by referencing cell values. For multiple calculations, enter the formula in multiple cells and adjust the cell references. Additionally, you can combine the HYPGEOM.DIST function with other Excel functions and formulas for more complex calculations.

This article describes the formula syntax and usage of the **HYPGEOM.DIST** function in Microsoft Excel.

Returns the hypergeometric distribution. HYPGEOM.DIST returns the probability of a given number of sample successes, given the sample size, population successes, and population size. Use HYPGEOM.DIST for problems with a finite population, where each observation is either a success or a failure, and where each subset of a given size is chosen with equal likelihood.

Syntax

HYPGEOM.DIST(sample_s,number_sample,population_s,number_pop,cumulative)

The HYPGEOM.DIST function syntax has the following arguments:

Sample_s Required. The number of successes in the sample.
Number_sample Required. The size of the sample.
Population_s Required. The number of successes in the population.
Number_pop Required. The population size.
Cumulative Required. A logical value that determines the form of the function. If cumulative is TRUE, then HYPGEOM.DIST returns the cumulative distribution function; if FALSE, it returns the probability mass function.

Remarks

All arguments are truncated to integers.
If any argument is nonnumeric, HYPGEOM.DIST returns the #VALUE! error value.
If sample_s < 0 or sample_s is greater than the lesser of number_sample or population_s, HYPGEOM.DIST returns the #NUM! error value.
If sample_s is less than the larger of 0 or (number_sample - number_population + population_s), HYPGEOM.DIST returns the #NUM! error value.
If number_sample ≤ 0 or number_sample > number_population, HYPGEOM.DIST returns the #NUM! error value.

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If population_s ≤ 0 or population_s > number_population, HYPGEOM.DIST returns the #NUM! error value.
If number_pop ≤ 0, HYPGEOM.DIST returns the #NUM! error value.
The equation for the hypergeometric distribution is:

where:

x = sample_s

n = number_sample

M = population_s

N = number_pop

HYPGEOM.DIST is used in sampling without replacement from a finite population.

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**	**Result**
1	Number of successes in the sample	
4	Sample size	
8	Number of successes in the population	
20	Population size	
Formula	**Description (Result)**	
=HYPGEOM.DIST(A2,A3,A4,A5,TRUE)	Cumulative hypergeometric distribution function, for sample and population in cells A2 through A5.	0.4654
=HYPGEOM.DIST(A2,A3,A4,A5,FALSE)	Probability hypergeometric distribution function, for sample and in cells A2 through A5.	0.3633

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