How do I use the HYPGEOMDIST function in Excel?

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The HYPGEOMDIST function in Excel is a statistical function that calculates the probability of a specific number of successes occurring in a given number of trials, based on a hypergeometric distribution. To use this function, you will need to provide the number of successes, number of trials, total number of items, and the number of selected items. Once these parameters are entered into the function, it will return the probability of the specified number of successes. This function is useful for analyzing data in areas such as quality control, market research, and medical research.

Returns the hypergeometric distribution. HYPGEOMDIST returns the probability of a given number of sample successes, given the sample size, population successes, and population size. Use HYPGEOMDIST 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.

Important: This function has been replaced with one or more new functions that may provide improved accuracy and whose names better reflect their usage. Although this function is still available for backward compatibility, you should consider using the new functions from now on, because this function may not be available in future versions of Excel.

For more information about the new function, see HYPGEOM.DIST function.

Syntax

HYPGEOMDIST(sample_s,number_sample,population_s,number_pop)

The HYPGEOMDIST 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.

Remarks

All arguments are truncated to integers.

If any argument is nonnumeric, HYPGEOMDIST returns the #VALUE! error value.

If sample_s < 0 or sample_s is greater than the lesser of number_sample or population_s, HYPGEOMDIST returns the #NUM! error value.

If sample_s is less than the larger of 0 or (number_sample - number_population + population_s), HYPGEOMDIST returns the #NUM! error value.

If number_sample ≤ 0 or number_sample > number_population, HYPGEOMDIST returns the #NUM! error value.

If population_s ≤ 0 or population_s > number_population, HYPGEOMDIST returns the #NUM! error value.

If number_population ≤ 0, HYPGEOMDIST returns the #NUM! error value.

The equation for the hypergeometric distribution is:

$$P(X = x) = h(x; n, M, N) = \frac{\binom{M}{x}\binom{N-M}{n-x}}{\binom{N}{n}}$$

where:

x = sample_s

n = number_sample

M = population_s

N = number_population

HYPGEOMDIST 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	
1	Number of successes in the sample	
4	Sample size	
8	Number of successes in the population	

Data	Description	
20	Population size	
Formula	**Description**	**Result**
=HYPGEOMDIST(A2,A3,A4,A5)	Hypergeometric distribution for sample and population in cells A2, A3, A4, and A5.	0.3633