How can I use the CHIDIST function in Excel to calculate the probability of a chi-square distribution?

Authored by

stats writer

June 29, 2024

The CHIDIST function in Excel is a statistical tool that allows users to calculate the probability of a chi-square distribution. This function requires two inputs: the chi-square value and the degrees of freedom. By inputting these values, the CHIDIST function will return the probability associated with the given chi-square distribution. This function is commonly used in hypothesis testing and other statistical analyses to determine the likelihood of obtaining a certain chi-square value. By understanding how to use the CHIDIST function, users can effectively analyze and interpret chi-square data in Excel.

Returns the right-tailed probability of the chi-squared distribution. The χ2 distribution is associated with a χ2 test. Use the χ2 test to compare observed and expected values. For example, a genetic experiment might hypothesize that the next generation of plants will exhibit a certain set of colors. By comparing the observed results with the expected ones, you can decide whether your original hypothesis is valid.

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 functions, see CHISQ.DIST function and CHISQ.DIST.RT function.

Syntax

CHIDIST(x,deg_freedom)

The CHIDIST function syntax has the following arguments:

X Required. The value at which you want to evaluate the distribution.

Deg_freedom Required. The number of degrees of freedom.

Remarks

If either argument is nonnumeric, CHIDIST returns the #VALUE! error value.

If x is negative, CHIDIST returns the #NUM! error value.

If deg_freedom is not an integer, it is truncated.

If deg_freedom < 1 or deg_freedom > 10^10, CHIDIST returns the #NUM! error value.

CHIDIST is calculated as CHIDIST = P(X>x), where X is a $\chi 2$ random variable.

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**	
18.307	Value at which you want to evaluate the distribution	
10	Degrees of freedom	
Formula	**Description**	**Result**
=CHIDIST(A2,A3)	One-tailed probability of the chi-squared distribution, for the arguments specified in A2 and A3.	0.0500006