

# How do I use the CHISQ.DIST function in Google Sheets?

Authored by  
**stats writer**

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## RECOMMENDED CITATION

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The CHISQ.DIST function in Google Sheets is used to calculate the probability associated with the Chi-square distribution. This function takes in two arguments: *x*, which is the value at which the probability is to be evaluated, and *degrees\_freedom*, which represents the degrees of freedom associated with the Chi-square distribution. The result of the CHISQ.DIST function is a decimal value between 0 and 1, with a lower value indicating a lower probability and a higher value indicating a higher probability. This function is commonly used in statistical analysis to determine the likelihood of certain outcomes in a set of data. To use the CHISQ.DIST function, simply input the required arguments into the function and press Enter.

## CHISQ.DIST

Calculates the left-tailed chi-squared distribution, often used in hypothesis testing.

### Sample Usage

```
CHISQ.DIST(3.45, 2, TRUE)
```

```
CHISQ.DIST(A2, B2, TRUE)
```

### Syntax

```
CHISQ.DIST(x, degrees_freedom, cumulative)
```

*x* - The input to the chi-squared probability distribution function. The value at which to evaluate the function.

Must be a positive number.

*degrees\_freedom* - The number of degrees of freedom of the distribution.

*cumulative* - Logical value that determines the form of the function.

If **TRUE**: **CHISQ.DIST** returns the left-tailed cumulative distribution function.

If **FALSE**: **CHISQ.DIST** returns the probability density function.

### Notes

*degrees\_freedom* is truncated to an integer if a non-integer is provided.

*degrees\_freedom* must be at least 1 and may not exceed  $10^{10}$ .

`x` and `degrees_freedom` must be numeric.

## See Also

**CHIDIST**: Calculates the right-tailed chi-squared distribution, often used in hypothesis testing.

**CHIINV**: Calculates the inverse of the right-tailed chi-squared distribution.

**CHISQ.DIST.RT**: Calculates the right-tailed chi-squared distribution, which is commonly used in hypothesis testing.

**CHITEST**: Returns the probability associated with a Pearson's chi-squared test on the two ranges of data. Determines the likelihood that the observed categorical data is drawn from an expected distribution.

**GAMMADIST**: Calculates the gamma distribution, a two-parameter continuous probability distribution.

## Example

Suppose you want to test the fairness of a 6-sided die:

From several rolls, you obtain a chi-squared statistic of 12.3.

The number of degrees of freedom is  $6 - 1 = 5$ .

We will evaluate the chi-squared distribution with 5 degrees of freedom when `x` equals 12.3.

	A	B	C
1	<code>x</code>	Degrees freedom	Solution
2	12.3	5	0.01223870353
3	12.3	5	=CHISQ.DIST(12.3, 5, FALSE)
4	12.3	5	=CHISQ.DIST(A2, B2, FALSE)