

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

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The EXPON.DIST function in Excel is a statistical function that allows users to calculate the exponential distribution of a given data set. This function is useful for analyzing data that follows an exponential pattern, such as the decay of radioactive materials or the growth of populations. To use the EXPON.DIST function, users must input the required values, such as the data set and the mean or rate parameter, into the function's formula. This will then return the probability of a specific value occurring within the exponential distribution. The EXPON.DIST function can be used in various fields, such as finance, biology, and engineering, to analyze and make predictions based on exponential data.

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

Returns the exponential distribution. Use EXPON.DIST to model the time between events, such as how long an automated bank teller takes to deliver cash. For example, you can use EXPON.DIST to determine the probability that the process takes at most 1 minute.

Syntax

EXPON.DIST(x,lambda,cumulative)

The EXPON.DIST function syntax has the following arguments:

X Required. The value of the function.

Lambda Required. The parameter value.

Cumulative Required. A logical value that indicates which form of the exponential function to provide. If cumulative is TRUE, EXPON.DIST returns the cumulative distribution function; if FALSE, it returns the probability density function.

Remarks

If x or lambda is nonnumeric, EXPON.DIST returns the #VALUE! error value.

If $x < 0$, EXPON.DIST returns the #NUM! error value.

If $\lambda \leq 0$, EXPON.DIST returns the #NUM! error value.

The equation for the probability density function is:



The equation for the cumulative distribution function is:



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 | |
|---------------------------|---|------------|
| 0.2 | Value of the function | |
| 10 | Parameter value | |
| Formula | Description | Result |
| =EXPON.DIST(A2,A3,TRUE) | Cumulative exponential distribution function | 0.86466472 |
| =EXPON.DIST(0.2,10,FALSE) | Probability exponential distribution function | 1.35335283 |