How can I use the EXPONDIST function in Excel to calculate the exponential distribution of a given value?

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The EXPONDIST function in Excel is a mathematical tool that allows users to calculate the exponential distribution of a given value. This function uses the parameters of the mean and the value to determine the probability of a random variable falling within that given value. By using this function, users can quickly and accurately calculate the probability of an event occurring in a specified time period. This tool is particularly useful for analyzing data in fields such as finance, economics, and engineering. To use the EXPONDIST function, simply input the required parameters and the function will return the desired result.

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

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

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 EXPON.DIST function.

Syntax

EXPONDIST(x,lambda,cumulative)

The EXPONDIST 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, EXPONDIST returns the cumulative distribution function; if FALSE, it returns the probability density function.

Remarks

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

If x < 0, EXPONDIST returns the #NUM! error value.

If lambda ≤ 0, EXPONDIST 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**
=EXPONDIST(A2,A3,TRUE)	Cumulative exponential distribution function	0.86466472
=EXPONDIST(0.2,10,FALSE)	Probability exponential distribution function	1.35335283