How To use the BESSELJ function in Excel?

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The BESSELJ function in Excel allows users to easily calculate Bessel functions, which are mathematical functions commonly used in engineering and physics. To use this function, users must first select the cell where they want the result to appear and then enter the function by typing "=BESSELJ(" without the quotation marks. They can then enter the order and argument values for the Bessel function, and an optional flag value if needed. Once complete, pressing Enter will calculate the function and display the result. This function is only available in Excel for Windows and not in Excel for Mac.

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

Description

Returns the Bessel function.

Syntax

BESSELJ(X, N)

The BESSELJ function syntax has the following arguments:

X Required. The value at which to evaluate the function.
N Required. The order of the Bessel function. If n is not an integer, it is truncated.

Remarks

If x is nonnumeric, BESSELJ returns the #VALUE! error value.
If n is nonnumeric, BESSELJ returns the #VALUE! error value.
If n < 0, BESSELJ returns the #NUM! error value.
The n-th order Bessel function of the variable x is:

$$J_n(x) = \sum_{k=0}^{\infty} \frac{(-1)^k}{k!\Gamma(n+k+1)} \left(\frac{x}{2}\right)^{n+2k}$$

where:

$$\Gamma(n+k+1) = \int_0^{\infty} e^{-x} x^{n+k} dx$$

is the Gamma function.