# How can I use the BESSELK function in Excel to calculate the modified Bessel function of the second kind?

Authored by

**stats writer**

June 28, 2024

The BESSELK function in Excel is a mathematical function that allows users to calculate the modified Bessel function of the second kind. This function is commonly used in engineering and scientific calculations, as it represents solutions to certain differential equations. By inputting the desired value or cell reference, Excel will automatically calculate the modified Bessel function of the second kind, making complex calculations more efficient and accurate. This function can be accessed through the Insert Function feature in Excel and can be used in various mathematical and statistical operations.

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

## Description

Returns the modified Bessel function, which is equivalent to the Bessel functions evaluated for purely imaginary arguments.

## Syntax

BESSELK(X, N)

The BESSELK function syntax has the following arguments:

**X** Required. The value at which to evaluate the function.

**N** Required. The order of the function. If n is not an integer, it is truncated.

## Remarks

If x is nonnumeric, BESSELK returns the #VALUE! error value.

If n is nonnumeric, BESSELK returns the #VALUE! error value.

If n < 0, BESSELK returns the #NUM! error value.

The n-th order modified Bessel function of the variable x is:

$$K_n(x) = \frac{\pi}{2} i^{n+1} [J_n(ix) + iY_n(ix)]$$

where Jn and Yn are the J and Y Bessel functions, respectively.