

# How can I use the MULTINOMIAL function in Excel to calculate the multinomial coefficient for a set of values?

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The MULTINOMIAL function in Excel is a mathematical tool that allows users to calculate the multinomial coefficient for a set of values. This function is useful in solving problems related to probability and combinations. To use the MULTINOMIAL function, you simply input the values of the set for which you want to calculate the coefficient, and the function will automatically compute the result. This feature saves time and effort, as manually calculating the multinomial coefficient can be a complex and time-consuming task. The result provided by the MULTINOMIAL function is an essential tool for solving problems in various fields, such as statistics, economics, and engineering.

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

## Description

Returns the ratio of the factorial of a sum of values to the product of factorials.

## Syntax

MULTINOMIAL(number1, , ...)

The MULTINOMIAL function syntax has the following arguments:

**Number1, number2, ...** Number1 is required, subsequent numbers are optional. 1 to 255 values for which you want the multinomial.

## Remarks

If any argument is nonnumeric, MULTINOMIAL returns the #VALUE! error value.

If any argument is less than zero, MULTINOMIAL returns the #NUM! error value.

The multinomial is:

$$\text{MULTINOMIAL}(a_1, a_2, \dots, a_n) = \frac{(a_1 + a_2 + \dots + a_n)!}{a_1! a_2! \dots a_n!}$$