# How can I use the NEGBINOMDIST function in Excel to calculate the probability of a certain number of failures before a specified number of successes in a negative binomial distribution?

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The NEGBINOMDIST function in Excel is a statistical tool that can be used to calculate the probability of a specific number of failures occurring before a specified number of successes in a negative binomial distribution. This function takes into account the number of successes, the number of failures, and the probability of success in each trial to determine the probability of a certain number of failures before reaching the desired number of successes. By using this function, users can effectively analyze and predict the likelihood of achieving a certain number of successes within a specific number of trials in a negative binomial distribution.

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

## Description

Returns the negative binomial distribution. NEGBINOMDIST returns the probability that there will be number_f failures before the number_s-th success, when the constant probability of a success is probability_s. This function is similar to the binomial distribution, except that the number of successes is fixed, and the number of trials is variable. Like the binomial, trials are assumed to be independent.

For example, you need to find 10 people with excellent reflexes, and you know the probability that a candidate has these qualifications is 0.3. NEGBINOMDIST calculates the probability that you will interview a certain number of unqualified candidates before finding all 10 qualified candidates.

**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 NEGBINOM.DIST function.

## Syntax

NEGBINOMDIST(number_f,number_s,probability_s)

The NEGBINOMDIST function syntax has the following arguments:

**Number_f** Required. The number of failures.

**Number_s** Required. The threshold number of successes.

**Probability_s** Required. The probability of a success.

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## Remarks

Number_f and number_s are truncated to integers.

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

If probability_s < 0 or if probability > 1, NEGBINOMDIST returns the #NUM! error value.

If number_f < 0 or number_s < 1, NEGBINOMDIST returns the #NUM! error value.

The equation for the negative binomial distribution is:

where:

x is number_f, r is number_s, and p is probability_s.

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