# How can I use the NORMSDIST function in Excel to calculate the probability of a value falling within a standard normal distribution?

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The NORMSDIST function in Excel is a mathematical tool that allows users to calculate the probability of a value falling within a standard normal distribution. This function takes in a value and returns the corresponding probability based on the standard normal distribution curve. By using this function, users can easily determine the likelihood of a specific value occurring within a given range, making it a useful tool for statistical analysis and decision making. To use the NORMSDIST function, simply input the desired value and the function will automatically calculate the probability for you. This can help users make more informed decisions and better understand the distribution of their data.

Returns the standard normal cumulative distribution function. The distribution has a mean of 0 (zero) and a standard deviation of one. Use this function in place of a table of standard normal curve areas.

**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 NORM.S.DIST function.

## Syntax

NORMSDIST(z)

The NORMSDIST function syntax has the following argument:

**Z** Required. The value for which you want the distribution.

## Remarks

If z is nonnumeric, NORMSDIST returns the #VALUE! error value.

The equation for the standard normal density function is:

$$f(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}}$$

## 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.

| Formula | Description | Result |
|---|---|---|
| =NORMSDIST(1.333333) | Normal cumulative distribution function at 1.333333 | 0.908788726 |