How do I use the CONFIDENCE function in Excel?

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The CONFIDENCE function in Excel is a statistical tool that can be used to calculate the confidence interval for a given data set. This function takes in three arguments: the significance level, the standard deviation, and the sample size. It then returns the margin of error, which is the range in which the true population mean is likely to fall. This can be helpful in making informed decisions and understanding the reliability of the data. To use this function, simply enter the necessary arguments into the formula bar and press enter. This will provide you with the confidence interval value, which can be used for further analysis or reporting.

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

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Description

Returns the confidence interval for a population mean, using a normal distribution.

The confidence interval is a range of values. Your sample mean, x, is at the center of this range and the range is x ± CONFIDENCE. For example, if x is the sample mean of delivery times for products ordered through the mail, x ± CONFIDENCE is a range of population means. For any population mean, μ0, in this range, the probability of obtaining a sample mean further from μ0 than x is greater than alpha; for any population mean, μ0, not in this range, the probability of obtaining a sample mean further from μ0 than x is less than alpha. In other words, assume that we use x, standard_dev, and size to construct a two-tailed test at significance level alpha of the hypothesis that the population mean is μ0. Then we will not reject that hypothesis if μ0 is in the confidence interval and will reject that hypothesis if μ0 is not in the confidence interval. The confidence interval does not allow us to infer that there is probability 1 - alpha that our next package will take a delivery time that is in the confidence interval.

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 functions, see CONFIDENCE.NORM function and CONFIDENCE.T function.

Syntax

CONFIDENCE(alpha,standard_dev,size)

The CONFIDENCE function syntax has the following arguments:

Alpha Required. The significance level used to compute the confidence level. The confidence level equals 100*(1 - alpha)%, or in other words, an alpha of 0.05 indicates a 95 percent confidence level.

Standard_dev Required. The population standard deviation for the data range and is assumed to be known.

Size Required. The sample size.

Remarks

If any argument is non-numeric, CONFIDENCE returns the #VALUE! error value.

If Alpha is ≤ 0 or ≥ 1, CONFIDENCE returns the #NUM! error value.

If Standard_dev ≤ 0, CONFIDENCE returns the #NUM! error value.

If Size is not an integer, it is truncated.

If Size < 1, CONFIDENCE returns the #NUM! error value.

If we assume Alpha equals 0.05, we need to calculate the area under the standard normal curve that equals (1 - alpha), or 95 percent. This value is ± 1.96. The confidence interval is therefore:

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