How can I use the VAR.S function in Excel to calculate the sample variance of a set of data?

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The VAR.S function in Excel is a powerful tool that allows users to easily calculate the sample variance of a set of data. By inputting the data into the function, Excel automatically calculates the variance by using the formula for sample variance, taking into account the mean and the number of data points. This function is particularly useful for data analysis and statistical purposes, as it provides a quick and accurate way to measure the variability of a data set. Simply input the data and use the VAR.S function to efficiently calculate the sample variance in Excel.

Estimates variance based on a sample (ignores logical values and text in the sample).

Syntax

VAR.S(number1,,...)

The VAR.S function syntax has the following arguments:

Number1 Required. The first number argument corresponding to a sample of a population.

Number2, ... Optional. Number arguments 2 to 254 corresponding to a sample of a population.

Remarks

VAR.S assumes that its arguments are a sample of the population. If your data represents the entire population, then compute the variance by using VAR.P.

Arguments can either be numbers or names, arrays, or references that contain numbers.

Logical values, and text representations of numbers that you type directly into the list of arguments are counted.

If an argument is an array or reference, only numbers in that array or reference are counted. Empty cells, logical values, text, or error values in the array or reference are ignored.

Arguments that are error values or text that cannot be translated into numbers cause errors.

If you want to include logical values and text representations of numbers in a reference as part of the calculation, use the VARA function.

VAR.S uses the following formula:

$$\frac{\sum(x-\bar{x})^2}{(n-1)}$$

where x is the sample mean AVERAGE(number1,number2,...) and n is the sample size.

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.

Strength		
1345		
1301		
1368		
1322		
1310		
1370		
1318		
1350		
1303		
1299		
Formula	**Description**	**Result**
=VAR.S(A2:A11)	Variance for the breaking strength of the tools, when the values in A2:A11 represent only a sample of all the data. VAR.S returns a different result than VAR.P, which treats the range of data as the entire population.	754.27
=VAR.P(A2:A11)	The variance based on the entire population, using the VAR.P function, returns a different result.	678.84