How do I calculate the standard deviation of a population in Excel?

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The process of calculating the standard deviation of a population in Excel involves using the built-in function "STDEV.P" which calculates the standard deviation based on the entire population data set. This function takes the values of the data set as its arguments and gives the result in a numerical value. To calculate the standard deviation, the formula "=STDEV.P(data set)" can be entered in a cell, where "data set" refers to the range of cells containing the population data. This will provide the standard deviation of the population, which is a measure of how much the data points deviate from the mean. By using this function, one can easily and accurately determine the variability of a population in Excel.

Calculates standard deviation based on the entire population given as arguments. The standard deviation is a measure of how widely values are dispersed from the average value (the mean).

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 STDEV.P function.

Syntax

STDEVP(number1,,...)

The STDEVP function syntax has the following arguments:

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

Number2, ... Optional. Number arguments 2 to 255 corresponding to a population. You can also use a single array or a reference to an array instead of arguments separated by commas.

Remarks

STDEVP assumes that its arguments are the entire population. If your data represents a sample of the population, then compute the standard deviation using STDEV.

For large sample sizes, STDEV and STDEVP return approximately equal values.

The standard deviation is calculated using the "n" method.

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 STDEVPA function.

STDEVP uses the following formula:

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

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.

Data		
Strength		
1345		
1301		
1368		
1322		
1310		
1370		
1318		
1350		
1303		
1299		

Data		
Formula	**Description (Result)**	**Result**
=STDEVP(A3:A12)	Standard deviation of breaking strength, assuming only 10 tools are produced (26.0546).	26.05456