How do I use the STEYX function in Excel to calculate the standard error of the predicted y-value for a given x-value in a data set?

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The STEYX function in Excel is a useful tool for calculating the standard error of the predicted y-value for a given x-value in a data set. This function takes into account the relationship between the x and y variables and provides a more accurate estimation of the error. To use the STEYX function, you must first have a data set with corresponding x and y values. Then, select the cell where you want the standard error to appear and enter the formula "=STEYX (known_y's, known_x's, new_x)". The "known_y's" and "known_x's" refer to the existing data points in the data set, while the "new_x" represents the x-value for which you want to calculate the standard error. The result will be the standard error of the predicted y-value for the given x-value. This function can be particularly helpful in statistical analysis and forecasting, providing a more accurate measure of the relationship between variables.

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

Description

Returns the standard error of the predicted y-value for each x in the regression. The standard error is a measure of the amount of error in the prediction of y for an individual x.

Syntax

STEYX(known_y's, known_x's)

The STEYX function syntax has the following arguments:

Known_y's Required. An array or range of dependent data points.

Known_x's Required. An array or range of independent data points.

Remarks

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 array or reference argument contains text, logical values, or empty cells, those values are ignored; however, cells with the value zero are included.

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

If known_y's and known_x's have a different number of data points, STEYX returns the #N/A error

value.

If known_y's and known_x's are empty or have less than three data points, STEYX returns the #DIV/0! error value.

The equation for the standard error of the predicted y is:

$$\sqrt{\frac{1}{(n-2)}\left[\sum(y-\bar{y})^2-\frac{\left[\sum(x-\bar{x})(y-\bar{y})\right]^2}{\sum(x-\bar{x})^2}\right]}$$

where x and y are the sample means AVERAGE(known_x's) and AVERAGE(known_y's), and n is the sample size.