

How do I calculate the standard error of the mean in Google Sheets?

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Calculating the standard error of the mean is an important statistical measure used to determine the accuracy of a sample mean. In Google Sheets, this can be easily done by using the formula `=STDEV.S(range)/SQRT(COUNT(range))`, where "range" refers to the data set being analyzed. This formula takes into account the standard deviation of the sample and the sample size to provide an estimate of the standard error of the mean. By using this formula, one can accurately assess the precision of the sample mean in Google Sheets.

Calculate Standard Error of the Mean in Google Sheets

The standard error of the mean is a way to measure how spread out values are in a dataset. It is calculated as:

$$\text{Standard error} = s / \sqrt{n}$$

where:

s: sample standard deviation **n:** sample size

We can calculate the standard error of the mean for a given dataset in Google Sheets by using the following formula:

`=STDEV.S(range of values) / SQRT(COUNT(range of values))`

The following example demonstrates how to use this formula.

Example: Standard Error in Google Sheets

Suppose we have the following dataset:

	A	B	C	D
1	Data values			
2	3			
3	4			
4	4			
5	5			
6	7			
7	8			
8	12			
9	14			
10	14			
11	15			
12	17			
13	19			
14	22			
15	24			
16	24			
17	24			
18	25			
19	28			
20	28			
21	29			
22				
23				
24				
25				

The following formula shows how to calculate the standard error of the mean for this dataset:

fx | =STDEV.S(A2:A21)/(SQRT(COUNT(A2:A21)))

	A	B	C	D	E	F
1	Data values		Standard Error of Mean	2.001446845 ×		
2	3		2.0014	=STDEV.S(A2:A21)/(SQRT(COUNT(A2:A21)))		
3	4					
4	4					
5	5					
6	7					
7	8					
8	12					
9	14					
10	14					
11	15					
12	17					
13	19					
14	22					
15	24					
16	24					
17	24					
18	25					
19	28					
20	28					
21	29					
22						
23						
24						

The standard error of the mean turns out to be 2.0014.

How to Interpret the Standard Error of the Mean

The standard error of the mean is a measure of how spread out values are around the mean. There are two things to keep in mind when interpreting the standard error of the mean:

1. The larger the standard error of the mean, the more spread out values are around the mean in a dataset.

fx =STDEV.S(A2:A21)/(SQRT(COUNT(A2:A21)))						
	A	B	C	D	E	F
1	Data values		Standard Error of Mean	6.978265129 ×		
2	3		6.9783	=STDEV.S(A2:A21)/(SQRT(COUNT(A2:A21)))		
3	4					
4	4					
5	5					
6	7					
7	8					
8	12					
9	14					
10	14					
11	15					
12	17					
13	19					
14	22					
15	24					
16	24					
17	24					
18	25					
19	28					
20	28					
21	150					
22						
23						
24						

Notice how the standard error jumps from 2.0014 to 6.9783. This tells us that the values in this dataset are more spread out around the mean compared to the previous dataset.

2. As the sample size increases, the standard error of the mean tends to decrease.

To illustrate this, consider the standard error of the mean for the following two datasets:

