How do I calculate the relative standard deviation in Excel?

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April 23, 2024

To calculate the relative standard deviation in Excel, follow these steps:

1. Enter your data into a column in an Excel spreadsheet.
2. In a blank cell, enter the formula "=STDEV(data range)", where "data range" is the range of cells containing your data.
3. Press enter to calculate the standard deviation.
4. In another blank cell, enter the formula "=AVERAGE(data range)", where "data range" is the same range of cells used in the previous formula.
5. Press enter to calculate the average.
6. In a third blank cell, enter the formula "=(standard deviation/average)*100" to calculate the relative standard deviation.
7. Press enter to get the result.

The relative standard deviation is a measure of the variation of a data set relative to its mean, expressed as a percentage. This calculation can be useful in statistical analysis and quality control processes. By following these simple steps in Excel, one can easily calculate the relative standard deviation of a data set.

Calculate Relative Standard Deviation in Excel

The relative standard deviation is a measure of the sample standard deviation relative to the for a given dataset.

It is calculated as:

Relative standard deviation = s / x * 100%

where:

s: sample standard deviationx: sample mean

This metric gives us an idea of how closely are

clustered around the mean.

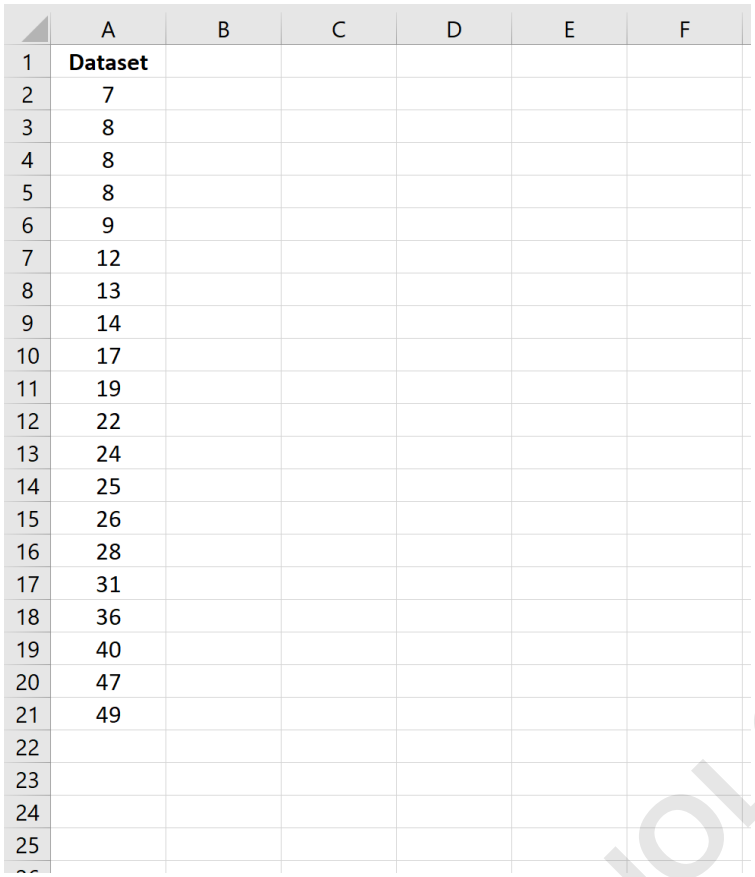
For example, suppose the standard deviation of a dataset is 4. If the mean is 400, then the relative standard deviation is 4/400 * 100% = 1%. This means the observations are clustered tightly around the mean.

However, a dataset that has a standard deviation of 40 and a mean of 400 will have a relative standard deviation of 10%. This means the observations are much more spread out around the mean relative to the previous dataset.

This tutorial provides an example of how to calculate relative standard deviation in Excel.

Example: Relative Standard Deviation in Excel

Suppose we have the following dataset in Excel:



	A	B	C	D	E	F
1	**Dataset**					
2	7					
3	8					
4	8					
5	8					
6	9					
7	12					
8	13					
9	14					
10	17					
11	19					
12	22					
13	24					
14	25					
15	26					
16	28					
17	31					
18	36					
19	40					
20	47					
21	49					
22						
23						
24						
25						

The following formulas show how to calculate the sample mean, sample standard deviation, and relative sample standard deviation of the dataset:

	A	B	C	D	E
1	**Dataset**				**Formula used**
2	7		**Mean**	22.15	=AVERAGE(A2:A21)
3	8		**Standard Deviation**	13.14004	=STDEV.S(A2:A21)
4	8		**Relative Standard Deviation**	0.59323	=E3/E2
5	8				
6	9				
7	12				
8	13				
9	14				
10	17				
11	19				
12	22				
13	24				
14	25				
15	26				
16	28				
17	31				
18	36				
19	40				
20	47				
21	49				
22					
23					
24					
25					

The relative standard deviation turns out to be 0.59.

This tells us that the standard deviation of the dataset is 59% of the size of the mean of the dataset. This number is quite large, which indicates that the values are spread out quite a lot around the sample mean.

If we have multiple datasets, we can use the same formula to calculate the relative standard deviation (RSD) for each dataset and compare the RSD's across the datasets:

	A	B	C	D	E
1			**Dataset 1**	**Dataset 2**	**Dataset 3**
2			7	11	5
3			8	12	7
4			8	12	7
5			8	13	8
6			9	15	13
7			12	15	16
8			13	16	18
9			14	17	22
10			17	18	25
11			19	20	29
12			22	22	35
13			24	23	37
14			25	23	44
15			26	24	47
16			28	24	48
17			31	25	56
18			36	27	59
19			40	29	65
20			47	30	73
21			49	34	78
22		**Mean**	22.15	20.5	34.6
23		**SD**	13.14004	6.637216	23.21615
24		**Relative SD**	0.59323	0.323767	0.670987

We can see that Dataset 3 has the largest relative standard deviation, which indicates that the values in that dataset are the most spread out relative to the mean of the dataset.

Conversely, we can see that Dataset 2 has the smallest relative standard deviation, which indicates that the values in that dataset are the least spread out relative to the mean of that particular dataset.

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