How do I calculate the 90th percentile in Google Sheets?

Authored by

stats writer

June 26, 2024

To calculate the 90th percentile in Google Sheets, you can use the PERCENTILE function. This formula takes two arguments: the data range and the percentile value (in this case, 90). The function will return the value at which 90% of the data falls below. This can be useful for analyzing data sets and understanding the distribution of values. Simply input the formula into a cell and replace the data range and percentile value with your specific data. This will give you the 90th percentile for your data set in Google Sheets.

Calculate the 90th Percentile in Google Sheets

The 90th percentile of a dataset is the value that cuts off the bottom 90 percent of the data values from the top 10 percent of data values when all of the values are sorted from least to greatest.

To find the 90th percentile of a dataset in Google Sheets, you can use one of the following two functions:

=PERCENTILE(data, percentile)=PERCENTILE.INC(data, percentile)

Both functions will return the same value.

For both functions, the data is the list of values in your dataset and percentile is the percentile you'd like to find between 0 and 1.

To find the 90th percentile, we will use 0.9 for k.

Note that there is also a function called =PERCENTILE.EXC that calculates percentiles between 0 and 1, *exclusive*. This function is rarely used in practice.

The following example shows how to calculate the 90th percentile of a dataset in Google Sheets.

Example: Calculating the 90th Percentile in Google Sheets

Suppose we have the following dataset that shows the exam scores of 20 students in a particular class:

	A	B	C	D
1	**Exam Score**			
2	65			
3	67			
4	68			
5	68			
6	70			
7	74			
8	78			
9	80			
10	81			
11	81			
12	81			
13	82			
14	83			
15	84			
16	87			
17	88			
18	93			
19	94			
20	95			
21	97			
22				
23				

We can use the following formula to find the 90th percentile of the exam scores:

=PERCENTILE(A2:A21,0.9)

The following screenshot shows how to use this formula in practice:

C2 =PERCENTILE(A2:A21, 0.9)

	A	B	C	D
1	Exam Score		90th Percentile	
2	65		94.1	
3	67			
4	68			
5	68			
6	70			
7	74			
8	78			
9	80			
10	81			
11	81			
12	81			
13	82			
14	83			
15	84			
16	87			
17	88			
18	93			
19	94			
20	95			
21	97			
22				
23				
24				

The 90th percentile turns out to be 94.1.

This is the score that a student must receive in order to have a score that is greater than 90% of the exam scores in the entire class.

Notes

Keep in mind the following notes when calculating

percentiles in Google Sheets:

The value for percentile must always be between 0 and 1.The percentile function will display a #VALUE! Error if you enter a non-numeric value for k.The data in our example was sorted from lowest to highest exam scores, but a dataset does not need to be pre-sorted in this manner for the percentile function to work.

The following tutorials explain how to perform other common tasks in Google Sheets: