Percentile

A percentile (or a centile) is a measure used in statistics indicating the value below which a given percentage of observations in a group of observations fall. For example, the 20th percentile is the value (or score) below which 20% of the observations may be found. The term percentile and the related term percentile rank are often used in the reporting of scores from norm-referenced tests. For example, if a score is at the 86th percentile, where 86 is the percentile rank, it is equal to the value below which 86% of the observations may be found. In contrast, if it is in the 86th percentile, the score is at or below the value of which 86% of the observations may be found. Every score is in the 100th percentile. The 25th percentile is also known as the first quartile (Q1), the 50th percentile as the median or second quartile (Q2), and the 75th percentile as the third quartile (Q3). In general, percentiles and quartiles are specific types of quintiles. The range of values containing the central half of the observations is called the inter quartile range: that is, the range between the 25th and 75th percentiles (the range including the values that are up to 25% higher or down to 25% lower than the median). It is used with the median value to report data that are markedly non-normally distributed. One definition of percentile, often given in texts, is that the Pth percentile ($0<P\leq100$) of a list of N ordered values (sorted from least to greatest) is the smallest value in the list such that no more than P percent of the data is strictly less than the value and at least P percent of the data is less than or equal to that value.

What is Percentile Formula?

The percentile formula is used when we need to compare the exact values or numbers over the other numbers from the given data i.e. the accuracy of the number. Often percentile and percentage are taken as one but both are different concepts. A percentage is where the

fraction is considered as one term while percentile is the value below the percentage found from the given data. In our day-to-day life, percentile formulas are usually helpful in finding the test scores or biometric measurements. Hence, the percentile formula is:

Percentile = (n/N) × 100

Or

The percentile of x is the ratio of the number of values below x to the total number of values multiplied by 100. i.e., the percentile formula is

Percentile = (Number of Values below “x” / Total Number of Values) × 100

Percentile Formula P = (n/N) × 100

Where,

n = ordinal rank of the given value or value below the number

N = number of values in the data set

P = percentile

Or Percentile = (Number of values below “x” / Total number of values) × 100

Steps of Percentile Formula

To find the percentile, here are a few steps to use the percentile formula. If q is any number between zero and hundred, the qth percentile is a value that divides the data into two parts i.e the lowest part contains the q percent of the data and the rest of the data is the upper part. Step 1: Arrange the data set in ascending order.

Step 2: Count the number of values in the data set and represent it as r.

Step 3: Calculate the value of q/100.

Step 4: Multiply q percent by r.

Step 5: If the answer is not a whole number then rounding the number is required. If it is a whole number, continue to the next step.

Step 6: Count the values in the data set, find the mean and the next number. The answer is the qth percentile.

Step 7: Count the value in the data set, once you reach that number according to what we obtained in step 5 that is the qth percentile.