

## FlexiPrep

### Median of Data: Find the Median of Data: Calculate the Median of a Set of Data (For CBSE, ICSE, IAS, NET, NRA 2022)

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Statistics deals with the study of analysis, presentation, interpretation, organization and collection of data. A basic procedure for statistics includes the test of the relationship between synthetic data and statistical data drawn from an idealized model. There are several methods of representing a set of data through polygons, bar graphs, pie-charts, frequency, graphs, pictorial representation of histograms, tables etc.

After the data is organized and represented in a suitable form, the data is used for analysis. Measures of central tendency are used for analyzing the data and to obtain symbolic results from obtained data. With the help of measures of central tendency, arbitrary of vast organization of data can be made. The entire data will be briefed into one particular value that represents the aspects of the complete organized data.

They are several specifications that are used as measures of central tendency namely mean, median and mode.

#### Find the Median of Data

To calculate the median of a set of data, the observations are arranged in ascending or descending order and then the middle or central value of the set of observations gives us the median of data.

Based upon a number of observations, two cases can arise i.e.. either the total number of observations will be odd, or they would be even. Median in both the cases is determined using a different formula.

$$\text{Median} = \left( \frac{n+1}{2} \right)^{\text{th}} \text{ observation}$$

When the set of data has an odd number of observations then,

When the set of data has even number of observations then the median is,

$$\text{Median} = \text{Mean of } \left( \frac{n}{2} \right)^{\text{th}} \text{ and } \left[ \left( \frac{n}{2} \right) + 1 \right]^{\text{th}} \text{ observations}$$

Let us look into an example to understand the concept of median properly.

#### Example

Example: The below table illustrates the scores obtained by each player in a match. Calculate mean, median and mode of the given data?

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Sr. No.	Name	Runs Scored
1	Sachin	80
2.	Yuvraj	52
3.	Virat	40
4.	Sehwag	52
5.	Rohit	70
6	Harbhajan	1
7.	Irfan	6

The below Table Illustrates the Scores Obtained by Each Player in a Match. Calculate Mean, Median and Mode of the Given Data?

To determine the median of data let us arrange the given data in ascending order

Sr. No	Name	Runs Scored
1	Harbhajan	1
2	Irfan	6
3	Virat	40
4	Sehwag	52
5	Yuvraj	52
6	Rohit	70
7	Sachin	80

To Determine the Median of Data Let Us Arrange the Given Data in Ascending Order

Since the number of observations in the data is odd the median is  $\left(\frac{n+1}{2}\right)^{\text{th}}$  observation.

Here  $n = \text{number of data} = 7$

Put the value of  $n$ ,

$$= \left(\frac{7+1}{2}\right)^{\text{th}}$$

$$= \left(\frac{8}{2}\right)^{\text{th}}$$

$$= 4^{\text{th}}$$

Median = 4<sup>th</sup> observation

As given data 4<sup>th</sup> observation is = 52.

Example 2:

Find the median of the following set of points in a game:

15,14,10,8,12,8,16

Solution:

First arrange the point values in a ascending order (or descending order) .

8,8,10,12,14,15,16

The number of point values is 7, an odd number.

$$\begin{aligned}\text{Median} &= \left(\frac{n+1}{2}\right)^{\text{th}} \\ &= \left(\frac{7+1}{2}\right)^{\text{th}} \\ &= \left(\frac{8}{2}\right)^{\text{th}} \\ &= 4\end{aligned}$$

Median = 4<sup>th</sup> observation

As given data 4<sup>th</sup> observation = 12

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