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Class 11 commerce Sub. ECO/B Date 26.12.2020

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Median

Case 1. When the number of observations is odd, the median is the middle value.

Example:

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 an ascending order (or descending order).

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

The number of point values is 7, an odd number. Hence, the median is the value in the middle position.

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



Middle position

Median = 12

Case 2. When the number of observations is even, the median is the average of the two middle values.

Example:

Find the median of the following set of points:

15, 14, 10, 8, 12, 8, 16, 13

Solution:

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

8, 8, 10, 12, 13, 14, 15, 16

The number of point values is 8, an even number. Hence the median is the average (mean) of the 2 middle values.

8, 8, 10, 12, 13, 14, 15, 16

Average of two middle values

$$\text{Median} = \frac{12+13}{2} = 12.5$$

Given a partial data set, you may need to determine the possible values of the median of a set of numbers.

Example:

x is the median for 4, 3, 8, x and 7. Find the possible values for x.

Solution:

Arrange the numbers in ascending order with x in the middle.

3, 4, x, 7, 8

This tells us that the possible values of x are 4, 5, 6 and 7.