

## Solutions for Class 9 Maths Chapter 24 Measure of Central Tendency

### Exercise 24.3

**Question 1:** Find the median of the following data:

83 , 37 , 70 , 29 , 45 , 63 , 41 , 70 , 34 , 54

**Solution:**

Arranging given numbers in ascending order:

29 , 34 , 37 , 41 , 45 , 54 , 63 , 70 , 70 , 83

Here, Total number of terms =  $n = 10$  (even)

$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2} \text{th value} + \left(\frac{n}{2} + 1\right) \text{th value}}{2} \\ &= \frac{\frac{10}{2} \text{th value} + \left(\frac{10}{2} + 1\right) \text{th value}}{2} \\ &= \frac{5\text{th value} + 6\text{th value}}{2} \\ &= \frac{45 + 54}{2} \\ &= \frac{99}{2} = 49.5\end{aligned}$$

**Question 2:** Find the median of the following data:

133 , 73 , 89 , 108 , 94 , 104 , 94 , 85 , 100 , 120

**Solution:**

Arranging given numbers in ascending order:

73 , 85 , 89 , 94 , 94 , 100 , 104 , 108 , 120 , 133

Here, total number of terms =  $n = 10$  (even)

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$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2}\text{th value} + \left(\frac{n}{2} + 1\right)\text{th value}}{2} \\ &= \frac{\frac{10}{2}\text{th value} + \left(\frac{10}{2} + 1\right)\text{th value}}{2} \\ &= \frac{5\text{th value} + 6\text{th value}}{2} \\ &= \frac{94 + 100}{2} \\ &= \frac{194}{2} = 97\end{aligned}$$

**Question 3:** Find the median of the following data:  
31 , 38 , 27 , 28 , 36 , 25 , 35 , 40

**Solution:**

Arranging given numbers in ascending order

25 , 27 , 28 , 31 , 35 , 36 , 38 , 40

Here, total number of terms =  $n = 8$  (even)

$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2}\text{th value} + \left(\frac{n}{2} + 1\right)\text{th value}}{2} \\ &= \frac{\frac{8}{2}\text{th value} + \left(\frac{8}{2} + 1\right)\text{th value}}{2} \\ &= \frac{4\text{th value} + 5\text{th value}}{2} \\ &= \frac{31 + 35}{2} \\ &= \frac{66}{2} = 33\end{aligned}$$

**Question 4:** Find the median of the following data:  
15 , 6 , 16 , 8 , 22 , 21 , 9 , 18 , 25

**Solution:**

Arranging given numbers in ascending order

6 , 8 , 9 , 15 , 16 , 21 , 22 , 25

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Here, total number of terms =  $n = 9$  (odd)

$$\begin{aligned}\therefore \text{Median} &= \left(\frac{n+1}{2}\right) \text{th term} \\ &= \left(\frac{9+1}{2}\right) \text{th term} \\ &= 5\text{th term} = 16\end{aligned}$$

**Question 5: Find the median of the following data:**  
**41, 43, 127, 99, 71, 92, 71, 58, 57**

**Solution:**

Arranging given numbers in ascending order  
41, 43, 57, 58, 71, 71, 92, 99, 127

Here, total number of terms =  $n = 9$  (odd)

$$\begin{aligned}\therefore \text{Median} &= \left(\frac{n+1}{2}\right) \text{th term} \\ &= \left(\frac{9+1}{2}\right) \text{th term} \\ &= 5\text{th term} = 71\end{aligned}$$

**Question 6: Find the median of the following data:**  
**25, 34, 31, 23, 22, 26, 35, 29, 20, 32**

**Solution:**

Arranging given numbers in ascending order  
20, 22, 23, 25, 26, 29, 31, 32, 34, 35

Here, total number of terms =  $n = 10$  (even)

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$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2} \text{th value} + \left(\frac{n}{2} + 1\right) \text{th value}}{2} \\ &= \frac{\frac{10}{2} \text{th value} + \left(\frac{10}{2} + 1\right) \text{th value}}{2} \\ &= \frac{5 \text{th value} + 6 \text{th value}}{2} \\ &= \frac{26 + 29}{2} \\ &= \frac{55}{2} = 27.5\end{aligned}$$

**Question 7:** Find the median of the following data:  
12, 17, 3, 14, 5, 8, 7, 15

**Solution:**

Arranging given numbers in ascending order  
3, 5, 7, 8, 12, 14, 15, 17

Here, total number of terms = n = 8 (even)

$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2} \text{th value} + \left(\frac{n}{2} + 1\right) \text{th value}}{2} \\ &= \frac{\frac{8}{2} \text{th value} + \left(\frac{8}{2} + 1\right) \text{th value}}{2} \\ &= \frac{4 \text{th value} + 5 \text{th value}}{2} \\ &= \frac{8 + 12}{2} \\ &= \frac{20}{2} = 10\end{aligned}$$

**Question 8:** Find the median of the following data:  
92, 35, 67, 85, 72, 81, 56, 51, 42, 69

**Solution:**

Arranging given numbers in ascending order

35, 42, 51, 56, 67, 69, 72, 81, 85, 92

Here, total number of terms = n = 10 (even)

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$$\begin{aligned}\therefore \text{median} &= \frac{\frac{n}{2} \text{th value} + \left(\frac{n}{2} + 1\right) \text{th value}}{2} \\ &= \frac{\frac{10}{2} \text{th value} + \left(\frac{10}{2} + 1\right) \text{th value}}{2} \\ &= \frac{5 \text{th value} + 6 \text{th value}}{2} \\ &= \frac{67 + 69}{2} \\ &= \frac{136}{2} = 68\end{aligned}$$