RD Sharma Solutions Class 9 Maths Chapter 24: RD Sharma Solutions for Class 9 Maths Chapter 24, Measure of Central Tendency, are here to help students learn the concepts well. These solutions are explained in an easy-to-understand way to make learning effective.

Practicing with these solutions regularly will help students understand the concepts better. The measure of central tendency is about finding the typical value in a group of data. It includes measures like mean, median, and mode. Teachers suggest using RD Sharma Class 9 Solutions for better exam preparation.

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency PDF

You can access the PDF file for RD Sharma Solutions Class 9 Maths Chapter 24, which focuses on Measures of Central Tendency, by clicking the link provided below. This PDF contains detailed solutions to help you understand the concepts better and prepare for exams effectively. Whether you're revising concepts or practicing problems, this PDF will serve as a valuable resource.

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency PDF

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency

Below, you will find the solutions for RD Sharma Solutions Class 9 Maths Chapter 24 on Measures of Central Tendency. These solutions are provided to help you understand the concepts and solve problems related to central tendency measures such as mean, median, and mode.

Each solution is explained in a step-by-step manner to make learning easier and more effective. By practicing these solutions, you can improve your problem-solving skills and prepare effectively for exams.

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency Exercise 24.1 Page No: 24.9

Question 1: If the heights of 5 persons are 140 cm, 150 cm, 152 cm, 158 cm and 161 cm, respectively, find the mean height.

Solution:

The heights of 5 persons are 140 cm , 150 cm , 152 cm , 158 cm and 161 cm (Given)

Mean height = (Sum of heights) / (Total number of persons)

Sum of heights = 140 + 150 + 152 + 158 + 161 = 761

Total number of persons = 5

So, Mean height = 761/5 =152.2

Question 2: Find the mean of 994 , 996 , 998 , 1002 , 1000.

Solution:

Sum of numbers = 994+996+998+1000+100 = 4990

Total counts = 5

Therefore, Mean = (Sum of numbers)/(Total Counts)

= 4990/5

= 998

Mean = 998

Question 3: Find the mean of the first five natural numbers.

Solution:

The first five natural numbers are 1 , 2 , 3 , 4 , 5.

Sum of all the numbers = 1+2+3+4+5 = 15

Total Numbers = 5

Therefore, Mean = (Sum of numbers)/(Total Numbers)

= 15/5

= 3

Mean = 3

Question 4: Find the mean of all factors of 10.

Solution:

Factors of 10 are 1, 2, 5, 10.

Sum of all the factors = 1+2+5+10 = 18

Total Numbers = 4

Therefore, Mean = (Sum of factors)/(Total Numbers)

= 18/4

= 4.5

Mean = 4.5

Question 5: Find the mean of the first 10 even natural numbers.

Solution:

First 10 even natural numbers = 2 , 4 , 6 , 8 , 10 , 12 , 14 , 16 , 18 , 20

Sum of numbers = 2+4+6+8+10+12+14+16+18+20 = 110

Total Numbers = 10

Now,

Mean = (Sum of numbers) / (Total Numbers)

= 110/10

Mean = 11

Question 6: Find the mean of x , x + 2 , x + 4 , x + 6 , x + 8.

Solution:

Given numbers are x , x + 2 , x + 4 , x + 6 , x + 8.

Sum of numbers = x+(x+2) + (x+4) + (x+6) + (x+8) = 5x+20

Total Numbers = 5

Now,

Mean = (Sum of numbers) / (Total Numbers)

= (5x+20)/5

= 5(x + 4)/5

= x + 4

Mean = x + 4

Question 7: Find the mean of the first five multiples of 3.

Solution:

the first five multiples of 3 are 3 , 6 , 9 , 12 , 15.

Sum of numbers = 3+6+9+12+15 = 45

Total Numbers = 5

Now,

Mean = (Sum of numbers) / (Total Numbers)

= 45/5

=9

Mean = 9

Question 8: Following are the weights (in kg) of 10 newborn babies in a hospital on a particular day: 3.4 , 3 .6 , 4.2 , 4.5 , 3.9 , 4.1 , 3.8 , 4.5 , 4.4 , 3.6. Find the mean.

Solution:

The weights of 10 newborn babies (in kg): 3.4 , 3 .6 , 4.2 , 4.5 , 3.9 , 4.1 , 3.8 , 4.5 , 4.4 , 3.6

Sum of weights = 3.4+3.6+4.2+4.5+3.9+4.1+3.8+4.5+4.4+3.6 = 40

Total number of babies = 10

No, Mean = (Sum of weights) / (Total number of babies)

= 40/10

= 4

Mean weight = 4 kg

Question 9: The percentage marks obtained by students of a class in mathematics are : 64 , 36 , 47 , 23 , 0 , 19 , 81 , 93 , 72 , 35 , 3 , 1. Find their mean.

Solution:

The percentage marks obtained by students: 64 , 36 , 47 , 23 , 0 , 19 , 81 , 93 , 72 , 35 , 3 , 1

Sum of marks = 64+36+47+23+0+19+81+93+72+35+3+1 = 474

Total students = 12

Now, Mean marks = (Sum of marks) / (Total students)

=474/12

= 39.5

Mean Marks = 39.5

Question 10: The numbers of children in 10 families of a locality are:

2 , 4 , 3 , 4 , 2 , 3 , 5 , 1 , 1 , 5. Find the number of children per family.

Solution:

The numbers of children in 10 families: 2 , 4 , 3 , 4 , 2 , 3 , 5 , 1 , 1 , 5

Total number of children = 2+4+3+4+2+3+5+1+1+5 = 30

Total Families = 10

Number of children per family = Mean = (Total number of children) / (Total Families) = 30/10

= 3

Therefore, the number of children per family is 3.

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency Exercise 24.2 Page No: 24.14

Question 1: Calculate the mean for the following distribution:

x :	5	6	7	8	9
f :	4	8	14	11	3

Solution:

x	f	fx
5	4	20
6	8	48
7	14	98
8	11	88
9	3	27
	N=40	$\sum fx = 281$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= 281/40

= 7.025

⇒ *Mean for the given distribution is 7.025.*

Question 2: Find the mean of the following data:

x :	19	21	23	25	27	29	31
f :	13	15	16	18	16	15	13

Solution:

x	f	fx
19	13	247
21	15	315
23	16	368
25	18	450
27	16	432
29	15	435
31	13	403
	N=106	$\sum fx = 2650$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= 2650/106

= 25

⇒ *Mean for the given data is 25.*

Question 3: The mean of the following data is 20.6. Find the value of p.

x :	10	15	p	25	35
f :	3	10	25	7	5

Solution:

x	f	fx
10	3	30
15	10	150
p	25	25p
25	7	175
35	5	175
	N = 50	$\sum fx = 25p + 530$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (25p + 530)/50

Mean = 20.6 (Given)

So,

20.6 = (25p + 530)/50

25p + 530 = 1030

25p = 1030 − 530 = 500

or p = 20

⇒ *The value of p is 20.*

Question 4: If the mean of the following data is 15, find p.

x :	5	10	15	20	25
f :	6	p	6	10	5

Solution:

x	f	fx
5	6	30
10	p	10p
15	6	90
20	10	200
25	5	125
	N=p+27	$\sum fx = 10p + 445$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (10p + 445)/(p + 27)

Mean = 15 (Given)

So, (10p + 445)/(p + 27) = 15

10p + 445 = 15(p + 27)

10p – 15p = 405 – 445 = -40

-5p = -40

or p = 8

⇒ *The value of p is 8.*

Question 5: Find the value of p for the following distribution whose mean is 16.6.

x :	8	12	15	p	20	25	30
f :	12	16	20	24	16	8	4

Solution:

x	f	fx
8	12	96
12	16	192
15	20	300
p	24	24p
20	16	320
25	8	200
30	4	120
	N=100	$\sum fx = 24p + 1228$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (24p + 1228)/100

Mean = 16.6 (given)

So, (24p + 1228)/100 = 16.6

24p + 1228 = 1660

24p = 1660 – 1228 = 432

p = 432/24 = 18

⇒ *The value of p is 18.*

Question 6: Find the missing value of p for the following distribution whose mean is 12.58.

Solution:

x	f	fx
5	2	10
8	5	40
10	8	80
12	22	264
p	7	7p
20	4	80
25	2	50
	N = 50	$\sum fx = 7p + 524$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (7p + 524)/50

Mean = 12.58 (given)

So, (7p + 524)/50 = 12.58

7p + 524 = 12.58 x 50

7p + 524 = 629

7p = 629 – 524 = 105

p = 105/7 = 15

⇒ *The value of p is 15.*

Question 7: Find the missing frequency (p) for the following distribution whose mean is 7.68.

x :	3	5	7	9	11	13
f :	6	8	15	p	8	4

Solution:

x	f	fx
3	6	18
5	8	40
7	15	105
9	p	9p
11	8	88
13	4	52
	N=p+41	$\sum fx = 9p + 303$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (9p + 303)/(p+41)

Mean = 7.68 (given)

So, (9p + 303)/(p+41) = 7.68

9p + 303 = 7.68 (p + 41)

9p + 303 = 7.68p + 314.88

9p − 7.68p = 314.88 − 303

1.32p = 11.88

or p = (11.881)/(1.32) = 9

⇒ *The value of p is 9.*

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency Exercise 24.3 Page No: 24.18

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{10}{2}th\ value + \left(\frac{10}{2}+1\right)th\ value}{2}$$

$$= \frac{5th\ value + 6th\ value}{2}$$

$$= \frac{45+54}{2}$$

$$= \frac{99}{2} = 49.5$$

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{10}{2}th\ value + \left(\frac{10}{2}+1\right)th\ value}{2}$$

$$= \frac{5th\ value + 6th\ value}{2}$$

$$= \frac{94+100}{2}$$

$$= \frac{194}{2} = 97$$

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{8}{2}th\ value + \left(\frac{8}{2}+1\right)th\ value}{2}$$

$$= \frac{4th\ value + 5th\ value}{2}$$

$$= \frac{31+35}{2}$$

$$= \frac{66}{2} = 33$$

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 , 18, 21 , 22 , 25

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

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

$$= \left(\frac{9+1}{2}\right) th \text{ term}$$

$$= 5th \text{ term } = 16$$

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)

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

$$= \left(\frac{9+1}{2}\right) th \text{ term}$$

$$= 5th \text{ term } = 71$$

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{10}{2}th\ value + \left(\frac{10}{2}+1\right)th\ value}{2}$$

$$= \frac{5th\ value + 6th\ value}{2}$$

$$= \frac{26+29}{2}$$

$$= \frac{55}{2} = 27.5$$

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{8}{2}th\ value + \left(\frac{8}{2}+1\right)th\ value}{2}$$

$$= \frac{4th\ value + 5th\ value}{2}$$

$$= \frac{8+12}{2}$$

$$= \frac{20}{2} = 10$$

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)

$$\therefore median = \frac{\frac{n}{2}th\ value + \left(\frac{n}{2}+1\right)th\ value}{2}$$

$$= \frac{\frac{10}{2}th\ value + \left(\frac{10}{2}+1\right)th\ value}{2}$$

$$= \frac{5th\ value + 6th\ value}{2}$$

$$= \frac{67+69}{2}$$

$$= \frac{136}{2} = 68$$

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency Exercise 24.4 Page No: 24.20

Question 1: Find out the mode of the following marks obtained by 15 students in a class:

Marks : 4 , 6 , 5 , 7 , 9 , 8 , 10 , 4 , 7 , 6 , 5 , 9 , 8 , 7 , 7.

Solution:

Mode is the value which occurs most frequently in a set of observations.

The frequency of the given set of observations are as given below:

Marks	4	5	6	7	8	9	10
No.of Students	2	2	2	4	2	2	1

Here, we can see that 7 occurred most frequently.

So, Mode = 7

Question 2: Find out the mode from the following data :

125 , 175 , 225 , 125 , 225 , 175 , 325 , 125 , 375 , 225 , 125

Solution:

Find the frequency of the given set of observations:

Values	125	175	225	325	375
Frequency	4	2	3	1	1

125 occurred 4 times more than any other values.

So, Mode = 125

Question 3: Find the mode for the following series:

7.5 , 7.3 , 7.2 , 7.2 , 7.4 , 7.7 , 7.7 , 7.5 , 7.3 , 7.2 , 7.6 , 7.2

Solution:

Find the frequency:

Values	7.2	7.3	7.4	7.5	7.6	7.7
Frequency	4	2	1	2	1	2

Maximum frequency 4 corresponds to the value 7.2.

So, mode = 7.2

RD Sharma Solutions Class 9 Maths Chapter 24 Measures of Central Tendency Exercise VSAQs Page No: 24.21

Question 1: If the ratio of the mean and median of a certain data is 2:3, then find the ratio of its mode and mean.

Solution:

Empirical formula: Mode = 3 median – 2 mean

Since the ratio of mean and median of a certain data is 2:3, then mean = 2x and median = 3x

Mode = 3(3x) – 2(2x)

= 9x – 4x

= 5x

Therefore,

Mode: Mean = 5x:2x or 5: 2

Question 2: If the ratio of mode and median of a certain data is 6:5, then find the ratio of its mean and median.

Solution: We know, Empirical formula: Mode = 3 Median – 2 Mean

Since the ratio of mode and median of a certain data is 6:5.

⇒ Mode/Median = 6/5

or Mode = (6 Median)/5

Now,

(6 Median)/5 = 3 Median – 2 Mean

(6 Median)/5 – 3 Median = – 2 Mean

or 9/10 (Median) = Mean

or Mean/ Median = 9/10 or 9:10.

Question 3: If the mean of x+2, 2x+3, 3x+4, 4x+5 is x+2, find x.

Solution:

Given: Mean of x+2, 2x+3, 3x+4, 4x+5 is x+2

We know, Mean = (Sum of all the observations) / (Total number of observations)

Sum of all the observations = x+2 + 2x+3 + 3x+4 + 4x+5 = 10x + 14

Total number of observations = 4

⇒ Mean = (10x + 14)/4

or (x + 2) = (10x + 14)/4 (using given)

4x + 8 = 10x + 14

x = -1

Question 4: The arithmetic mean and mode of the data are 24 and 12, respectively, then find the median of the data.

Solution:

Given: The arithmetic mean and mode of the data are 24 and 12, respectively

We know, Empirical formula: Mode = 3 Median – 2 Mean

or 3 Median = Mode + 2 Mean

Using given values, we get

3 Median = 12 + 2(24) = 60

or Median = 20

Question 5: If the difference of the mode and median of a data is 24, then find the difference of the median and mean.

Solution:

Given: the difference of the mode and median of data is 24.

That is, Mode – Median = 24

or Mode = 24 + Median …(1)

We know, Empirical formula: Mode = 3 Median – 2 Mean

24 + Median = 3 Median – 2 Mean

(Using (1))

24 = 2 Median – 2 Mean

or 12 = Median – Mean

Therefore, the difference of the median and mean is 12.