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NCERT Solutions for Class 7 Maths Chapter 3 Data Handling PDF

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NCERT Solutions for Class 7 Maths Chapter 3 Data Handling PDF

NCERT Solutions for Class 7 Maths Chapter 3

Exercise 3.1 Page: 62

1. Find the range of heights of any ten students in your class.

Solution:-

Let us assume the heights (in cm) of 10 students in our class be

= 130, 132, 135, 137, 139, 140, 142, 143, 145, 148

By observing the above-mentioned values, the highest value is = 148 cm

By observing the above-mentioned values, the lowest value is = 130 cm

Then,

Range of Heights = Highest value – Lowest value

= 148 – 130

= 18 cm

2. Organise the following marks in a class assessment in a tabular form.

4, 6, 7, 5, 3, 5, 4, 5, 2, 6, 2, 5, 1, 9, 6, 5, 8, 4, 6, 7

(i) Which number is the highest? (ii) Which number is the lowest?

(iii) What is the range of the data? (iv) Find the arithmetic mean.

Solution:-

First, we have to arrange the given marks in ascending order.

= 1, 2, 2, 3, 4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 6, 7, 7, 8, 9

Now, we will draw the frequency table of the given data.

Marks	Tally Marks	Frequency
1	|	1
2	||	2
3	|	1
4	|||	3
5	⊬⊬	5
6	||||	4
7	||	2
8	|	1
9	|	1

(i) By observing the table clearly, the highest number among the given data is 9.

(ii) By observing the table clearly, the lowest number among the given data is 1.

(iii) We know that Range = Highest value – Lowest value

= 9 – 1

= 8

(iv) Now, we have to calculate Arithmetic Mean,

Arithmetic mean = (Sum of all observations)/ (Total number of observations)

Then,

Sum of all observation = 1 + 2 + 2 + 3 + 4 + 4 + 4 + 5 + 5 + 5 + 5 + 5 + 6 + 6 + 6 + 6 + 7 + 7

+ 8 + 9

= 100

Total Number of Observations = 20

Arithmetic mean = (100/20)

= 5

3. Find the mean of the first five whole numbers.

Solutions:-

The first five Whole numbers are 0, 1, 2, 3, and 4.

Mean = (Sum of first five whole numbers)/ (Total number of whole numbers)

Then,

Sum of five whole numbers = 0 + 1 + 2 + 3 +4

= 10

Total Number of whole numbers = 5

Mean = (10/5)

= 2

∴ The mean of the first five whole numbers is 2.

4. A cricketer scores the following runs in eight innings:

58, 76, 40, 35, 46, 45, 0, 100. Find the mean score.

Solution:-

Mean score = (Total runs scored by the cricketer in all innings)/ (Total number of innings played by the cricketer)

Total runs scored by the cricketer in all innings = 58 + 76 + 40 + 35 + 46 + 45 + 0 + 100

= 400

Total number of innings = 8

Then,

Mean = (400/8)

= 50

∴ The mean score of the cricketer is 50.

5. Following table shows the points each player scored in four games:

Player	Game 1	Game 2	Game 3	Game 4
A	14	16	10	10
B	0	8	6	4
C	8	11	Did not Play	13

Now, answer the following questions:

(i) Find the mean to determine A's average number of points scored per game.

(ii) To find the mean number of points per game for C, would you divide the total points by 3 or by 4? Why?

(iii) B played in all four games. How would you find the mean?

(iv) Who is the best performer?

Solution:-

(i) A's average number of points scored per game = Total points scored by A in 4 games/

Total number of games

= (14 + 16 + 10 + 10)/ 4

= 50/4

= 12.5 points

(ii) To find the mean number of points per game for C, we will divide the total points by 3 because C played only 3 games.

(iii) B played in all four games, so we will divide the total points by 4 to find out the mean.

Then,

Mean of B's score = Total points scored by B in 4 games/ Total number of games

= (0 + 8 + 6 + 4)/ 4

= 18/4

= 4.5 points

(vi) Now, we have to find the best performer among the 3 players.

So, we have to find the average points of C = (8 + 11 + 13)/3

= 32/3

= 10.67 points

By observing, the average points scored A is 12.5, which is more than B and C.

Clearly, we can say that A is the best performer among the three.

6. The marks (out of 100) obtained by a group of students in a science test are 85, 76,

90, 85, 39, 48, 56, 95, 81 and 75. Find the:

(i) Highest and lowest marks obtained by the students.

(ii) Range of the marks obtained.

(iii) Mean marks obtained by the group.

Solution:-

First, we have to arrange the marks obtained by a group of students in a science test in ascending order.

= 39, 48, 56, 75, 76, 81, 85, 85, 90, 95

(i) The highest marks obtained by the student = 95

The lowest marks obtained by the student = 39

(ii) We know that Range = Highest marks – Lowest marks

= 95 – 39

= 56

(iii) Mean of Marks = (Sum of all marks obtained by the group of students)/

(Total number of marks)

= (39 + 48 + 56 + 75 + 76 + 81 + 85 + 85 + 90 + 95)/ 10

= 730/10

= 73

7. The enrolment in a school for six consecutive years was as follows:

1555, 1670, 1750, 2013, 2540, 2820.

Find the mean enrolment of the school for this period.

Solution:-

Mean enrolment = Sum of all observations / Number of observations

= (1555 + 1670 + 1750 + 2013 + 2540 + 2820)/ 6

= (12348/6)

= 2058

∴ The mean enrolment of the school for this given period is 2058.

8. The rainfall (in mm) in a city on 7 days of a certain week was recorded as follows:

Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun

Rainfall   0.0   12.2   2.1   0.0   20.5   5.5   1.0

 (in mm)

(i) Find the range of rainfall in the above data.

(ii) Find the mean rainfall for the week.

(iii) On how many days was the rainfall less than the mean rainfall?

Solution:-

(i) Range of rainfall = Highest rainfall – Lowest rainfall

= 20.5 – 0.0

= 20.5 mm

(ii) Mean of rainfall = Sum of all observations / Number of observations

= (0.0 + 12.2 + 2.1 + 0.0 + 20.5 + 5.5 + 1.0)/ 7

= 41.3/7

= 5.9 mm

(iii) We may observe that for 5 days, i.e. Monday, Wednesday, Thursday, Saturday and Sunday, the rainfall was less than the average rainfall.

9. The heights of 10 girls were measured in cm, and the results are as follows:

135, 150, 139, 128, 151, 132, 146, 149, 143, 141.

(i) What is the height of the tallest girl? (ii) What is the height of the shortest girl?

(iii) What is the range of the data? (iv) What is the mean height of the girls?

(v) How many girls have heights more than the mean height?

Solution:-

First, we have to arrange the given data in ascending order.

= 128, 132, 135, 139, 141, 143, 146, 149, 150, 151

(i) The height of the tallest girl is 151 cm.

(ii) The height of the shortest girl is 128 cm.

(iii) Range of given data = Tallest height – Shortest height

= 151 – 128

= 23 cm

(iv) Mean height of the girls = Sum of the height of all the girls / Number of girls

= (128 + 132 + 135 + 139 + 141 + 143 + 146 + 149 + 150

+ 151)/ 10

= 1414/10

= 141.4 cm

(v) 5 girls have heights more than the mean height (i.e. 141.4 cm).

Exercise 3.2 Page: 68

1. The scores on the Mathematics test (out of 25) of 15 students are as follows:

19, 25, 23, 20, 9, 20, 15, 10, 5, 16, 25, 20, 24, 12, 20

Find the mode and median of this data. Are they the same?

Solution:-

Arranging the given scores in ascending order, we get

5, 9, 10, 12, 15, 16, 19, 20, 20, 20, 20, 23, 24, 25, 25

Mode

Mode is the value of the variable which occurs most frequently.

Clearly, 20 occurs a maximum number of times.

Hence, the mode of the given sores is 20.

Median

The value of the middle-most observation is called the median of the data.

Here, n = 15, which is odd.

Where n is the number of students.

∴ median = value of ½ (n + 1)th observation

= ½ (15 + 1)

= ½ (16)

= 16/2

= 8

Then, the value of the 8th term = 20

Hence, the median is 20.

Yes, both values are the same.

2. The runs scored in a cricket match by 11 players are as follows:

6, 15, 120, 50, 100, 80, 10, 15, 8, 10, 15

Find the mean, mode and median of this data. Are the three same?

Solution:-

Arranging the runs scored in a cricket match by 11 players in ascending order, we get

6, 8, 10, 10, 15, 15, 15, 50, 80, 100, 120

Mean

Mean of the given data = Sum of all observations / Total number of observations

= (6 + 8 + 10 + 10 + 15 + 15 + 15 + 50 + 80 + 100 + 120)/ 11

= 429/11

= 39

Mode,

Mode is the value of the variable which occurs most frequently.

Clearly, 15 occurs a maximum number of times.

Hence, the mode of the given sores is 15.

Median,

The value of the middle-most observation is called the median of the data.

Here n = 11, which is odd.

Where n is the number of players.

∴ median = value of ½ (n + 1)th observation.

= ½ (11 + 1)

= ½ (12)

= 12/2

= 6

Then, the value of the 6th term = 15

Hence, the median is 15.

No, these three are not the same.

3. The weights (in kg.) of 15 students of a class are:

38, 42, 35, 37, 45, 50, 32, 43, 43, 40, 36, 38, 43, 38, 47

(i) Find the mode and median of this data.

(ii) Is there more than one mode?

Solution:-

Arranging the given weights of 15 students of a class in ascending order, we get

32, 35, 36, 37, 38, 38, 38, 40, 42, 43, 43, 43, 45, 47, 50

(i) Mode and Median

Mode

Mode is the value of the variable which occurs most frequently.

Clearly, 38 and 43 both occur 3 times.

Hence, the modes of the given weights are 38 and 43.

Median

The value of the middle-most observation is called the median of the data.

Here, n = 15, which is odd.

Where n is the number of students.

∴ median = value of ½ (n + 1)th observation

= ½ (15 + 1)

= ½ (16)

= 16/2

= 8

Then, the value of the 8th term = 40

Hence, the median is 40.

(ii) Yes, there are 2 modes for the given weights of the students.

4. Find the mode and median of the data: 13, 16, 12, 14, 19, 12, 14, 13, 14

Solution:-

Arranging the given data in ascending order, we get

= 12, 12, 13, 13, 14, 14, 14, 16, 19

Mode

Mode is the value of the variable which occurs most frequently.

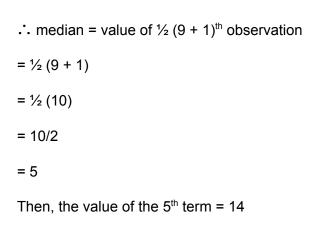Clearly, 14 occurs the maximum number of times.

Hence, the mode of the given data is 14.

Median

The value of the middle-most observation is called the median of the data.

Here, n = 9, which is odd.

Where n is the number of students.

∴ median = value of ½ (9 + 1)th observation

= ½ (9 + 1)

= ½ (10)

= 10/2

= 5

Then, the value of the 5th term = 14

Hence, the median is 14.

5. Tell whether the statement is true or false.

(i) The mode is always one of the numbers in a data.

Solution:-

The statement given above is true.

Because Mode is the value of the variable which occurs most frequently in the given data.

Hence, a mode is always one of the numbers in the data.

(ii) The mean is one of the numbers in the data.

Solution:-

The statement given above is false.

Because mean may or may not be one of the numbers in the data.

(iii) The median is always one of the numbers in a data.

Solution:-

The statement given above is true.

Because the median is the value of the middle-most observation in the given data while arranged in ascending or descending order.

Hence, the median is always one of the numbers in a data

(iv) The data 6, 4, 3, 8, 9, 12, 13, and 9 have the mean 9.

Solution:-

Mean = Sum of all given observations / Number of observations

= (6 + 4 + 3 + 8 + 9 + 12 + 13 + 9)/8

= (64/8)

= 8

Hence, the given statement is false.