Data Handling: Exercise 3.1

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

Sol: The heights (in cm) of 10 students of my class.

120, 121, 137, 138, 109, 144, 122, 143, 155, 149

From above data, the highest value = 155 cm

And lowest value = 109 cm

So, range of heights = Highest value – Lowest value

= 155 – 109

= 46 cm

Q.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.**

***Sol*:** the frequency table of the given data.

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

Marks	Tally Marks	Frequency
1	|	1
2	| |	2
3	|	1
4	| | |	3
5	$\cancel{\text{\| \| \| \|}}$	5
6	| | | |	4
7	| |	2
8	|	1
9	|	1

(i) From the frequency table, the highest number is 9.

(ii) From the frequency table, the lowest number is 1.

(iii) Since, range = Highest value – Lowest value

= 9 – 1

= 8

(iv) Arithmetic Mean:

Sum of the given data = 4 + 6 + 7 + 5 + 3 + 5 + 4 + 5 + 2 + 6 + 2 + 5 + 1 + 9 + 6 + 5 + 8 + 4 + 6 + 7 = 100

And sum of frequency or no. of observation = 20

Thus, Arithmetic mean = 100/20 = 5

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

Sol: Since, first five whole numbers = 0, 1, 2, 3, 4

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

= 10

Number of whole numbers = 5

Therefore, Mean = Sum of whole numbers/ Number of whole numbers

= 10/5

= 2

Thus, the mean of first five whole numbers = 2

Q.4 A cricketer scores the following runs in eight innings: 58, 76, 40, 35, 46, 45, 0, 100. Find the mean score.

Sol: **Given:** A cricketer scores runs in eight innings:

58, 76, 40, 35, 46, 45, 0, 100

Sum of the runs in eight innings = 58 + 76 + 40 + 35 + 46 + 45 + 0 + 100

= 400

And number of innings = 8

Thus, mean = Sum of the runs in eight innings/ Number of innings

= 400/8

= 50

Therefore, the mean score of a cricketer in 8 innings = 50

Q.5 Following table shows the points of 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 the four games. How would you find the mean?

(iv) Who is the best performer?

Sol:

(i) Given: Scored points by Player A in all four games = 14, 16, 10, and 10

Number of games = 4

Thus, average number of points scored per game by player A

= Points scored by player A in games/ Number of games

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

= 50/4

= 12.5 points

Thus, the mean of A's average number of points scored per game = 12.5 points

(ii) To find the mean number of points per game for C, we will divide the total points by 3. Because player C did not play game 3. He played only 3 games.

(iii) Given: B played in all the four games.

Scored points by Player A in all four games = 0, 8, 6, and 4

Now, mean points scored by player B

= Points scored by player B in games/ Number of games

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

= 18/4

= 4.5 points

(iv) Since, average points will show the best performer. So, we need to find out the average point in all the games by player C also.

Thus, Average points of C= Points scored by player C in games/ Number of games

= (8+11+13)/3

= 32/3
= 10.67 points

From above the calculation of average points, Player A scored 12.5 which is more than player B and player C. Thus, Player A is the best performer.

Q.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 the lowest marks obtained by the students.
(ii) Range of the marks obtained.
(iii) Mean marks obtained by the group.

Sol: **Given:** marks (out of 100) obtained by a group of students in a science test:
85, 76, 90, 85, 39, 48, 56, 95, 81 and 75
Firstly, we arrange the given data in an ascending order: 39, 48, 56, 75, 76, 81, 85, 85, 90, 95

(i) Highest marks scored by the student = 95
And lowest marks scored by the student = 39

(ii) Range = Highest marks – Lowest marks
= 95 – 39
= 56

(iii) Sum of all marks scored by the group of students = 39 + 48 + 56 + 75 + 76 + 81 + 85 + 85 + 90 + 95 = 730
Number of students = 10
Mean marks = Sum of all marks scored by the group of students/ Number of students
= 730/10
= 73

Q.7 The enrolment in a school during six consecutive years was as follows:
1555, 1670, 1750, 2013, 2540, 2820.
Find the mean enrolment of the school for this period.

Sol: **Given:** The enrolment in a school during six consecutive years:
1555, 1670, 1750, 2013, 2540, 2820
Sum of all the enrollment during six consecutive years
= 1555 + 1670 + 1750 + 2013 + 2540 + 2820
= 12348
Number of year = 6
Thus, mean enrollment = Sum of all the enrollment during six consecutive years/ Number of year
= 12348/6
= 2058
Thus, the mean enrolment of the school during six consecutive years = 2058

Q.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 (in mm)	0.0	12.2	2.1	0.0	20.5	5.5	1.0

(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.

Sol:
(i) From above table, highest rainfall = 20.5 mm
And lowest rainfall = 0.0 mm
Thus range = highest rainfall - lowest rainfall
= 20.5 - 0.0
= 20.5mm

(ii) Mean rainfall for the week:
Sum of rainfall (in mm) in given week = 0.0 + 12.2 + 2.1 + 0.0 + 20.5 + 5.5 + 1.0
= 41.3
Number of days = 7
Mean rainfall = Sum of rainfall (in mm) in given week/ Number of days
= 41.3/7
= 5.9 mm

Thus, mean rainfall in given week = 5.9 mm

(iii) From the calculation and table, 5 days (Monday, Wednesday, Thursday, Saturday and Sunday) the rainfall was less than the average rainfall.

Q.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.
Sol: Firstly, we arrange the given data in an ascending order,
128, 132, 135, 139, 141, 143, 146, 149, 150, 151
(i) From above data, the height of the tallest girl is 151 cm.
(ii) From above data, the height of the shortest girl is 128 cm.
(iii) Range = Tallest height – shortest height
= 151-128
= 23
(iv) Mean height of the girls:
Sum of heights of all girls = 128 + 132 + 135 + 139 + 141 + 143 + 146 + 149 + 150 + 151 = 1414 cm
Number of girls = 10
Mean height of the girls = Sum of heights of all girls / Number of girls
= 1414/10
= 141.4 cm
(v) From the calculation and data, 5 girls have the height more than mean height.