Exercise 3.1

Question 1:

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

> **Answer 1:**

S. No.	Name of students	Height (in feet)
1.	Gunjan	4.2
2.	Aditi	4.5
3.	Nikhil	5
4.	Akhil	5.1
5.	Riya	5.2
6.	Akshat	5.3
7.	Abhishek	5.1
8.	Mayank	4.7
9.	Rahul	4.9
10.	Ayush	4.5

Range = Highest height – Lowest height
  = 5.3 – 4.2
  = 1.1 feet.

Question 2:

Organize 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 of the lowest?
  (iii)   What is the range of the lowest?
  (iv)   Find the arithmetic mean

Answer 2:

S. No.	Marks	Tally marks	Frequency (No. of students)
1.	1	I	1
2.	2	II	2
3.	3	I	1
4.	4	III	3
5.	5	ℕℕ	5
6.	6	IIII	4
7.	7	II	2
8.	8	I	1
9.	9	I	1

(i)   The highest number is 9.

(ii)   The lowest number is 1.

(iii) The range of the data is 9 – 1 = 8

(iv)   Arithmetic mean =

$$\frac{4+6+7+5+3+5+4+5+2+6+2+5+1+9+6+5+8+4+6+7}{20}$$

$$= \frac{100}{20} = 5$$

Question 3:

Find the mean of the first five whole numbers.

Answer 3:

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

Therefore,

Mean of first five whole numbers $= \dfrac{\text{Sum of numbers}}{\text{Total number}}$

$$= \frac{0+1+2+3+4}{5}$$

$$= \frac{10}{5} = 2$$

Thus, the mean of first five whole numbers is 5.

Question 4:

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

Answer 4:

Number of innings = 8

$$\text{Mean of score} = \frac{\text{Sum of scores}}{\text{Number of innings}}$$

$$= \frac{58+76+40+35+46+45+0+100}{8}$$

$$= \frac{400}{8} = 50$$

Thus, the mean score is 50.

Question 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 47? Why?

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

(iv) Who is the best performer?

Answer 5:

(i) Mean of player A = $\dfrac{\text{Sum of scores by A}}{\text{No. of games played by A}}$

$$= \frac{14+16+10+10}{4} = \frac{50}{4} = 12.5$$

(ii) We should divide the total points by 3 because player C played only three games.

(iii) Player B played in all the four games.

$$\therefore \text{ Mean of player B } = \frac{\text{Sum of scores by B}}{\text{No. of games played by B}}$$

$$= \frac{0+8+6+4}{4} = \frac{18}{4} = 4.5$$

(iv) To find the best performer, we should know the mean of all players.

Mena of player A = 12.5

Mean of player B = 4.5

Mean of player C = $\frac{8+11+13}{3} = \frac{32}{3}$ = 10.67

Therefore, on comparing means of all players, player A is the best performer.

Question 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) The highest and the lowest marks obtained by the students.

(ii) Range of the marks obtained.

(iii) Mean marks obtained by the group.

Answer 6:

(i) Highest marks obtained by the student = 95

Lowest marks obtained by the student = 39

(ii) Range of marks = Highest marks – Lowest marks

= 95 – 39 = 56

(iii) Mean of obtained marks = $\dfrac{\text{Sum of marks}}{\text{Total number of marks}}$

$$= \frac{85+76+90+85+39+48+56+95+81+75}{10}$$

$$= \frac{730}{10} = 73$$

Thus, the mean marks obtained by the group of students is 73.

Question 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.

Answer 7:

Mean enrolment = $\dfrac{\text{Sum of numbers of enrolment}}{\text{Total number of enrolment}}$

$= \dfrac{1555 + 1670 + 1750 + 2013 + 2540 + 2820}{6}$

$= \dfrac{12348}{6} = 2058$

Thus, the mean enrolment of the school is 2,058.

Question 8:

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

Day	Mon	Tue	Wed	Thur	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 the 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?

Answer 8:

(i)   The range of the rainfall = Highest rainfall – Lowest rainfall

$= 20.5 - 0.0 = 20.5$ mm

(ii)   Main rainfall $= \dfrac{\text{Sum of rainfall recorded}}{\text{Total number of days}}$

$= \dfrac{0.0 + 12.2 + 2.1 + 2.2 + 20.5 + 5.5 + 1.0}{7}$

$= \dfrac{41.3}{7} = 5.9$ mm

(iii)   5 days. i.e., Monday, Wednesday, Thursday, Saturday and Sunday rainfalls were less than the mean rainfall.

Question 9:

The height 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 data?

       (iv)   What is the mean height of the girls?

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

Answer 9:

       (i)   The height of the tallest girl = 151 cm

       (ii)   The height of the shortest girl = 128 cm

       (iii)   The range of the data = Highest height – Lowest height

                = 151 – 128 = 23 cm

       (iv)   The mean height = $\dfrac{\text{Sum of heights of the girsl}}{\text{Total numebr of girls}}$

$$= \frac{135+150+139+128+151+132+146+149+143+141}{10}$$

$$= \frac{1414}{10} = 141.4 \text{ cm}$$

       (v)   Five girls, i.e., 150, 151, 146, 149, 143 have heights (in cm) more than the mean height.