

Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 7.3- Statistics

BOOK SOLUTIONS
CLASS 9
MATHS

CHAPTER 7.3
Statistics



Maharashtra Board Solutions→

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Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 7.3- Statistics

Class 9: Maths Chapter 7.3 solutions. Complete Class 9 Maths Chapter 7.3 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 1): Chapter 7.3- Statistics

Maharashtra Board 9th Maths Chapter 7.3, Class 9 Maths Chapter 7.3 solutions

Question 1.

For class interval 20 – 25 write the lower class limit and the upper class limit.

Answer:

Lower class limit = 20

Upper class limit = 25

Question 2.

Find the class-mark of the class 35-40.

Solution:

Class-mark

$$\begin{aligned} &= \frac{\text{Lower class limit} + \text{Upper class limit}}{2} \\ &= \frac{35 + 40}{2} \\ &= \frac{75}{2} \\ &= 37.5 \end{aligned}$$

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∴ Class-mark of the class 35 – 40 is 37.5

Question 3.

If class-mark is 10 and class width is 6, then find the class.

Solution:

Let the upper class limit be x and the lower class limit be y.

Class mark = 10 ...[Given]

Class-mark

$$\begin{aligned} \text{Class-mark} \\ &= \frac{\text{Lower class limit} + \text{Upper class limit}}{2} \end{aligned}$$

$$\therefore 10 = \frac{x+y}{2}$$

$$\therefore x + y = 20 \dots(i)$$

Class width = 6 ... [Given]

Class width = Upper class limit – Lower class limit

$$\therefore x - y = 6 \dots(ii)$$

Adding equations (i) and (ii),

$$x + y = 20$$

$$x - y = 6$$

$$2x = 26$$

$$\therefore x = 13$$

Substituting $x = 13$ in equation (i),

$$13 + y = 20$$

$$\therefore y = 20 - 13$$

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$$\therefore y = 7$$

$\therefore$ The required class is $7 - 13$.

Question 4.

Complete the following table.

Classes (age)	Tally marks	Frequency (No. of students)
12 – 13		
13 – 14		
14 – 15		
15 – 16		
		$N = \sum f = 35$

Solution:

Let frequency of the class $14 - 15$ be x then, from table,

$$5 + 14 + x + 4 = 35$$

$$\therefore 23 + x = 35$$

$$\therefore x = 35 - 23$$

$$\therefore x = 12$$

Classes (age)	Tally marks	Frequency (No. of students)
12 – 13		5
13 – 14		14
14 – 15		12
15 – 16		4
		$N = \sum f = 35$

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Question 5.

In a 'tree plantation' project of a certain school there are 45 students of 'Harit Sena.' The record of trees planted by each student is given below:

3, 5, 7, 6, 4, 3, 5, 4, 3, 5, 4, 7, 5, 3, 6, 6, 5, 3, 4, 5, 7, 3, 5, 6, 4, 4, 3, 5, 6, 6, 4, 3, 5, 7, 3, 4, 5, 7, 6, 4, 3, 5, 4, 4, 7.

Prepare a frequency distribution table of the data.

Solution:

Numbers of Trees	Tally marks	Frequency (f) (No. of students)
3		10
4		11
5		11
6		7
7		6
		Total (N) = 45

Question 6.

The value of n upto 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

From this information prepare an ungrouped frequency distribution table of digits appearing after the decimal point.

Solution:

Digit	Tally marks	Frequency (f) (Number of digits)
0		2
1		5
2		5
3		8
4		4
5		5
6		4
7		4
8		5
9		8
		Total (N) = 50

Question 7.

In the tables given below, class-mark and frequencies is given. Construct the frequency tables taking inclusive and exclusive classes.

i.

Class mark	Frequency
5	3
15	9
25	15
35	13

ii.

Class mark	Frequency
22	6
24	7
26	13
28	4

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Solution:

i. Let the Lower class limit and upper class limit of the class mark 5 be x and y respectively.

$$\text{Class mark} = \frac{\text{Lower class limit} + \text{Upper class limit}}{2}$$

$$\therefore 5 = \frac{x+y}{2}$$

$$\therefore x + y = 10$$

Here, class width = $15 - 5 = 10$

But, Class width = Upper class limit – Lower class limit

$$\therefore y - x = 10$$

$$\therefore -x + y = 10 \dots(ii)$$

Adding equations (i) and (ii),

$$x + y = 10$$

$$-x + y = 10$$

$$\therefore 2y = 20$$

$$\therefore y = 10$$

Substituting $y = 10$ in equation (i),

$$\therefore x + 10 = 10$$

$$\therefore x = 0$$

$\therefore$ class with class-mark 5 is $0 - 10$

Similarly, we can find the remaining classes.

$\therefore$ frequency table taking inclusive and exclusive classes.

Exclusive Class	Inclusive Class	Class mark	Frequency
0 – 10	0.5 – 9.5	5	3
10 – 20	10.5 – 19.5	15	9
20 – 30	20.5 – 29.5	25	15
30 – 40	30.5 – 39.5	35	13

ii. Let the lower class limit and upper class limit of the class mark 22 be x and y respectively.

$$\text{Class mark} = \frac{\text{Lower class limit} + \text{Upper class limit}}{2}$$

$$\therefore 22 = \frac{x+y}{2}$$

$$\therefore x + y = 44 \dots(i)$$

$$\text{Here, class width} = 24 - 22 = 2$$

$$\text{But, Class width} = \text{Upper class limit} - \text{Lower class limit}$$

$$\therefore y - x = 2$$

$$\therefore -x + y = 2 \dots (ii)$$

Adding equations (i) and (ii),

$$x + y = 44$$

$$-x + y = 2$$

$$2y = 46$$

$$\therefore y = 23$$

Substituting $y = 23$ in equation (i),

$$\therefore x + 23 = 44$$

$$\therefore x = 21$$

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∴ class with class-mark 22 is 21 – 23

Similarly, we can find the remaining classes

∴ frequency table taking inclusive and exclusive classes.

Exclusive Class	Inclusive Class	Class mark	Frequency
21 – 23	21.5 – 22.5	22	6
23 – 25	23.5 – 24.5	24	7
25 – 27	25.5 – 26.5	26	13
27 – 29	27.5 – 28.5	28	4

Question 8.

In a school, 46 students of 9th standard, were told to measure the lengths of the pencils in their compass-boxes in Centimetres. The data collected was as follows:

16, 15, 7, 4.5, 8.5, 5.5, 5, 6.5, 6, 10, 12, 13,

4.5, 4.9, 16, 11, 9.2, 7.3, 11.4, 12.7, 13.9, 16,

5.5, 9.9, 8.4, 11.4, 13.1, 15, 4.8, 10, 7.5, 8.5,

6.5, 7.2, 4.5, 5.7, 16, 5.7, 6.9, 8.9, 9.2, 10.2, 12.3, 13.7, 14.5, 10

By taking exclusive classes 0-5, 5-10, 10-15,.... prepare a grouped frequency distribution table.

Solution:

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Class (Lengths of the pencils)	Tally marks	Frequency (f) (No. of students)
0 – 5		5
5 – 10	 	20
10 – 15	 	15
15 – 20		6
		Total (N) = 46

Question 9.

In a village, the milk was collected from 50 milkmen at a collection center in litres as given below:

27, 75, 5, 99, 70, 12, 15, 20, 30, 35, 45, 80, 77,

90, 92, 72, 4, 33, 22, 15, 20, 28, 29, 14, 16, 20,

72, 81, 85, 10, 16, 9, 25, 23, 26, 46, 55, 56, 66,

67, 51, 57, 44, 43, 6, 65, 42, 36, 7, 35

By taking suitable classes, prepare grouped frequency distribution table.

Solution:

Class (Milk in litres)	Tally marks	Frequency (f) (No. of milkmen)
0 – 20	 	12
20 – 40	 	15
40 – 60	 	9
60 – 80	 	8
80 – 100		6
		Total (N) = 50

Question 10.

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38 people donated to an organisation working for differently abled persons. The amount in rupees were as follows:

101, 500, 401, 201, 301, 160, 210, 125, 175,

190, 450, 151, 101, 351, 251, 451, 151, 260,

360, 410, 150, 125, 161, 195, 351, 170, 225,

260, 290, 310, 360, 425, 420, 100, 105, 170, 250, 100

i. By taking classes 100 – 149, 150 – 199, 200 – 249... prepare grouped frequency distribution table.

ii. From the table, find the number of people who donated ₹350 or more.

Solution:

i.

Class (donation in ₹)	Tally marks	Frequency (No. of peoples)
100 – 149		7
150 – 199		10
200 – 249		3
250 – 299		5
300 – 349		2
350 – 399		4
400 – 449		4
450 – 499		2
500 – 549		1
		Total (N) = 38

ii. Number of people who donated ₹ 350 or more = 4 + 4 + 2 + 1 = 11

Question 1.

The record of marks out of 20 in Mathematics in the first unit test is as follows:

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20, 6, 14, 10, 13, 15, 12, 14, 17, 17, 18, 11, 19,
9, 16, 18, 14, 7, 17, 20, 8, 15, 16, 10, 15, 12,
18, 17, 12, 11, 11, 10, 16, 14, 16, 18, 10, 7, 17,
14, 20, 17, 13, 15, 18, 20, 12, 12, 15, 10

Answer the following questions, from the above information.

- How many students scored 15 marks?
- How many students scored more than 15 marks?
- How many students scored less than 15 marks?
- What is the lowest score of the group?
- What is the highest score of the group? (Textbook pg. no. 114)

Solution:

- 5 students scored 15 marks.
- 20 students scored more than 15 marks.
- 25 students scored less than 15 marks.
- 6 is the lowest score of the group.
- 20 is the highest score of the group.

Question 2.

For the above Question prepare Frequency Distribution Table. (Textbook pg. no. 115)

Solution:

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Score	Tally Marks	Frequency (No. of students)
6		1
7		2
8		1
9		1
10		5
11		3
12		5
13		2
14		5
15		5
16		4
17		6
18		5
19		1
20		4
		Total (N) = 50



Maharashtra Board Solutions

Class 9 Maths

Part 1

- Chapter 1.1- Sets
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- Chapter 1.3- Sets
- Chapter 1.4- Sets
- Chapter 2.1- Real Numbers
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- Chapter 7.5- Statistics

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the

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concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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