

Solution
CLASS 7 WORKSHEET -3 (UPTO JULY 2023)- DATA HANDLING
Class 07 - Mathematics
Section A

1. (a) occurs most frequently

Explanation: By definition, mode is the value which occurs most frequently.

2. (a) 58

Explanation: Arrange the given data in ascending order.

We have 33, 35, 41, 46, 55, 58, 64, 77, 87, 90 and 92.

The sixth entry is 58.

Median is 58.

3.

(b) 61.5

Explanation: Median of the data set is the middle number if the numbers are written serially from 56 to 73, the middle number is 61.5.

4. (a) $\frac{x+y+z}{3}$

Explanation: $\frac{x+y+z}{3}$

5.

(d) 17

Explanation: Range of the heights of the students is the difference between highest and lowest height i.e. $(76 - 59) = 17$

6.

(d) 5 : 9

Explanation: Ratio = $\left(\frac{2.5}{4.5}\right) = 5 : 9$

7.

(c) 13°C

Explanation: Range of data = Maximum temperature - Minimum temperature = $5 - (-8) = 5 + 8 = 13$. Hence, the range of data is 13°C.

8.

(b) $\frac{4}{5}$

Explanation: Probability of hitting a six = $\frac{6}{30} = \frac{1}{5}$

∴ Probability of not hitting a six = $1 - \frac{1}{5}$

= $\frac{4}{5}$

9.

(b) 5.6

Explanation: The first five prime numbers are 2, 3, 5, 7 and 11. And their mean is

= $x = \frac{2+3+5+7+11}{5} = \frac{28}{5} = 5.6$

10.

(b) is a representative of whole group

Explanation: Mean is representative of whole group.

Section B

11. (a) True

Explanation: True

12.

(b) False

Explanation: False

The given observations are: 3, 7, 1, - 2, 2, 6, - 3, - 5

Range = $7 - (-5) = 7 + 5 = 12$

Now, After adding 8 to each observation, the data becomes 11, 15, 9, 6, 10, 14, 5, 3

So, Range = $15 - 3 = 12$

Therefore, the range is the same for both cases.

13. (a) True

Explanation: True, It is the number that occurs most frequently in the data.

14. 1. 19

15. 1. arithmetic mean

16. 1. Range

17. (a) Both A and R are true and R is the correct explanation of A.

Explanation: The median is the middle value of the dataset in which the dataset is arranged in ascending order or in descending order.

Ascending order = 1, 2, 3, 4, 5, 6, 7

So, the median is 4.

So, both Assertion(A) and Reason(R) are correct and (R) is the correct explanation for (A).

18.

(d) A is false but R is true.

Explanation: The mean is one of the numbers in the data. Answer: False; because the mean is calculated after adding all the data and dividing the sum of the total number of observations. The median is always one of the numbers in the data. So, (A) is a false statement.

Means = $\frac{(6+4+3+8+9+12+13+9)}{8} = \frac{64}{8} = 8$. So, (R) is a true statement.

19.

(d) A is false but R is true.

Explanation: Mark the class intervals along the X-axis on a uniform scale and Mark the frequencies along the Y-axis on a uniform scale. So, (A) is a false statement.

In the histogram, the bars are placed continuously side by side with no gap between adjacent bars. That is, in histogram rectangles are erected on the class intervals of the distribution. So, (R) is a true statement.

20. (a) Both A and R are true and R is the correct explanation of A.

Explanation: The median is the middle value of the dataset in which the dataset is arranged in ascending order or in descending order.

Data = 46, 64, 87, 41, 58, 77, 35, 90, 55, 33, 92

Ascending order = 33, 35, 41, 46, 55, 58, 64, 77, 87, 90, 92

So, 58 is the median of the given data.

So, both Assertion (A) and Reason (R) are correct and (R) is the correct explanation for (A).

Section C

21. Arrange data in increasing order: 1, 2,3, 4,4, 5, 6, 7,8,8,8,8, 10, 11,
8 is the mode as it has the highest frequency.

22. Mean enrolment of the school for this period.

$$\begin{aligned} \text{Mean} &= \frac{\text{sum of all observations}}{\text{number of observations}} \\ &= \frac{1555+1670+1750+2013+2540+2820}{6} \\ &= \frac{12348}{6} = 2058 \end{aligned}$$

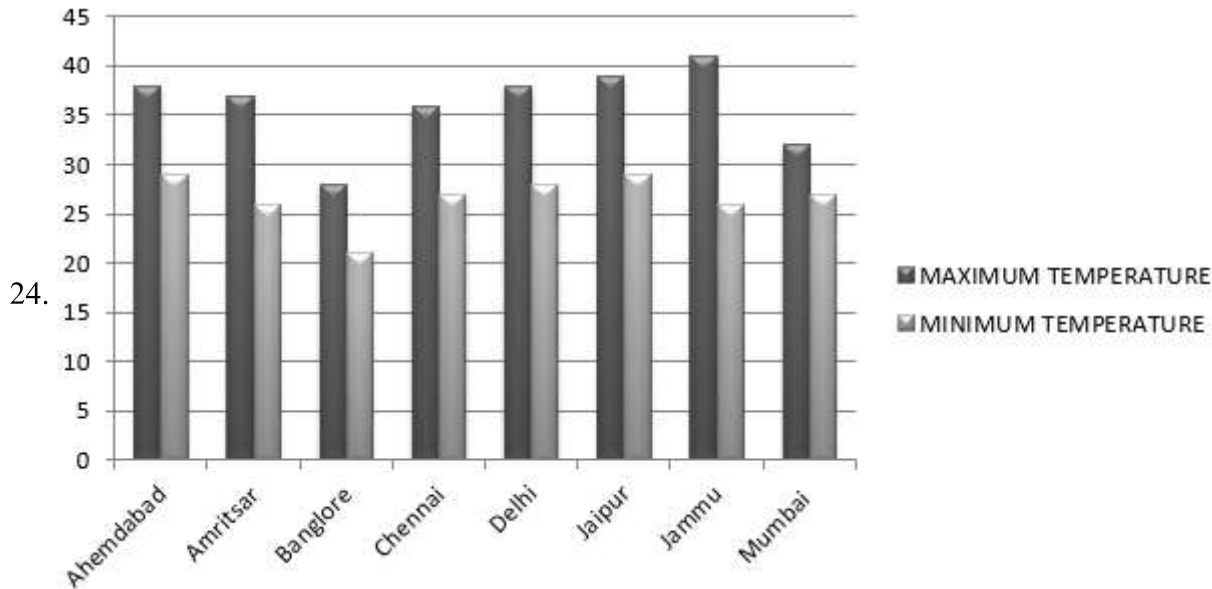
23. Total runs scored in all the innings = $36 + 35 + 50 + 46 + 60 + 55 = 282$.

To find the mean, we find the sum of all the observations and divide it by the number of observations.

Therefore, in this case,

$$\text{mean} = \frac{282}{6} = 47$$

Thus, the mean runs scored in an inning is 47.



From the graph, The least difference between the maximum and minimum bars corresponding to Mumbai. Hence, it can be concluded that, Mumbai is city with the least difference in its maximum temperature and minimum temperatures on 20.06.2006

25. Arranging the data into ascending order, we have:

2, 2, 3, 3, 4, 4, 4, 5, 6

We can see the given number of observations is odd.

Hence, the median is 4 because of middle most observation and mode is 4 also due to frequent occurrence of number 4

Now the mean is

$$\Rightarrow \text{Required Mean} = \frac{\text{Median} + \text{Mode}}{2}$$

$$= \frac{4+4}{2} = 4$$

26. As per the bar graph, it can be easily seen that the bar of the cat is the tallest

Hence, Cat is the most popular pet.

27. From the graph, we can conclude that,

The number of books sold in the year 1989 is about 1 and $\frac{3}{4}$ th part of 1 cm.

Now, we know that,

The scale here is:

1cm = 100 books

Hence,

$$100 + \frac{3}{4}\text{th} \times 100$$

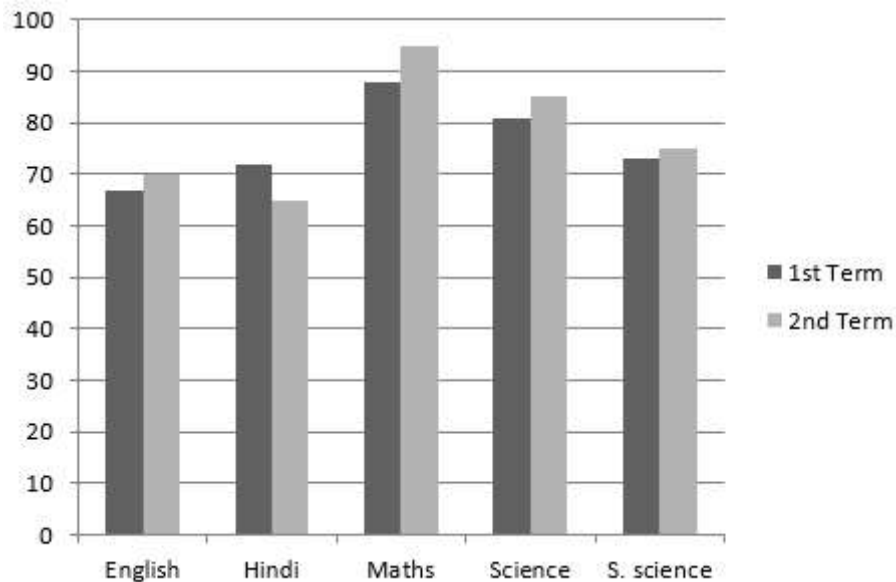
$$= 100 + 75 = 175$$

28. While observing the graph, we can conclude that,

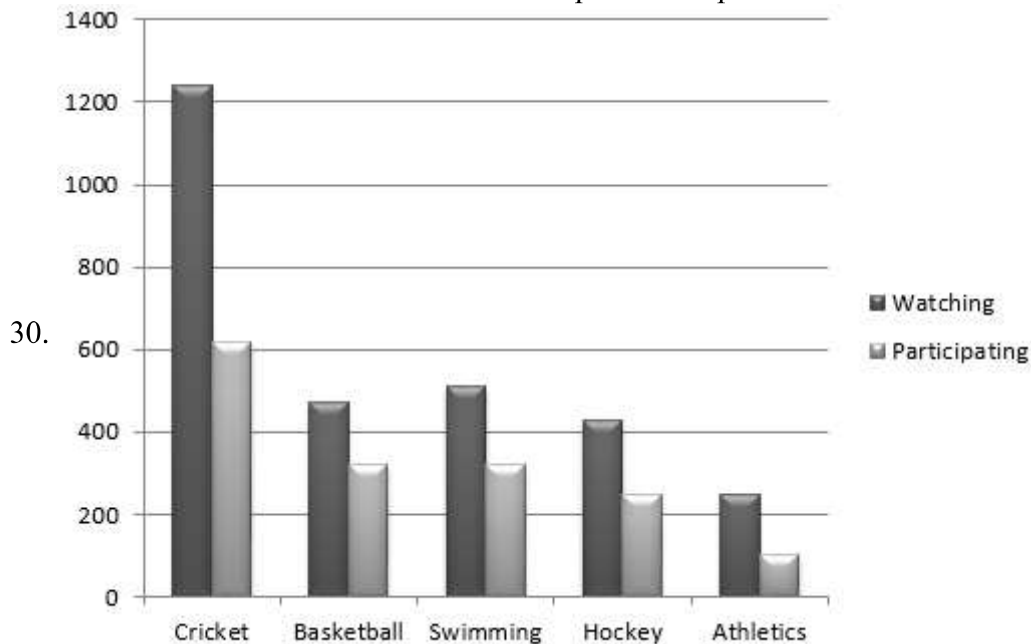
The years in which the total number of books sold was less than 250 are: The year 1989 and the year 1992.

29. As per the question:

The double bar graph of the given data is shown as follows:



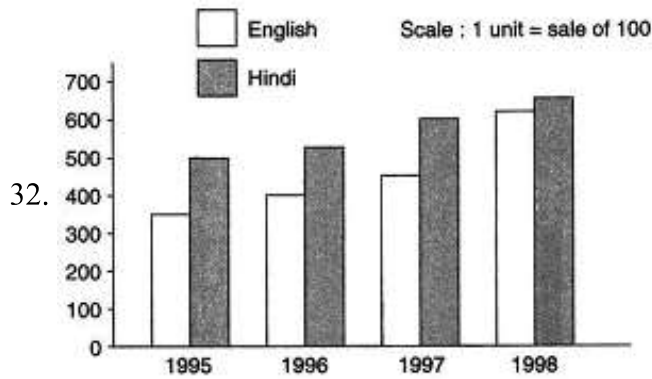
Here, we find that, Mathematics has a maximum increase in marks. Hence, It can be concluded that the child has improved his performance the most in Mathematics.



After, plotting a double bar graph, it can be easily seen that the most watching and participating sports is cricket.

Section D

- 31. a. Black color is the most liked.
- b. Mode is used as the central tendency in part (a).

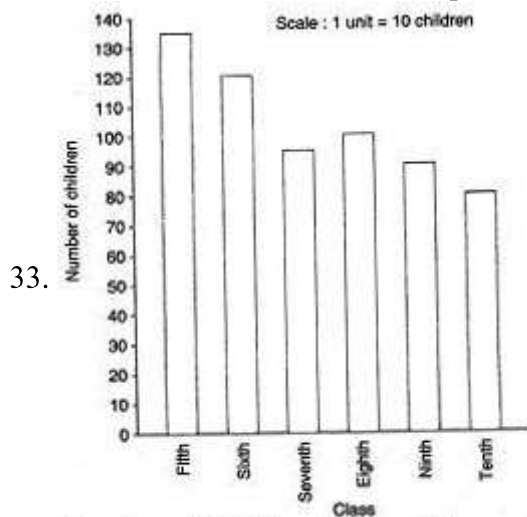


a.

Year	Difference in the sale of the two language books
1995	$500 - 350 = 150$
1996	$525 - 400 = 125$
1997	$600 - 450 = 150$
1998	$650 - 620 = 30$

The difference in the sales of the two language books was least in the year 1998

- b. Yes ! we can say that the demand of English books rose faster. Difference in sale of English books from 1995 to 1998 is 270 as compared to hindi books which is only 150



Number of children in Six different class

- a. Starts the scale at 0. The greatest value in the data is 135, so end the scale at a value greater than 135, such as 140. Use equal divisions along the axes, such as increments of 10. We know that all the bars would lie between 0 and 140. We choose the scale such that the length between 0 and 140 is neither too long nor too small. Here, we take 1 unit for 10 children.

- b. i. The fifth class has the maximum number of children. The tenth class has a minimum number of children.

ii. Ratio of students of class sixth to eighth

$$= 120 : 100 = \frac{12}{10} = \frac{6}{5} = 6 : 5$$

34. a. Arithmetic Mean = $\frac{\text{sum of all observations}}{\text{total number of observations}}$

$$\text{Sum of observations} = 5 + 3 + 4 + 1 + 2 + 6 + 4 + 2 + 2 + 3 + 1 + 5 + 6 + 1 + 2 = 47$$

$$\text{Number of observations} = 15$$

$$\text{Mean} = \frac{47}{15} = 3.13$$

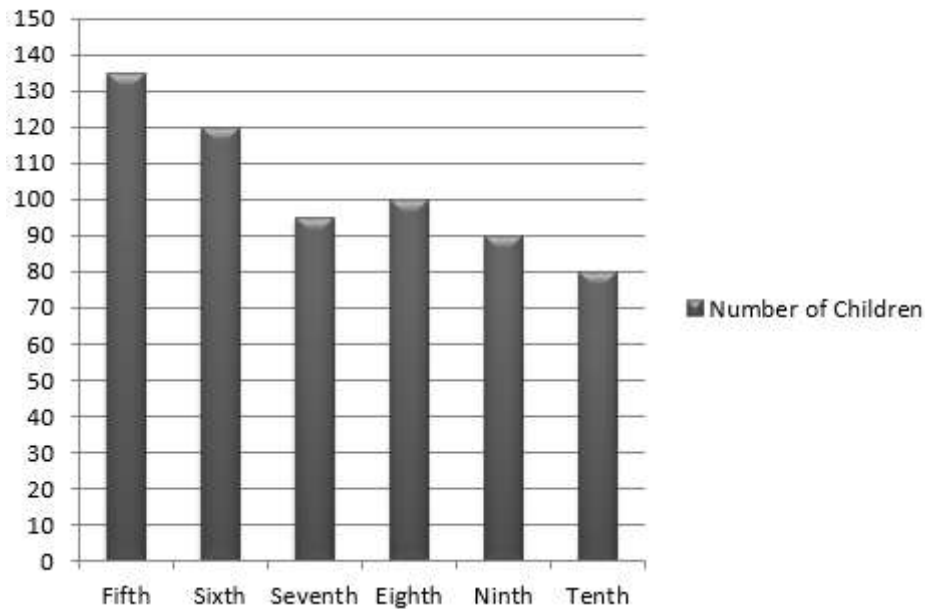
- b. Data in ascending order = 1, 1, 1, 2, 2, 2, 2, 3, 3, 4, 4, 5, 5, 6, 6

$$\text{Median} = 3$$

- c. Mode = 2

35. The bar graph of the given data can be represented as follows:

Number of Children



Here,

We can clearly see that,

There are 120 students in class sixth

And 100 students in class eighth

Therefore, the ratio between the number of students of class sixth and the number of students of class eighth can be calculated as follows:

$$\text{Required ratio} = \frac{120}{100} = \frac{6}{5} = 6 : 5$$

Section E

36. i. We have to find the range of the given data.

here, Highest rainfall = 20.5mm

Lowest rainfall = 0.0mm

Thus, Range = Highest value – Lowest value

Hence, Range of the given data:

Range = highest rainfall – lowest rainfall

$$= 20.5 - 0.0 = 20.5 \text{ mm}$$

- ii. Here, We have to find the mean of the rainfall for the week

Clearly, sum of all the observations = $0.0 + 12.2 + 2.1 + 0.0 + 20.5 + 5.5 + 1.0 = 41.3$

Also, total number of observations = 7

Hence,

$$\text{Mean rainfall} = \frac{\text{Sum of all observations}}{\text{Number of observations}}$$

$$= \frac{41.3}{7} = 5.9 \text{ mm}$$

- iii. Here, we have to find the number of days when the rainfall was less than the mean rainfall

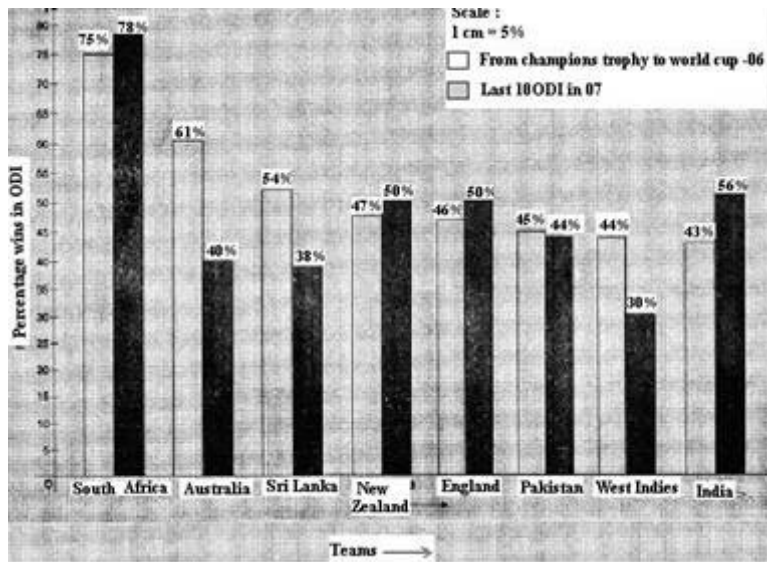
Clearly, we can observe that,

For total five days, the rainfall was less than the mean rainfall

These days are as follows:

Monday, Wednesday, Thursday, Saturday and Sunday

37.



38. We will arrange the data in the ascending order

Thus, the heights of the ten girls can be arranged in ascending order as follows:

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

i. Here, we have to find the height of the tallest girl mentioned in the data.

Hence,

Height of the tallest girl = 151 cm

ii. Here, we have to find the height of the smallest girl mentioned in the data.

Hence,

Height of the smallest girl = 128 cm

iii. Here, we have to find the range of the given data.

We know that,

Highest height of girl = 151 mm

Smallest height of girl = 128 mm

Therefore, Range = highest height - Smallest height = 151 - 128 = 23 cm

iv. Here, we have to find the mean height of the girls

First of all we'll find the sum of all the observations

So, we have sum of all the observations = 135 + 150 + 139 + 128 + 151 + 132 + 146 + 149 + 143 + 141 = 1414

Total number of observations = 10

Hence,

Mean height = $\frac{\text{Sum of all observations}}{\text{Number of observations}} = \frac{1414}{10} = 141.4$ cm

v. Here, we have to find the number of girls whose heights are greater than the mean height

There were total of five girls whose heights are greater than the mean height

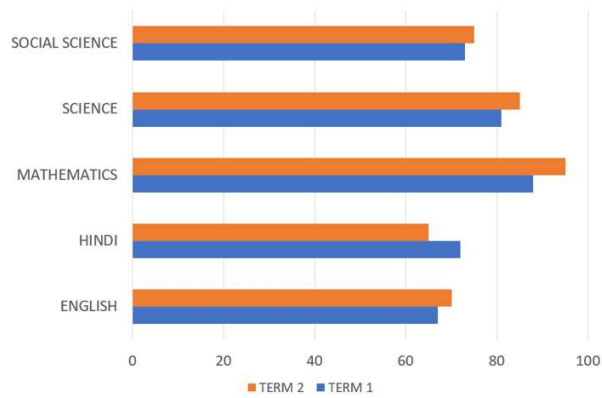
These heights are as follows:

143, 146, 149, 150, and 151 cm

Section F

39. Read the text carefully and answer the questions:

The performance of a student in 1st Term and 2nd Term is given in the form of double bar graph. Answer the following questions.

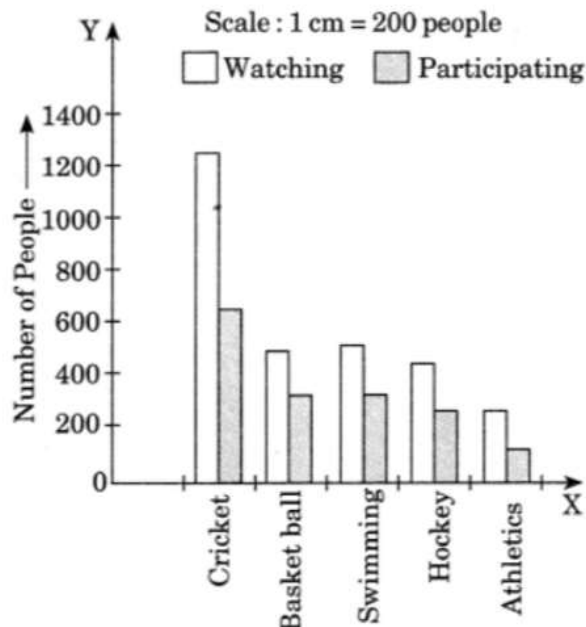


- (i) 1. 10
- (ii) (c) In Maths, the performance of the student improved the most.
Explanation: In Maths, the performance of the student improved the most.
- (iii) (a) In social science, the performance of the student improved the least.
Explanation: In social science, the performance of the student improved the least.
- (iv) (a) Yes, in Hindi the performance of the student has gone down.
Explanation: Yes, in Hindi the performance of the student has gone down.
- (v) (a) True
Explanation: True

40. Read the text carefully and answer the questions:

Consider this data collected from a survey of a colony. Read the bar graph and answer the following questions.

Favourite sport	Cricket	Basketball	Swimming	Hockey	Athletics
Watching	1240	470	510	430	250
Participating	620	320	320	250	105



- (i) 1. watching, participating
- (ii) (c) Cricket
Explanation: Cricket
- (iii) (b) Watching
Explanation: Watching
- (iv) (b) 1285
Explanation: 1285

(v) **(b)** False

Explanation: False