Practice Set 11.1

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1. The following table shows the number of saplings planted by 30 students. Fill in the boxes and find the average number of saplings planted by each student.

No. of saplings (Scores) x_i	No. of students (frequency) f_i	$f_i \times x_i$
1	4	4
2	6	☐
3	12	☐
4	8	☐
	N = ☐	$\Sigma f_i x_i$ = ☐

Mean $\overline{x}$ = $\frac{\square}{N}$

= $\frac{\square}{\square}$

= ☐

∴ The average number of trees planted ☐.

Solution:

No. of saplings (Scores) x_i	No. of students (Frequency) f_i	$f_i \times x_i$
1	4	4
2	6	12
3	12	36
4	8	32
	N = 30	$\Sigma f_i x_i$ = 84

Mean $\overline{x} = \frac{\Sigma f_i x_i}{N}$

$= \frac{84}{30} = \frac{14 \times 6}{5 \times 6} = \frac{14}{5}$

= 2.8

∴ The average number of trees planted 2.8.

2. The following table shows the electricity (in units) used by 25 families of Eklara village in a month of May. Complete the table and answer the following questions.

Electricity used (Units) x_i	No.of families (frequency) f_i	$f_i \times x_i$
30	7	.....
45	2	.....
60	8	.....
75	5	.....
90	3	.....
	N = ...	$\Sigma f_i x_i$ =.....

(1) How many families use 45 units electricity?
(2) State the score, the frequency of which is 5.
(3) Find N, and Σ $f_i x_i$
(4) Find the mean of electricity used by each family in the month of May.
Solution:

Electricity used (Units) x_i	No. of families (Frequency) f_i	$f_i \times x_i$
30	7	210
45	2	90
60	8	480
75	5	375
90	3	270
	N = 25	Σ $f_i x_i$ = 1425

(1) 2 families used 45 units od electricity.
(2) The score for which the frequency is 5 is 75.
(3) N = 25 and Σ $f_i x_i$ = 1425
(4) The mean of electricity used by each family in the month of May is given by:
Mean ($\bar{x}$) = Σ $f_i x_i$ / N
= 1425 / 25
= 57
Thus, the mean of electricity used by each family in the month of May is 57 units.

3. The number of members in the 40 families in Bhilar are as follows:
1, 6, 5, 4, 3, 2, 7, 2, 3, 4, 5, 6, 4, 6, 2, 3, 2, 1, 4, 5, 6, 7, 3, 4, 5, 2, 4, 3, 2, 3, 5, 5, 4, 6, 2, 3, 5, 6, 4, 2.
Prepare a frequency table and find the mean of members of 40 families.
Solution:

Number of members	Number of families (f_i)	$f_i x_i$
1	2	2
2	8	16
3	7	21
4	8	32
5	7	35
6	6	36
7	2	14
	N = 40	$\Sigma f_i x_i = 156$

Now,
Mean = $\Sigma f_i x_i$/ N = 156/ 40 = 3.9
Thus, the mean of members of 40 families is 3.9.

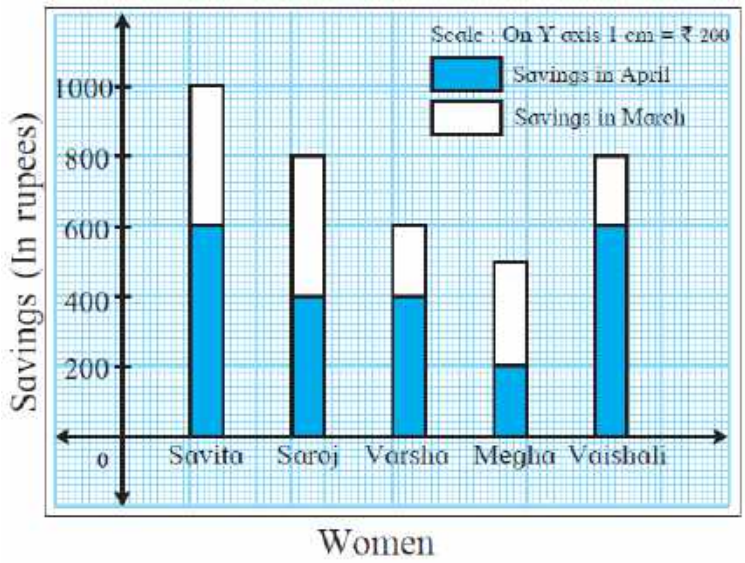
4. The number of Science and Mathematics projects submitted by Model high school, Nandpur in last 20 years at the state level science exhibition is : 2, 3, 4, 1, 2, 3, 1, 5, 4, 2, 3, 1, 3, 5, 4, 3, 2, 2, 3, 2. Prepare a frequency table and find the mean of the data.
Solution:

Number of projects (x_i)	Frequency (f_i)	$f_i x_i$
1	3	3
2	6	12
3	6	18
4	3	12
5	2	10
	N = 20	$\Sigma f_i x_i = 55$

Now,
Mean = $\Sigma f_i x_i$ / N = 55/ 20 = 2.75
Thus, the mean of the data = 2.75

Practice Set 11.2

1.



(1) State the type of the graph.
(2) How much is the savings of Vaishali in the month of April?
(3) How much is the total of savings of Saroj in the months March and April?
(4) How much more is the total savings of Savita than the total savings of Megha?
(5) Whose savings in the month of April is the least?
Solution:

(1) The given is a bar graph.

(2) The savings of Vaishali in the month of April is Rs 600.

(3) The total savings of Saroj in the months March and April is Rs 800.

(4) From the table it's seen that, the total savings of Savita = Rs 1000
And, the total savings of Megha = Rs 500
So, the difference in their savings = 1000 − 500 = 500
Hence, the total savings of Savita is Rs 500 more than the total savings of Megha.

(5) The savings of Megha in the month of April is the least i.e. Rs 200.

2. The number of boys and girls, in std 5 to std 8 in a Z.P. school is given in the table. Draw a subdivided bar graph to show the data.
(Scale: On Y axis, 1cm = 10 students)

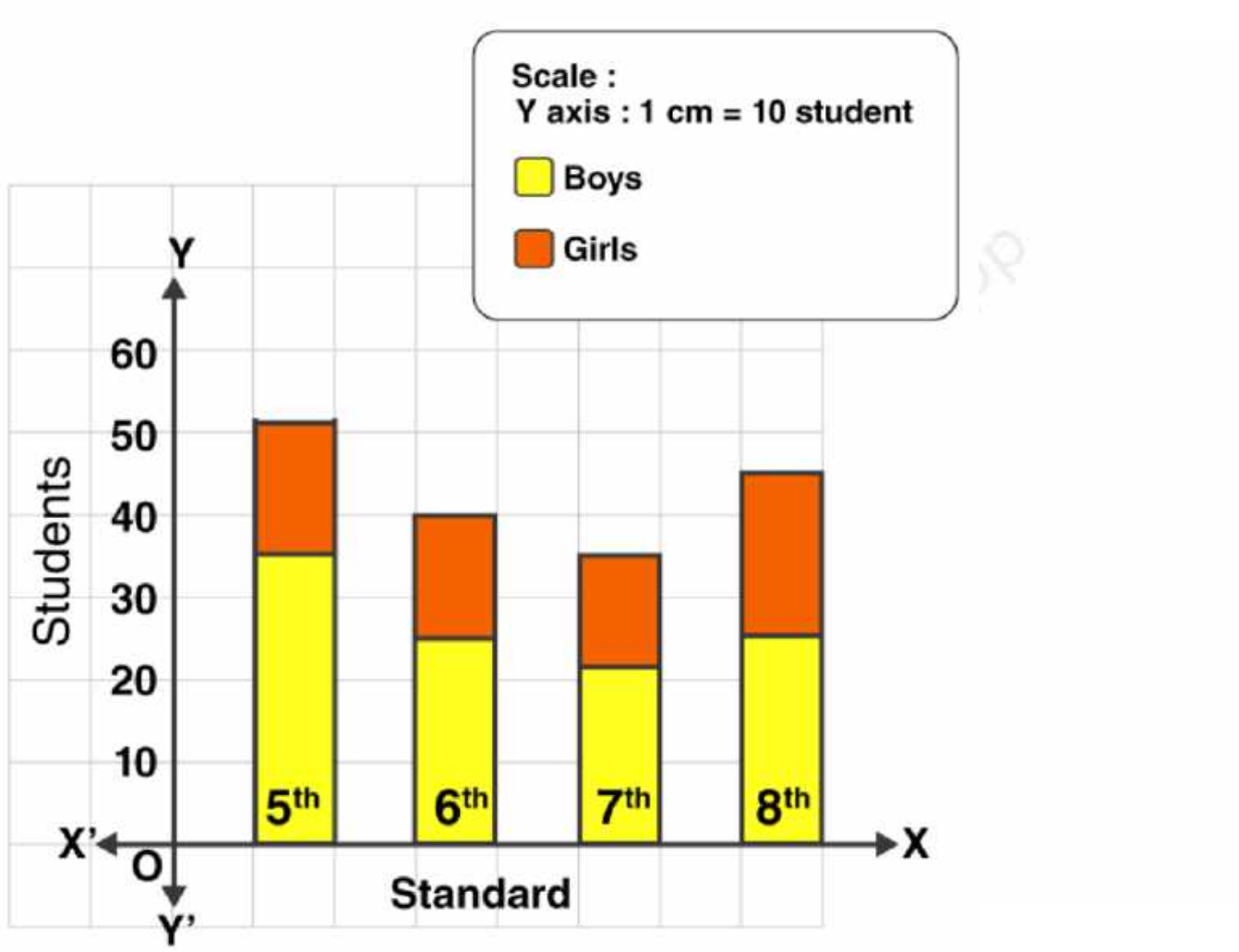
Standard	5^{th}	6^{th}	7^{th}	8^{th}
Boys	34	26	21	25
Girls	17	14	14	20

Solution:

Given data,

Standard	5^{th}	6^{th}	7^{th}	8^{th}
Boys	34	26	21	25
Girls	17	14	14	20
Total	51	40	35	45

Now,
The subdivided bar graph of the given data is as follows:



3. In the following table number of trees planted in the year 2016 and 2017 in four towns is given. Show the data with the help of subdivided bar graph.

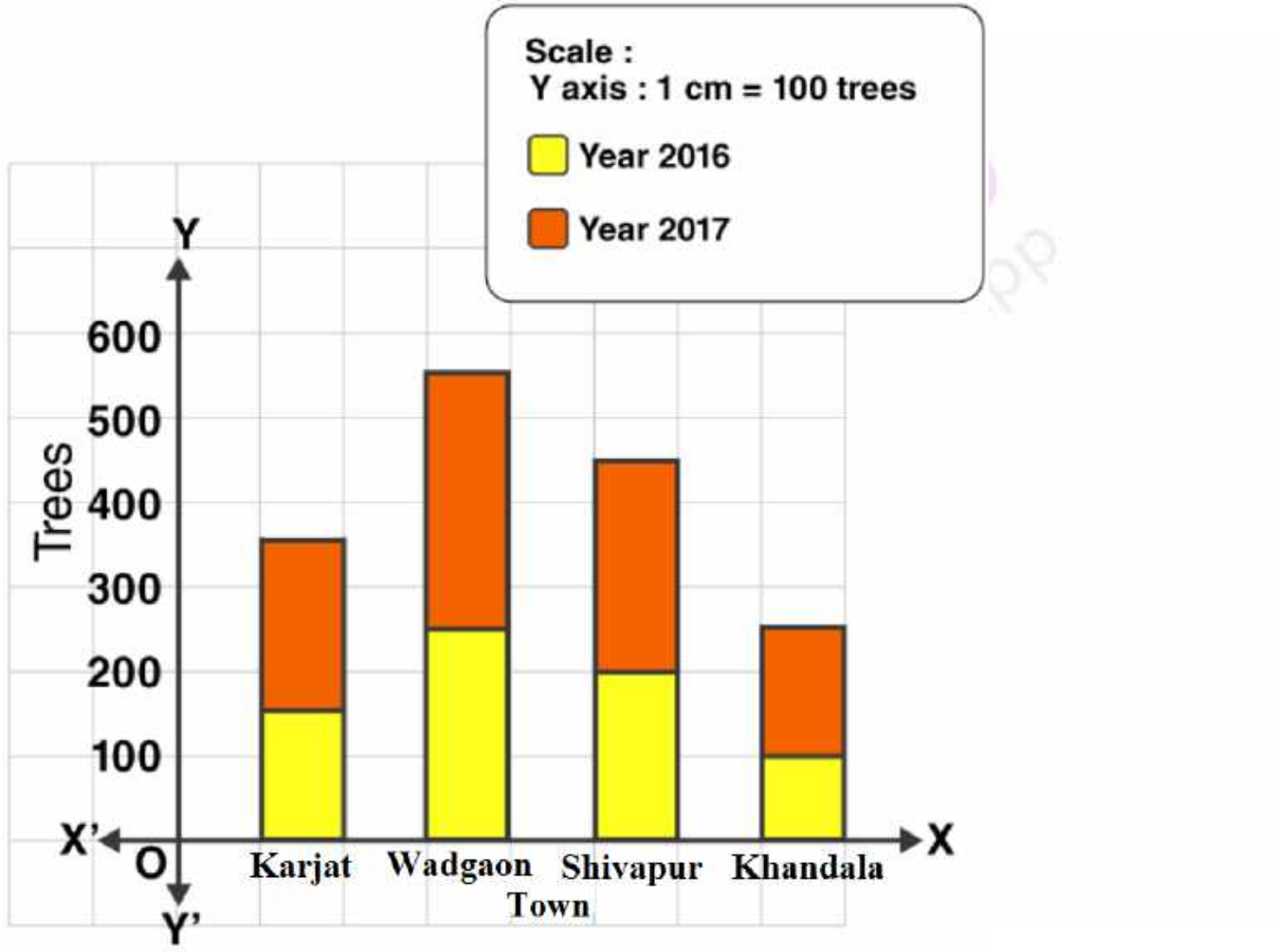
year \ town	Karjat	Wadgoan	Shivapur	Khandala
2016	150	250	200	100
2017	200	300	250	150

Solution:

Given data,

Year\Town	Karjat	Wadgoan	Shivapur	Khandala
2016	150	250	200	100
2017	200	300	250	150
Total	350	550	450	250

Now,
The subdivided bar graph of the given data is as follows:



4. In the following table, data of the transport means used by students in 8th standard for commutation between home and school is given. Draw a subdivided bar diagram to show the data. (Scale: On Y axis: 1 cm = 500 students)

Town → / Mean of commutation ↘	Paithan	Yeola	Shahapur
cycle	3250	1500	1250
Bus and Auto	750	500	500
On foot	1000	1000	500

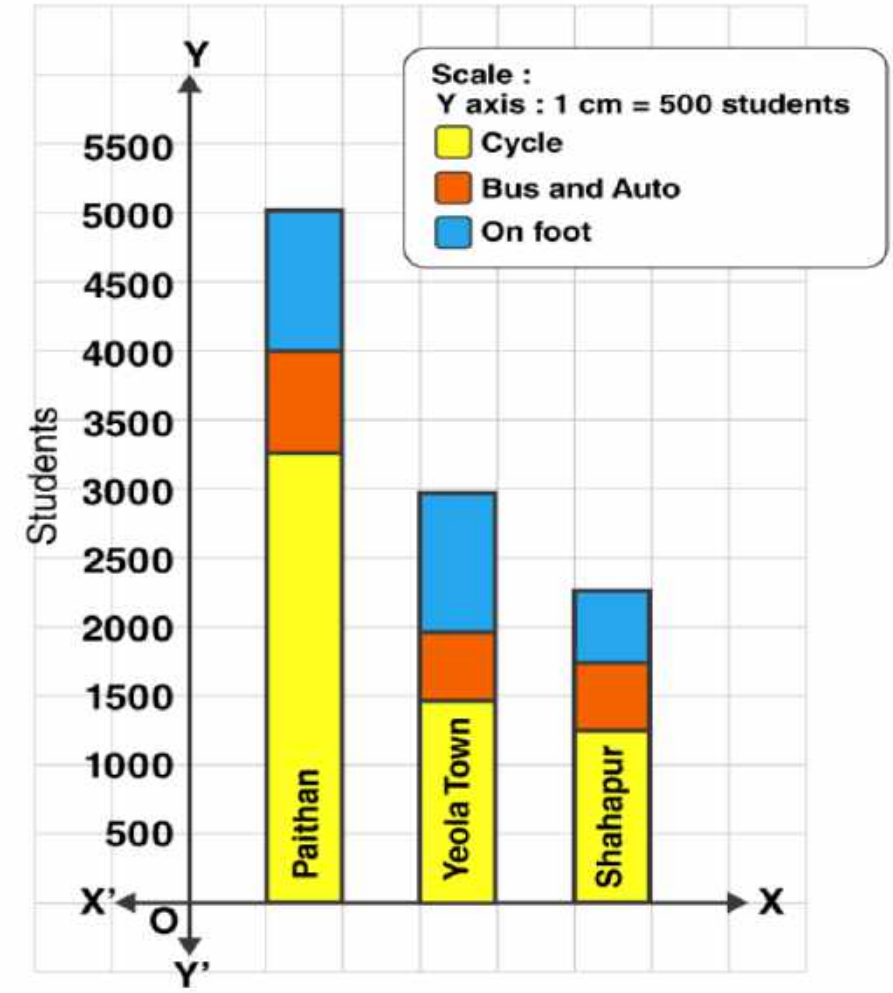
Solution:

Given data,

Town → / Mean of communication ↓	Paithan	Yeola	Shahapur
Cycle	3250	1500	1250
Bus and Auto	750	500	500
On foot	1000	1000	500
Total	5000	3000	2250

Now,

The subdivided bar diagram of the given data is as follows



Practice Set 11.3 Page No: 73

1. Show the following information by a percentage bar graph.

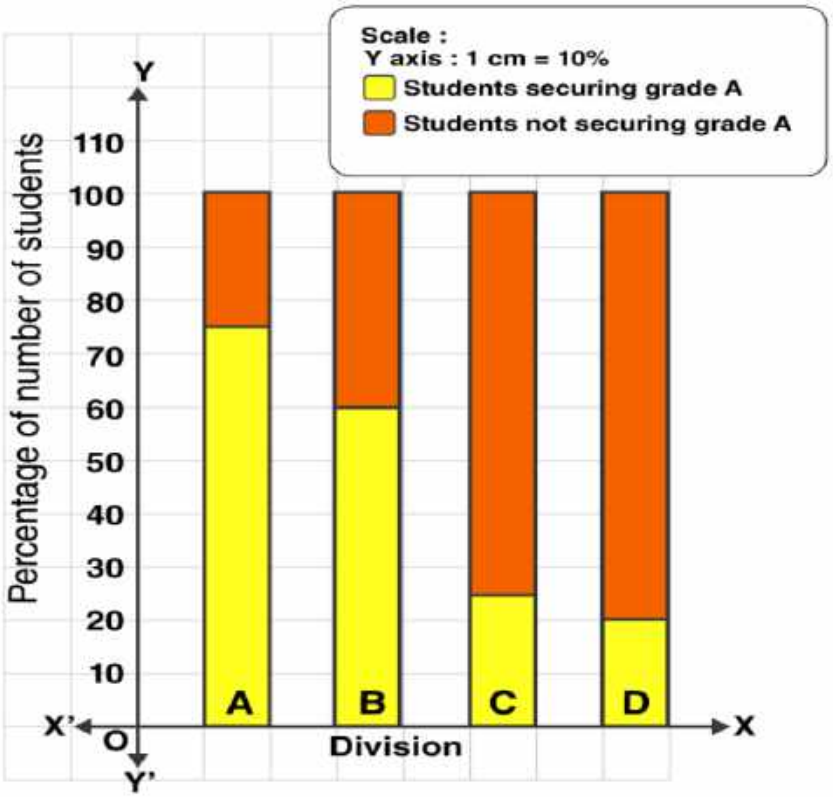
Division of standard 8	A	B	C	D
Number of students securring grade A	45	33	10	15
Total number of students	60	55	40	75

Solution:

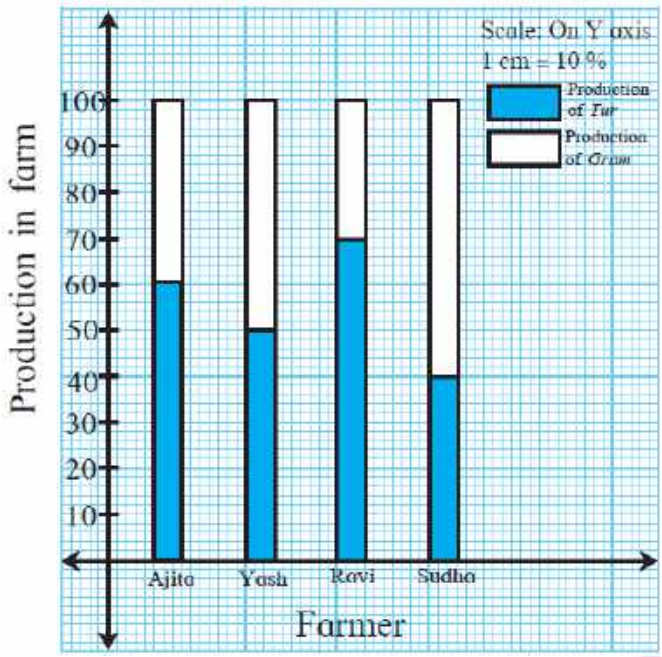
Given data,

Division of standard 8	A	B	C	D
Number of students securing grade A	45	33	10	15
Total number of students	60	55	40	75
Percentage of students securing grade A	(45/60) x 100 = 75%	(33/55) x 100 = 60%	(10/40) x 100 = 25%	(15/75) x 100 = 20%

Now, the percentage bar graph is:



2.



(1) State the type of the bar graph.
(2) How much percent is the Tur production to total production in Ajita's farm?
(3) Compare the production of Gram in the farms of Yash and Ravi and state whose percentage of production is more and by how much?
(4) Whose percentage production of Tur is the least?
(5) State production percentages of Tur and gram in Sudha's farm.
Solution:

From the given graph, it can be inferred that:
(1) The given graph is a percentage bar graph.

(2) Percent of tur production to the total production in Ajita's farm is 60%.

(3) Production of Gram in the farm of Yash = 50%
And, the production of Gram in the farm of Ravi = 30%
So, the difference in the production = 50% – 30% =20%
Thus, Yash's production of Gram is more and by 20%.

(4) The least production percentage of Tur is of Sudha.

(5) The production percentages of Tur and Gram in Sudha's farm are 40% and 60% respectively.

3. The following data is collected in a survey of some students of 10th standard from some schools. Draw the percentage bar graph of the data.

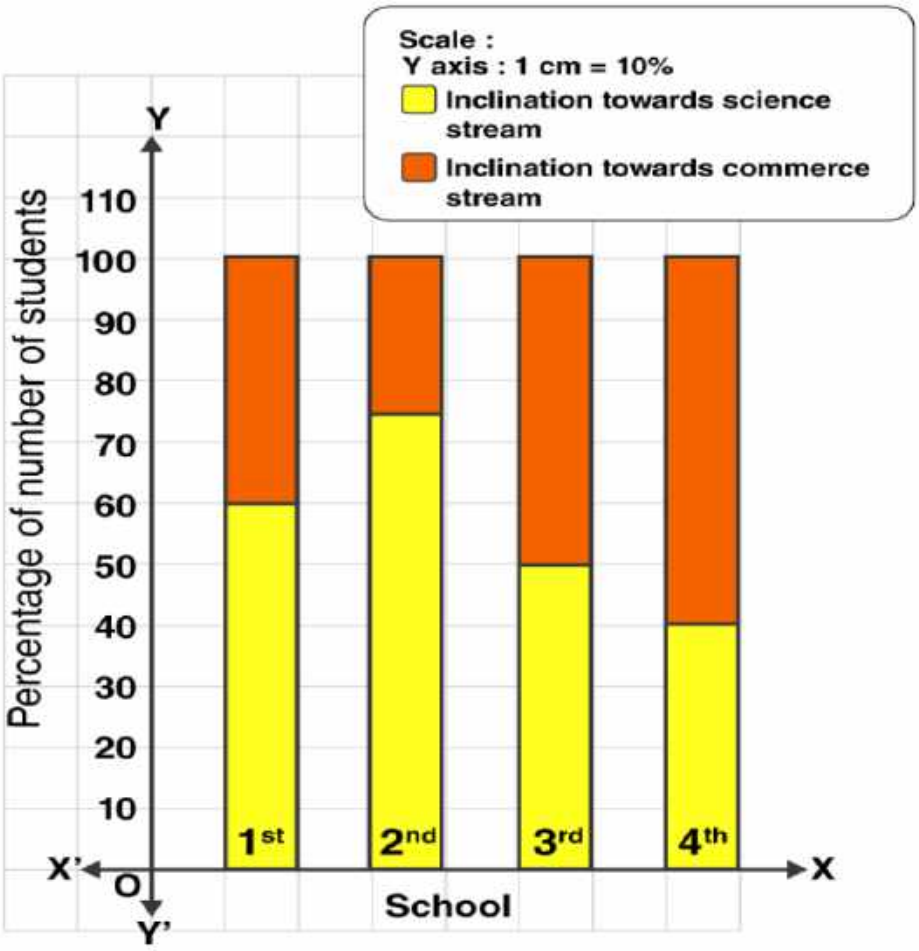
School	1st	2nd	3rd	4th
Inclination towards science stream	90	60	25	16
Inclination towards commerce stream	60	20	25	24

Solution:

Given data,

School	1st	2nd	3rd	4th
Inclination towards science stream	90	60	25	16
Inclination towards commerce stream	60	20	25	24
Total	150	80	50	40
Percentage of students having inclination towards science stream	(90/150) x 100 = 60%	(60/80) x 100 = 75%	(25/50) x 100 = 50%	(16/40) x 100 = 40%
Percentage of students having inclination towards commerce stream	(60/150) x 100 = 40%	(20/80) x 100 = 25%	(25/50) x 100 = 50%	(24/40) x 100 = 60%

The percentage bar graph of the given data is as follows:


Scale :
Y axis : 1 cm = 10%
Inclination towards science stream
Inclination towards commerce stream
Y
Y'
X'
X
O
110
100
90
80
70
60
50
40
30
20
10
Percentage of number of students
1st
2nd
3rd
4th
School