

1. The following table shows the population and area of 2 villages.

Village	Population	Area (sq km)
A	1950	15
B	1700	25

- What is the density of population of Village A?
- What is the density of population of Village B?
- What is the average density of population in the 2 villages?

Solution:

a) For village – A,

Population = 1950

Area = 15 sq. km

We know,

$$\begin{aligned}\text{Population density} &= \frac{\text{Population}}{\text{Area}} \\ &= \frac{1950}{15} \text{ People / sq. km} \\ &= 130 \text{ People / sq. km}\end{aligned}$$

Ans: 130 People / sq. km.

b) For village – B,

$$\text{Population} = 1700$$

$$\text{Area} = 25 \text{ sq. km}$$

We know,

$$\begin{aligned}\text{Population density} &= \frac{\text{Population}}{\text{Area}} \\ &= \frac{1700}{25} \text{ People / sq. km} \\ &= 68 \text{ People / sq. km}\end{aligned}$$

Ans: 68 People / sq. km.

c) Total population of the two villages = $(1950 + 1700) = 3650$

$$\begin{aligned}\text{Total area of the two villages} &= (15 + 25) \text{ sq. km} \\ &= 40 \text{ sq. km}\end{aligned}$$

∴ The average density of population in the two villages

$$\begin{aligned}&= \frac{3650}{40} \text{ People / sq. km} \\ &= 91.25 \text{ People / sq. km} \\ &= 92 \text{ People / sq. km}\end{aligned}$$

Ans: 92 People / sq. km.

2. The following table shows the data of the weight of Grade 4 students in one school.

Students weight (kg)				
20	26	22	23	21
20	35	27	28	31
22	32	33	26	24
25	37	36	38	39

- Prepare a table of class interval 5.
- What is the percent of the students whose weight is less than 25kg?

Solution:

a) The given data are arranged in ascending order: 20, 20, 21, 22, 22, 23, 24, 25, 26, 26, 27, 28, 31, 32, 33, 35, 36, 37, 38, 39

Lowest value of the data = 20

Highest value of the data = 39

$$\therefore \text{Range} = (39 - 20) + 1 = 19 + 1 = 20$$

$$\therefore \text{Number of class with class interval 5} = \frac{20}{5} = 4$$

A table of weight for grade 4 students:

Class interval (Weight)	Tally	Number (Students)
20 – 24	II	7
25 – 29		5
30 – 34		3
35 - 39		5
		Total 20

b) According to the table from 'a', number of those students whose weight is less than 25 kg = 7

Total students = 20

\therefore Percentage of those students whose weight is less than 25 kg

$$= \frac{7}{20} \times 100\%$$

$$= 35\%$$

Ans: 35%

3. The following table shows the presence of grade 5 students last month in one school

Class interval of presence	Number of students
5-9	2
10-14	3
15-19	7
20-24	8
25-29	6

- What class includes more students than others?
- How many students are in grade 5?
- Draw a histogram using the data of the table.

Solution:

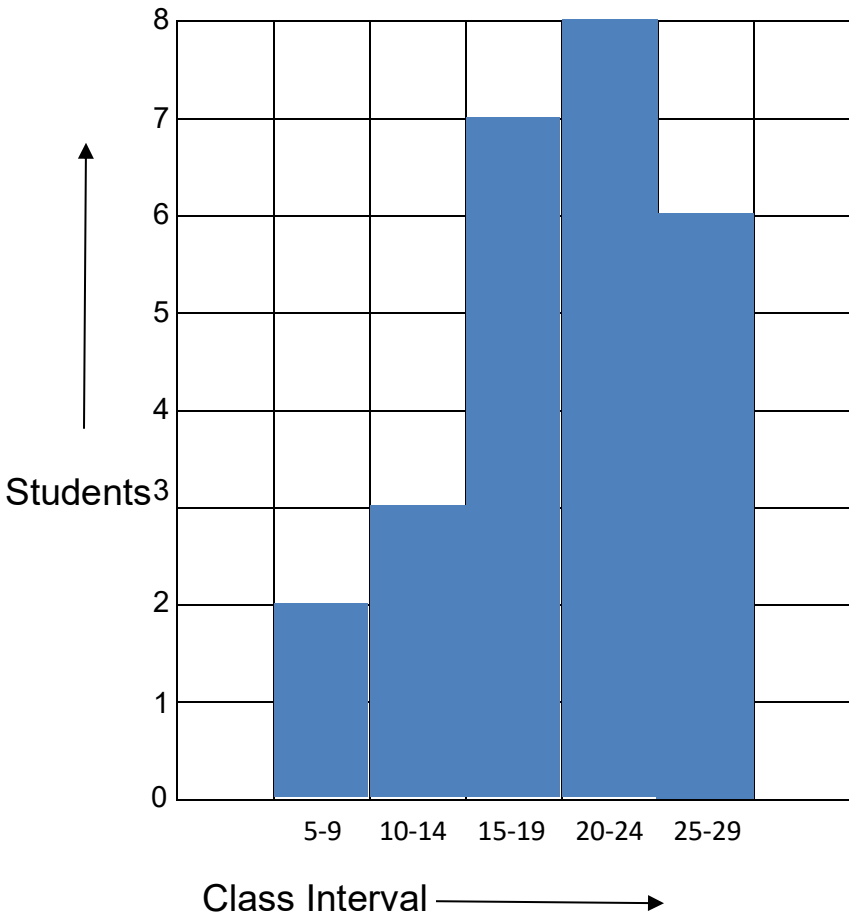
- a) The class 20 – 24 includes more students than others.

Ans: 20 – 24.

- b) Total number of students in grade 5 = $2+3+7+8+6 = 26$

Ans: 26 students.

c) A histogram is drawn according to the table:



4. The following data shows the weight (kg) of 15 students in one school.

32	22	25	20	28	29	33	23	29	24	25	25	21	32	28
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a. Prepare a table class interval 5.

b. Draw a histogram using the data of the table.

Solution:

a) The given data are arranged in ascending order: 20, 21, 22, 23, 24, 25, 25, 28, 28, 29, 29, 32, 32, 33.

Lowest value of the data = 20

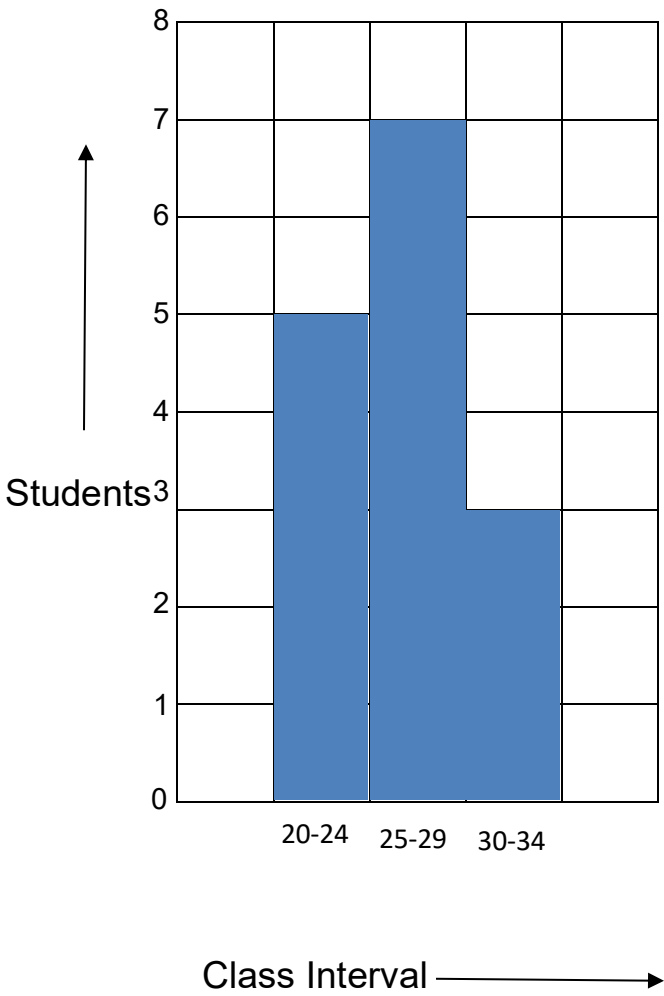
Highest value of the data = 33

∴ Range = $(33 - 20) + 1 = 13 + 1 = 14$

∴ Number of class with class interval 5 = $\frac{14}{5} = 2.8 \approx 3$

Class interval (Weight)	Tally	Number (Students)
20 – 24		5
25 – 29		7
30 – 34		3
		Total 15

b) c) A histogram is drawn according to the table:

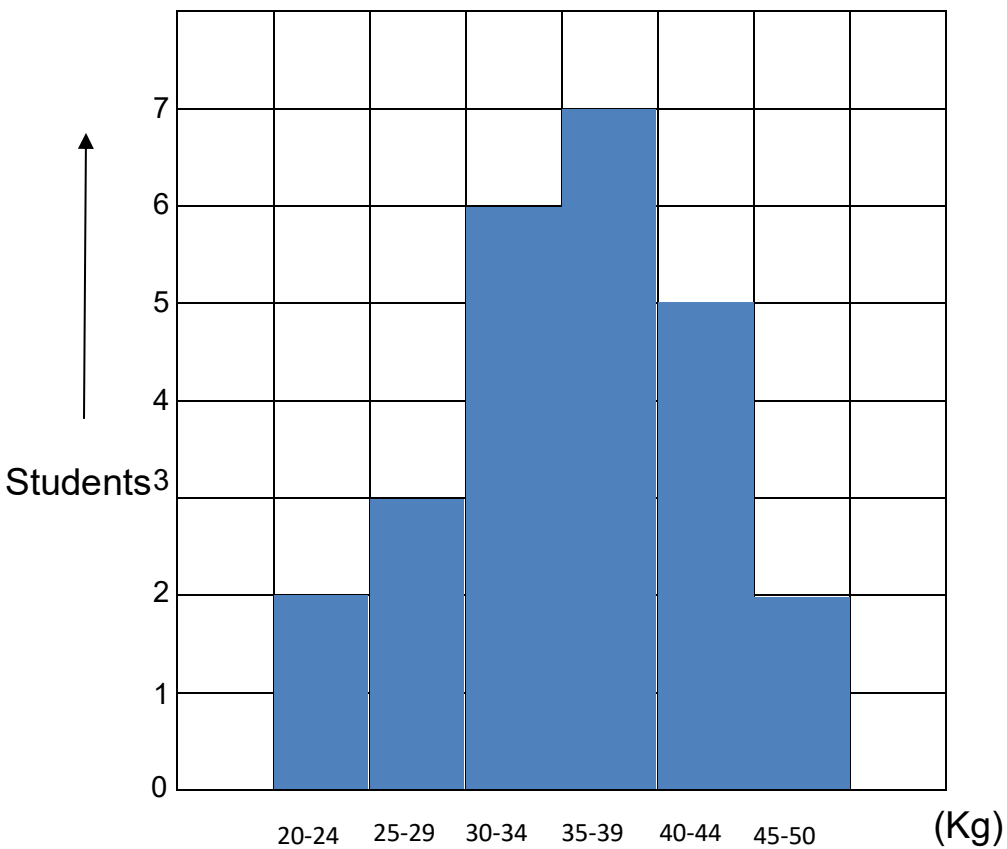


Exercise

1) 12, 14, 24, 29, 16, 12, 9, 29, 20, 16, 28, 12, 8, 29, 12, 6, 22, 28 are some data.

- Arrange the given data in ascending order.
- Make a frequency distribution table taking as a class interval 5.
- Draw the histogram of given data.

2) The histogram on the below shows the weight of all the Grade 5 students in one school.



Weight of Grade 5 students

- How many Grade 5 students are there in this school?
- What class includes more students than others?

- c) How many percent of students are there in the class 35 – 39?
- d) How many percent of students are less than or equal to 29 kilograms in weight?

3) The marks obtained by some students in Mathematics are: 75, 63, 75, 75, 71, 75, 63, 72, 72, 69, 72, 70, 61, 75, 60, 71, 69, 63, 65, 69.

- a) How many students are there in given data?
- b) What are the minimum and maximum marks in the given data?
- c) Make a distribution table of given data.

4) Village – A has 550 people in the area of 50 sq. km and village – B has the area of 20 sq. km and population density is 16 people / sq. km.

- a. Write the formula of population density.
- b. Determine the population density of village – A.
- c. Determine the population of village – B.
- d. Determine the difference between the populations of two villages.

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