



## Chapter 9

### Data Handling

#### SOLUTIONS:

##### Exercise 9.1

1. In a Mathematics test, the following marks were obtained by 40 students. Arrange these marks in a table using tally marks.

8	1	3	7	6	5	5	4	4	2
4	9	5	3	7	1	6	5	2	7
7	3	8	4	2	8	9	5	8	6
7	4	5	6	9	6	4	4	6	6

- Find how many students obtained marks equal to or more than 7.
- How many students obtained marks below 4?

Solutions:

Marks obtained	Tally marks	Number of students
1		2
2		3
3		3
4		7
5		6
6		7
7		5
8		4
9		3
Total		40

- The students who got marks equal to or more than 7 are  $5 + 4 + 3 = 12$ . [Since 5 students got 7 marks, 4 students got 8 marks and 3 students got 9 marks]
- The students who got marks below 4 are  $2 + 3 + 3 = 8$ .

2. Following is the choice of sweets of 30 students of Class VI.

Ladoo, Barfi, Ladoo, Jalebi, Ladoo, Rasgulla, Jalebi, Ladoo, Barfi, Rasgulla, Ladoo, Jalebi, Jalebi, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo, Rasgulla, Ladoo, Ladoo, Barfi, Rasgulla, Rasgulla, Jalebi, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo.

- Arrange the names of sweets in a table using tally marks.
- Which sweet is preferred by most of the students?

Solutions:

- We have the following table

Sweet	Tally marks	Number of students
Ladoo	I	11
Arfi		3
Alebi	II	7
Rasgulla		9
Total		30

- From the above table, we can say that Ladoo is preferred by most of the students.

3. Catherine threw a dice 40 times and noted the number appearing each time as shown below :

1	3	5	6	6	3	5	4	1	6
2	5	3	4	6	1	5	5	6	1
1	2	2	3	5	2	4	5	5	6
5	1	6	2	3	5	2	4	1	5

Make a table and enter the data using tally marks. Find the number that appeared.

- The minimum number of times
- The maximum number of times
- Find those numbers that appear an equal number of times.

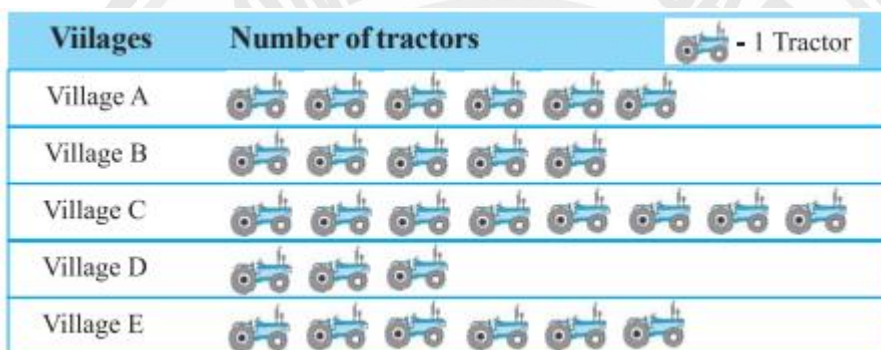
Solutions:

Number	Tally marks	Number of times
1	II	7
2	I	6
3		5
4		4
5	I	11
6	II	7
Total		40

From the above table we find that

- The number 4 appeared minimum number of times.
- The number 5 appeared maximum number of times.
- The number 1 and 6 appeared for the same number of times.

4. Following pictograph shows the number of tractors in five villages.












Observe the pictograph and answer the following questions.

- Which village has the minimum number of tractors?
- Which village has the maximum number of tractors?
- How many more tractors village C has as compared to village B.
- What is the total number of tractors in all the five villages?

Solutions:

- Observing the pictograph
- Village D has the minimum number of tractors.
- Village C has the maximum number of tractors.
- Since  $C - B = 8 - 5 = 3$   
 $\therefore$  Village C has 3 tractors more as compared to village B.
- The total number of tractors in all the five villages is  $6 + 5 + 8 + 3 + 6 = 28$  tractors.

5. The number of girl students in each class of a co-educational middle school is depicted by the pictograph:

Classes	Number of girl students	 - 4 Girls
I		
II		
III		
IV		
V		
VI		
VII		
VIII		









Observe this pictograph and answer the following questions:

- Which class has the minimum number of girl students?
- Is the number of girls in Class VI less than the number of girls in Class V?
- How many girls are there in Class VII?

Solutions:

- Class VIII has the minimum number of girl's students.
- No, the number of girls in class VI is not less than the number of girls in class V.
- In class VII, there are 12 girls.

6. The sale of electric bulbs on different days of a week is shown below:

Days	Number of electric bulbs	 - 2 Bulbs
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		








Observe the pictograph and answer the following questions:

- How many bulbs were sold on Friday?
- On which day were the maximum number of bulbs sold?
- On which of the days same number of bulbs were sold?
- On which of the days minimum number of bulbs were sold?
- If one big carton can hold 9 bulbs. How many cartons were needed in the given week?

Solutions:

- 14 bulbs were sold on Friday.
- The maximum number of bulbs were sold on Sunday.
- Same number of bulbs were sold on Wednesday and Saturday.
- Minimum number of bulbs were sold on Wednesday and Saturday.
- 10 cartons were needed in the given week.

7. In a village six fruit merchants sold the following number of fruit baskets in a particular season:

Name of fruit merchants	Number of fruit baskets	 - 100 Fruit baskets
Rahim		
Lakhanpal		
Anwar		
Martin		
Ranjit Singh		
Joseph		

Observe this pictograph and answer the following questions:

- Which merchant sold the maximum number of baskets?
- How many fruit baskets were sold by Anwar?
- The merchants who have sold 600 or more number of baskets are planning to buy a godown for the next season. Can you name them?

Solutions:

Observing the pictorial, we have

- Martin sold the maximum number of baskets.
- Anwar sold  $7 \times 100 = 700$  baskets
- Anwar , Martin and Ranjit Singh are planning to buy a godown.

## Exercise 9.2

1. Total number of animals in five villages are as follows:

Village A : 80                      Village B : 120

Village C : 90                      Village D : 40


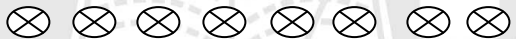




Village E : 60

Prepare a pictograph of these animals using one symbol  to represent 10 animals and answer the following questions:

- How many symbols represent animals of village E?
- Which village has the maximum number of animals?
- Which village has more animals: village A or village C?

Solutions:

The pictograph can be prepared as;

Village	Number of Animals	 10 animals
Village A	80	
Village B	120	
Village C	90	
Village D	40	
Village E	60	

- Six symbols represent animals of village E.
- Village B has the maximum numbers of animals.
- Village C has more animals.

2. Total number of students of a school in different years is shown in the following table

Years	Number of students
1996	400
1998	535
2000	472
2002	600
2004	623



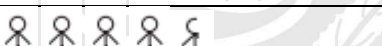


A. Prepare a pictograph of students using one symbol  to represent 100 students and answer the following questions:

- a) How many symbols represent total number of students in the year 2002?
- b) How many symbols represent total number of students for the year 1998?

B. Prepare another pictograph of students using any other symbol each representing 50 students. Which pictograph do you find more informative?

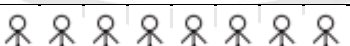



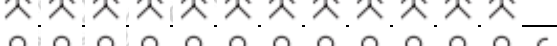
Solutions:

A. We have the following pictograph using  = 100 students

Year	Number of Students
1996	
1998	
2000	
2002	
2004	

- a) In the year 2002, total number of students are represented by 6 symbols.
- b) In the year 1998, the total number of students are represented by 5 complete symbols and one incomplete symbol.

B. By taking  = 50. We prepare another pictograph as shown below.

Year	Number of Students
1996	
1998	
2000	
2002	
2004	

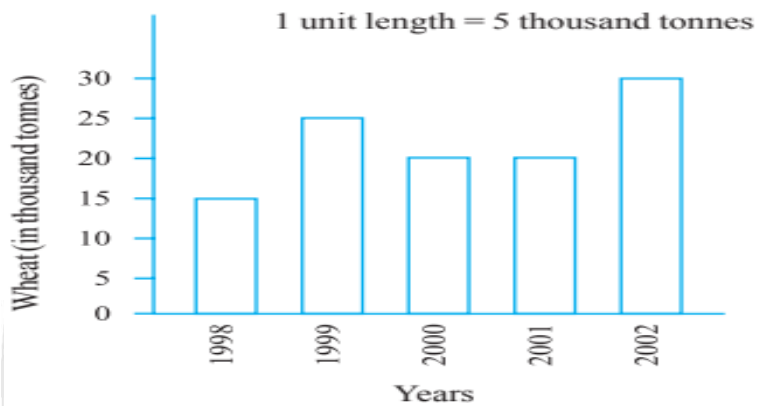
The second pictograph is more informative.

### Exercise 9.3

1. The bar graph given alongside shows the amount of wheat purchased by government during the year 1998-2002.

Read the bar graph and write down your observations. In which year was

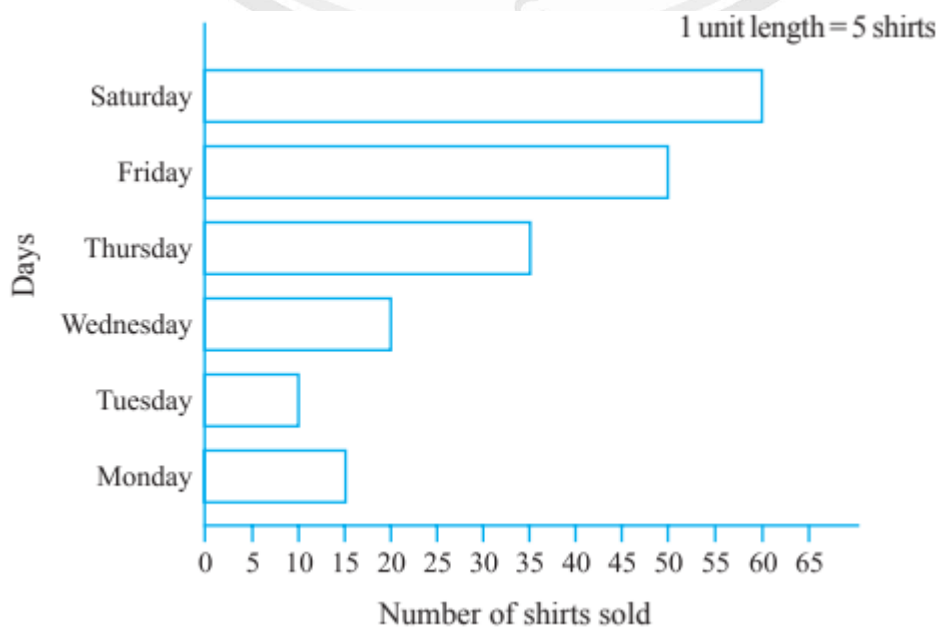
- a) the wheat production maximum?
- b) the wheat production minimum?



**Solutions:**

- a) The wheat production was maximum in 2002.
- b) The wheat production was minimum in 1998.

2. Observe this bar graph which is showing the sale of shirts in a ready made shop from Monday to Saturday





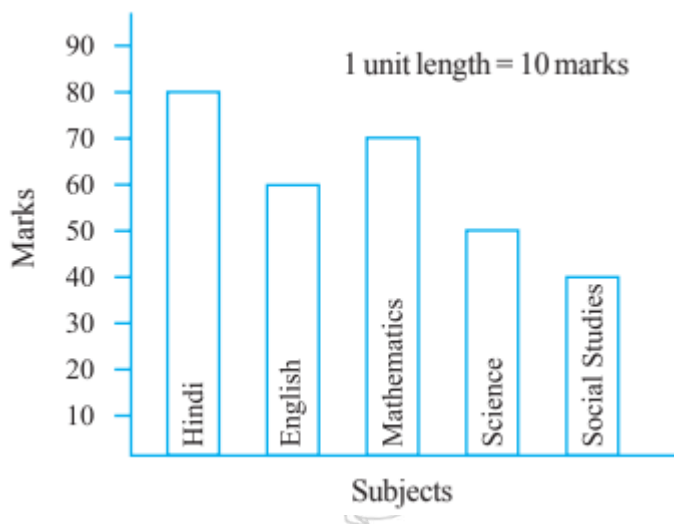
Now answer the following questions:

- What information does the above bar graph give?
- What is the scale chosen on the horizontal line representing number of shirts?
- On which day were the maximum number of shirts sold? How many shirts were sold on that day?
- On which day were the minimum number of shirts sold?
- How many shirts were sold on Thursday?

Solutions:

- The above bar graph shows the number of shirts sold from Monday to Saturday
- The scale on the horizontal line is 1 unit = 5 shirts.
- On Saturday the maximum number of shirts were sold. 60 shirts were sold on Saturday.
- On Tuesday minimum number of shirts were sold.
- 35 shirts were sold on Thursday.

3. Observe this bar graph which shows the marks obtained by Aziz in half-yearly examination in different subjects. Answer the given questions.



- What information does the bar graph give?
- Name the subject in which Aziz scored maximum marks.
- Name the subject in which he has scored minimum marks.
- State the name of the subjects and marks obtained in each of them.

**Solutions:**

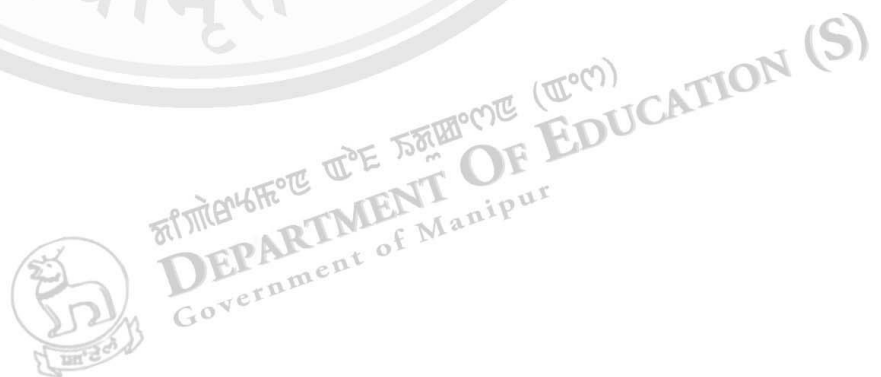
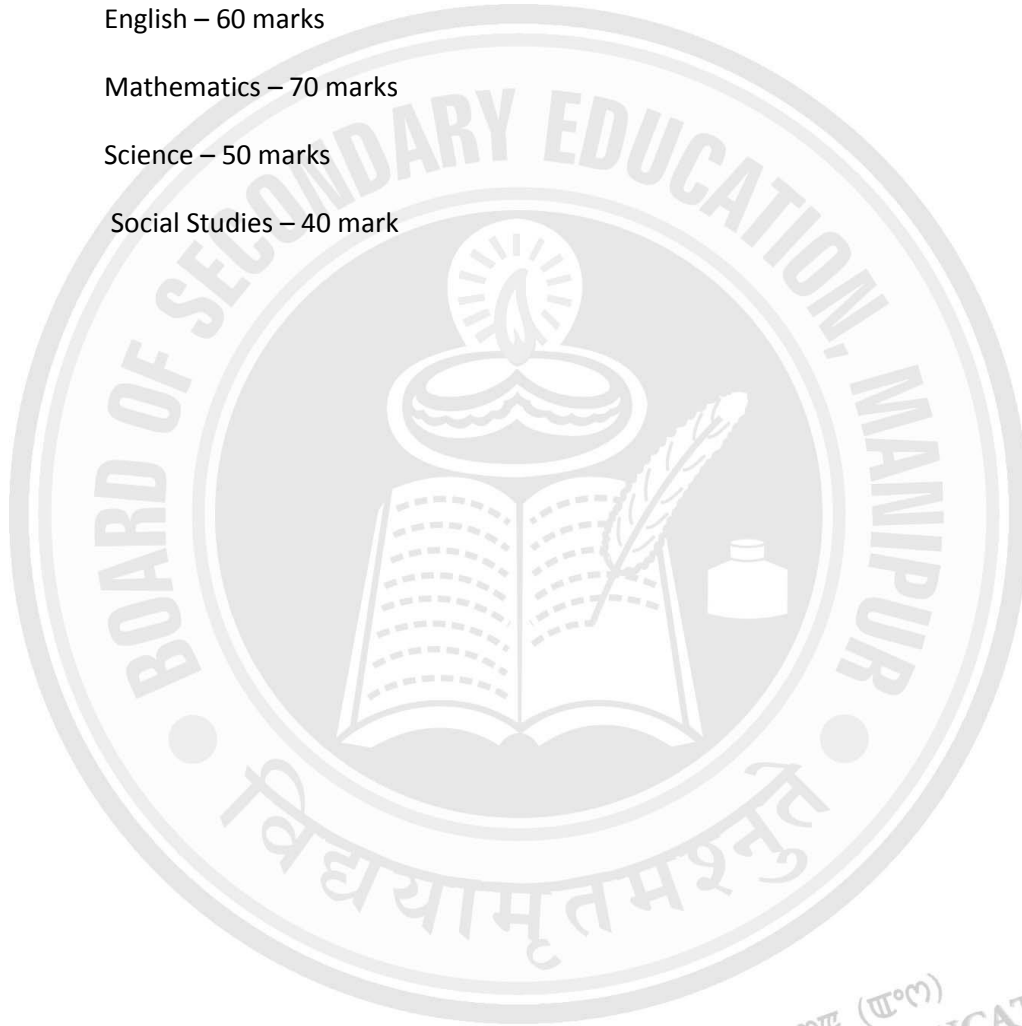
- a) The bar graph shows the marks scored by Aziz in different subjects.
- b) Aziz scored maximum marks in Hindi.
- c) Aziz scored minimum marks in Social Studies.
- d) Hindi – 80 marks

English – 60 marks

Mathematics – 70 marks

Science – 50 marks

Social Studies – 40 mark



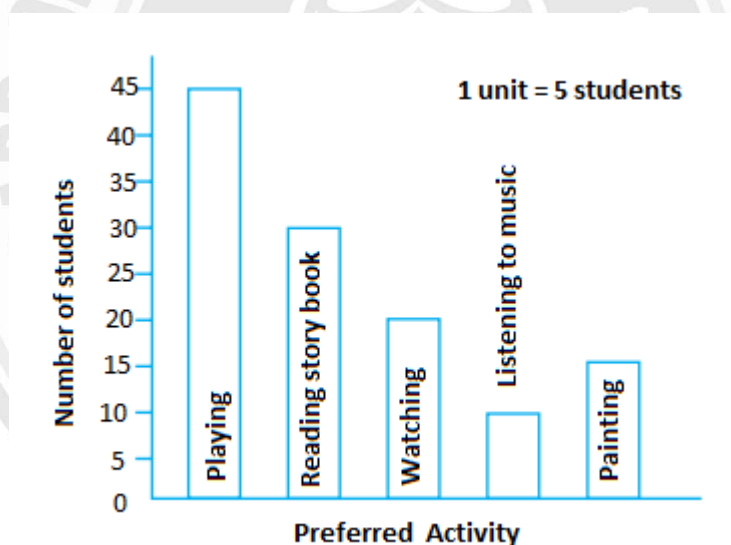
## Exercise 9.4

1. A survey of 120 school students was done to find which activity they prefer to do in their free time.

Preferred activity	Number of students
Playing	45
Reading story books	30
Watching T.V	20
Listening to music	10
Painting	15

Draw a bar graph to illustrate the above data taking scale of 1 unit length = 5 students. Which activity is preferred by most of the students other than playing?

Solution:



From the bar graph the most preferred activity of the students is reading story book other than playing.

2. The number of Mathematics books sold by a shopkeeper on six consecutive days is shown below:

Days	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Number of books sold	65	40	30	50	20	70

Draw a bar graph to represent the above information choosing the scale of your choice.

## Solution

### Steps:

1. Let us draw two perpendicular lines OX and OY representing number of days and number of books sold on six consecutive days respectively.
2. Now, draw vertical bars (rectangles) same width on OX along OY having same space between them.

Let's take scale as 1 unit length = 10 books.

∴ Height of bars will be

For Sunday =  $65 \div 10 = 6.5$  units

For Monday =  $40 \div 10 = 4$  units

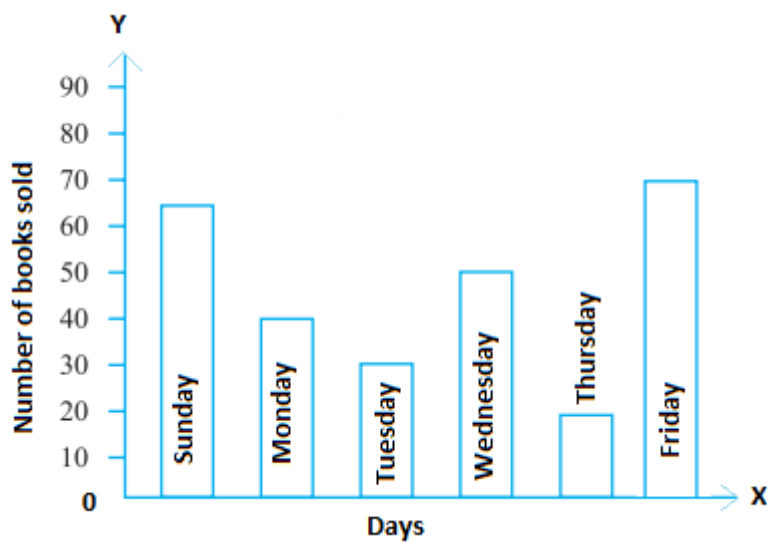
For Tuesday =  $30 \div 10 = 3$  units

For Wednesday =  $50 \div 10 = 5$  units

For Thursday =  $20 \div 10 = 2$  units

For Friday =  $70 \div 10 = 7$  units.

∴ The required bar graph is as follow:



3. Following table shows the number of bicycles manufactured in a factory during the years 1998 to 2002. Illustrate this data using a bar graph. Choose a scale of your choice.

Years	Number of bicycles manufactured
1998	800
1999	600
2000	900
2001	1100
2002	1200

- In which year were the maximum number of bicycles manufactured?
- In which year were the minimum number of bicycles manufactured?

Solutions:

Steps:

- Let us draw two perpendicular lines OX and OY .
- Along OX, draw bars of equal width having same space between them.
- Along OX mark, points for fixing heights of various bars, (here let us take, 1 unit length = 200 bicycles) so that we have,

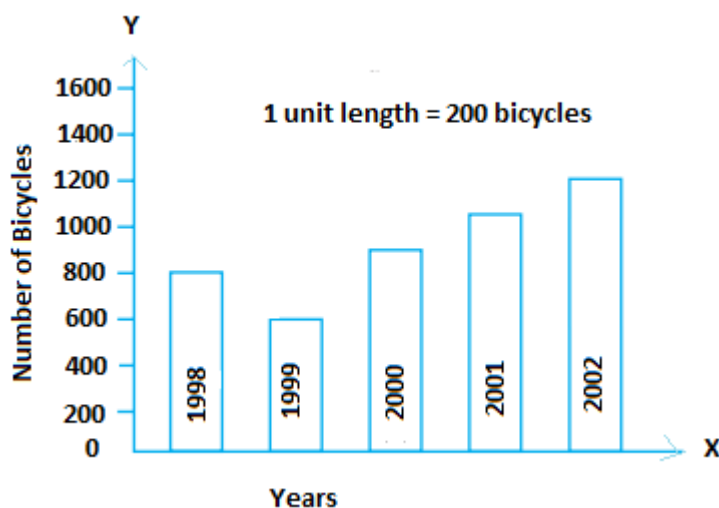
For 1998:  $800 \div 200 = 4$  units.

For 1999:  $600 \div 200 = 3$  units.

For 2000:  $900 \div 200 = 4.5$  units.

For 2001:  $1100 \div 200 = 5.5$  units.

For 2002:  $1200 \div 200 = 6$  units.



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From the above diagram we have,

- a) The maximum number of bicycles were manufactured in 2002.
- b) The minimum number of bicycles were manufactured in 1999.

4. Number of persons in various age groups in a town is given in the following table.

Age group	1-14	15-29	30-44	45-59	60-74	75 and above
Number of persons	2 lakhs	1 lakh 60 thousands	1 lakh 20 thousands	1 lakh 20 thousands	80 thousands	40 thousands

Draw a bar graph to represent the above information and answer the following questions. (take 1 unit length = 20 thousands)

- a) Which two age groups have same population?
- b) All persons in the age group of 60 and above are called senior citizens. How many senior citizens are there in the town?

**Solutions:**

Steps:

1. Let us draw two perpendicular lines OX and OY.
2. Along OX, draw bars of equal width having same space between them.
3. Since the scale is given 1 unit length = 20 thousand person.

∴ The height of bars are given below such as:

$$\text{For } 1 - 14 : 200000 \div 20000 = 10 \text{ units}$$

$$\text{For } 14 - 29 : 160000 \div 20000 = 8 \text{ units}$$

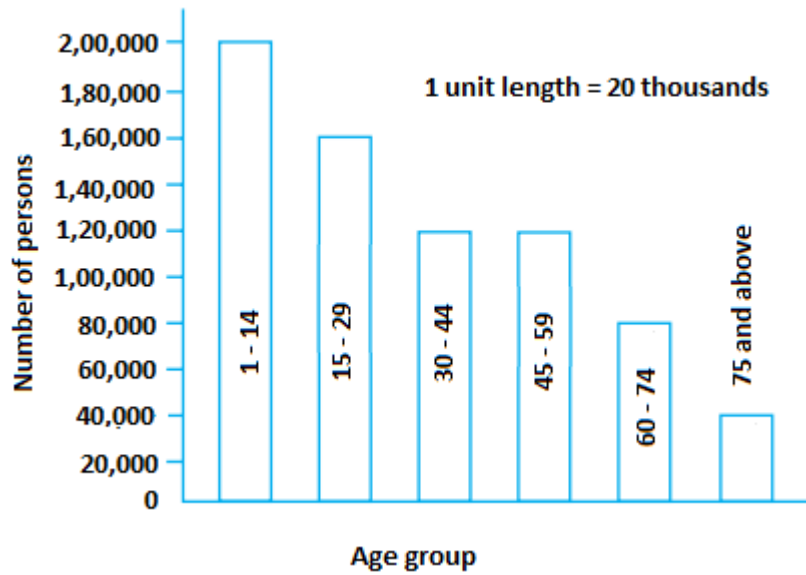
$$\text{For } 30 - 44 : 120000 \div 20000 = 6 \text{ units}$$

$$\text{For } 45 - 59 : 120000 \div 20000 = 6 \text{ units}$$

$$\text{For } 60 - 74 : 80000 \div 20000 = 4 \text{ units}$$

$$\text{For } 75 \text{ and above } 40000 \div 20000 = 2 \text{ units.}$$

Now the required bar graph is as follows:



- From the bar graph, we have the age groups 30 – 44 and 45 – 59 have same population.
- Number of senior citizen age group 60 and above are  $80,000 + 40,000 = 1,20,000$ .



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