RD SHARMA Solutions for Class 9 Maths Chapter 23 - Graphical Representation of Statistical Data

Chapter 23 - Graphical Representation of Statistical Data Exercise 23.42

Question 1

Which one of the following is not the graphical representation of statistical data?
(a) Bar grpah
(b) Histogram
(c) Frequency polygon
(d) Cumulative frequency distribution

Solution 1

Bar graphs, Histogram, Frequency polygon are methods of graphical representation of statistical data.
A Bar graph is a pictorial representation of the numerical Data. while Histogram is a graphical representation
of a Frequency distribution in the form of rectangles.
A Frequency polygon of a given Frequency distribution is another method of representing frequency distribution graphically.
But a cumulative frequency distribution is a table in which cumulative frequencies are distributed over various classes.
Thus, Cumulative frequency distribution is not a method of graphical representation.
Hence, correct option is (d).

Question 2

In a frequency distribution, ogives are graphical representation of
(a) Frequency
(b) Relative frequency
(c) Cumulative frequency
(d) Raw data

Solution 2

A curve that Represents the cumulative Frequency distribution of grouped data is called an ogive or cumulative frequency curve.
Hence, correct option is (c)

Question 3

A frequency polygon is constructed by plotting frequency of the class interval and the
(a) upper limit of the class
(b) lower limit of the class
(c) mid value of the class
(d) any values of the class

Solution 3

A Frequency Polygon is drawn by joining the mid-points of first and last class intervals to the mid-points of the imagined classes adjacent to them.
Hence, correct option is (c).

Chapter 23 - Graphical Representation of Statistical Data Exercise 23.43

Question 4

In a histogram the area of each rectangle is proportional to
(a) the class mark of the corresponding class interval
(b) the class size of the corresponding class interval
(c) frequency of the corresponding class interval
(d) cumulative frequency of the corresponding class interval

Solution 4

In a Histogram, the area of each rectangle is proportional to the Frequency of the corresponding class-interval.
Hence, correct option is (c).

Question 5

In the 'less than' type of ogive the cumulative frequency is plotted against
(a) the lower limit of the concerned class interval
(b) the upper limit of the concerned class interval
(c) the mid-value of the concerned class interval
(d) any value of the concerned class interval

Solution 5

In a less than type ogive, the cumulative frequency is plotted against the upper limit of the concerned class interval.
Hence, correct option is (b).

Question 6

In a histogram, the class intervals or the groups are taken along
(a) Y-axis
(b) X-axis
(c) both of X-axis and Y-axis
(d) in between X and Y axis

Solution 6

In a Histogram, the class-intervals are represented or taken along X-axis, and frequency on Y-axis.
Hence, correct option is (b).

Question 7

A histogram is a pictorial representation of the grouped data in which class intervals and frequency are respectively taken along
(a) vertical axis and horizontal axis
(b) vertical axis only
(c) horizontal axis only
(d) horizontal axis and vertical axis

Solution 7

In a Histogram, the class-intervals are represented or taken along Horizontal axis (X-axis) and frequency on Vertical axis (Y-axis).
Hence, correct option is (d).

Question 8

In a histogram, each class rectangle is constructed with base as
(a) frequency
(b) class-intervals
(c) range
(d) size of the class

Solution 8

In a Histogram, each class rectangle is constructed with base as (a - b) i.e. a class intervals from a to b ..... b to c etc.
Hence, correct option is (b).

Chapter 23 - Graphical Representation of Statistical Data Exercise Ex. 23.1

Question 1

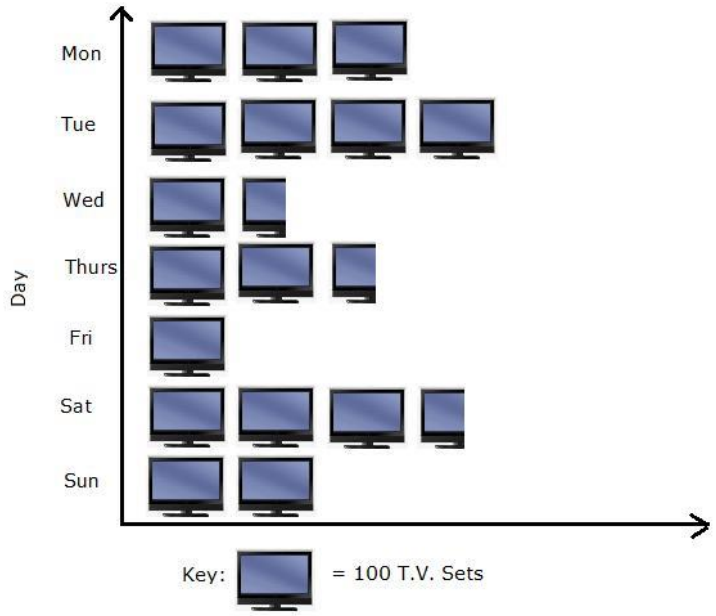
The following table shows the daily production of T.V. sets in an industry for 7 days a week:

Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun
No. of T.V. sets	300	400	150	250	100	350	200

Represent the above information by a pictograph.

Solution 1

The given information can be represented through a pictograph as follows:



Question 2

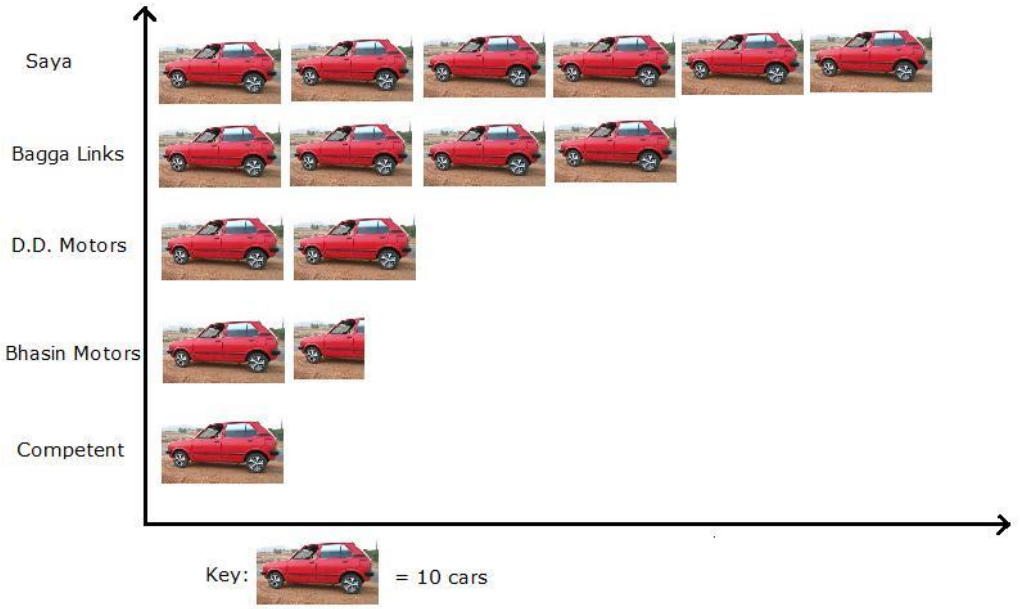
The following table shows the number of Maruti cars sold by five dealers in a particular month:

Dealer	Saya	Bagga Links	D.D. Motors	Bhasin Motors	Competent
Cars sold	60	40	20	15	10

Represent the above information by a pictograph.

Solution 2

The given information can be represent through a pictograph as follows:



Question 3

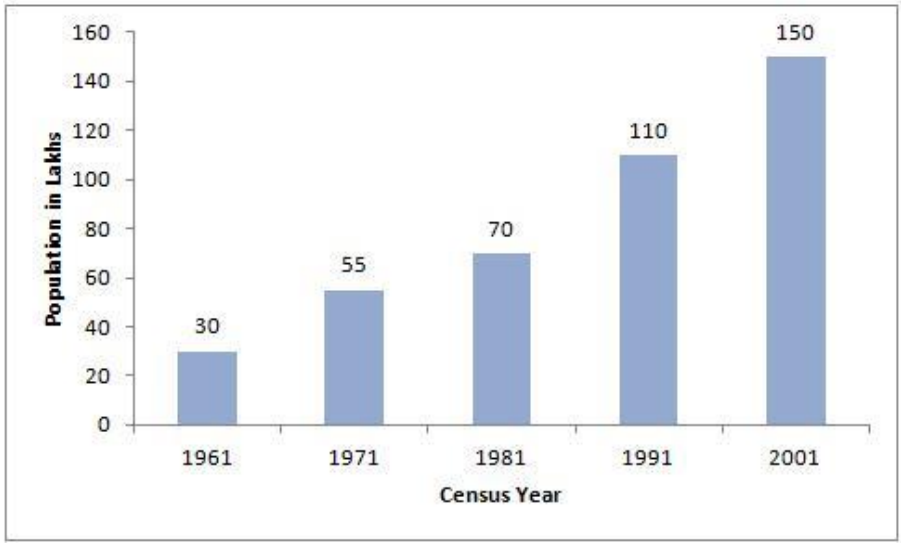
The population of Delhi State in different census years is as given below:

Census Year	1961	1971	1981	1991	2001
Population In Lakhs	30	55	70	110	150

Represent the above information with the help of bar graph.

Solution 3

To represent the data by a bar graph, draw horizontal and vertical axes. Mark census year on the horizontal axis and the population on the vertical axis.



Question 4

Read the bar graph shown in figure and answer the following questions:

(i) What is the information given by the bar graph?

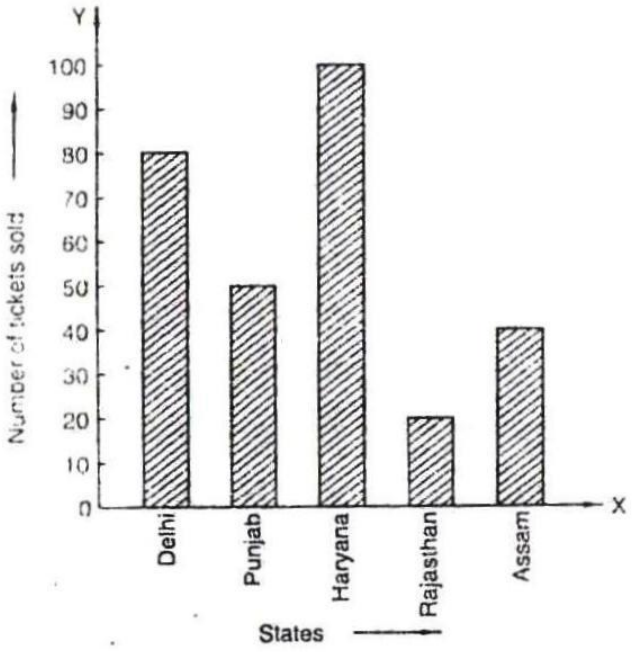
(ii) How many tickets of Assam state lottery were sold by the agent?

(iii) Of which state, were the maximum number of tickets sold?

(iv) State whether true or false.

The maximum number of tickets sold is three the minimum number of tickets sold.

(v) Of which state were the minimum number of tickets sold?



Solution 4

(i) The given bar graph represents the number of tickets of different state lotteries sold by an agent on a day.

(ii) The number of tickets of Assam state lottery sold by the agent is 40.

(iii) Haryana

(iv) The minimum number of tickets sold = 20

The maximum number of tickets sold = 100

$\therefore 100 = 5 \times 20$

So, the given statement is false.

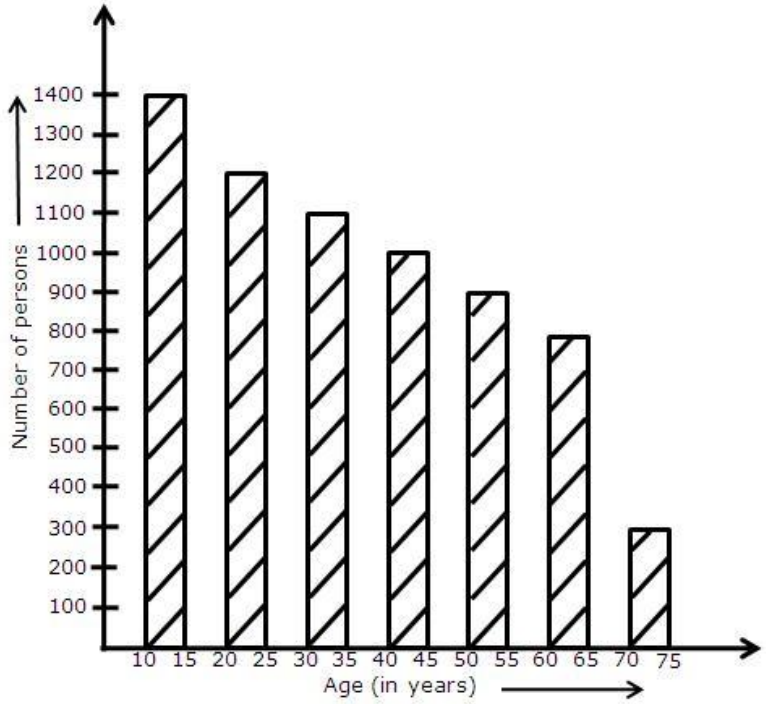
(v) Rajasthan

Question 5

Study the bar graph representing the number of persons in various age groups in a town shown in Fig. 23.9. Observe the bar graph and answer the following questions:

(i) What is the percentage of the youngest age-group persons over those in the oldest age group?

(ii) What is the total population of the town?
(iii) What is the number of persons in the age-group 60–65?
(iv) How many persons are more in the age-group 10–15 than in the age group 30–35?
(v) What is the age-group of exactly 1200 persons living in the town?
(vi) What is the total number of persons living in the town in the age-group 50–55?
(vii) What is the total number of persons living in the town in the age-group 10–15 and 60–65?
(viii) Whether the population in general increases, decreases or remains constant with the increases in the age-group.



Solution 5

(i) The percentage of the youngest age-group persons over those in the oldest age group $= \frac{1400}{300} \times 100$

$= 466\frac{2}{3}$

(ii) Total population of the town = 1400 + 1200 + 1100 + 1000 + 900 + 800 + 300 = 6700

(iii) The number of persons in the age-group of 60–65 is 800.

(iv) The number of persons are more in the age-group 10–15 than in the age-group 30–35 = 1400 – 1100

= 300

(v) The age-group in which exactly 1200 persons living in the town is 20–25.

(vi) The total number of persons living in the town in the age-group 50–55 is 900.

(vii) The total number of persons living in the town in the age-groups 10–15 and 60–65 = 1400 + 800

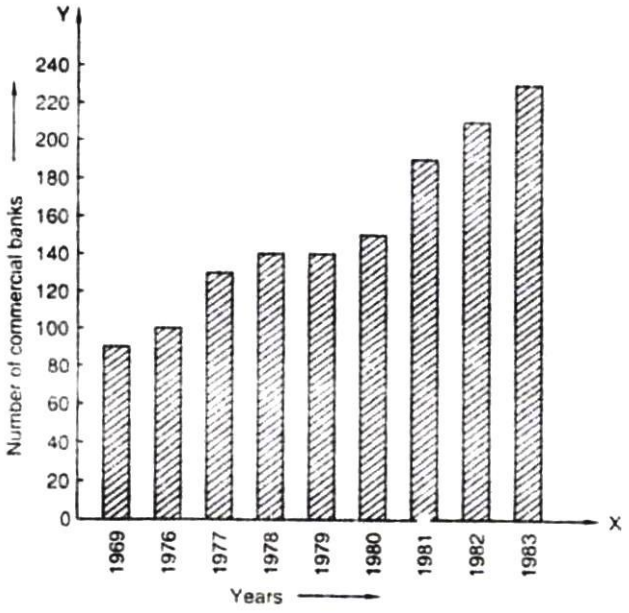
= 2200

(viii) The population decreases with the increase in the age-group.

Question 6

Read the bar graph shown in Fig. 23.10 and answer the following questions:

(i) What is the information given by the bar graph?
(ii) What was the number of commercial banks in 1977?
(iii) What is the ratio of the number of commercial banks in 1969 to that in 1980?
(iv) State whether true or false:
The number of commercial banks in 1983 is less than double the number of commercial banks in 1969.



Solution 6

(i) The given bar graph represents the number of commercial banks in India during some years.

(ii) The number of commercial banks in 1977 was 130.

(iii) The ratio of the number of commercial banks in 1969 to that in 1980 = $\frac{90}{150}$

$= 3 : 5$

(iv) The number of commercial banks in 1983 = 230.
The number of commercial banks in 1980 = 150.

Clearly, The number of commercial banks in 1983 is not less than double the number of commercial banks in 1969.
So, the given statement is false.

Question 7

Given below (Fig. 23.11) is the bar grpah indicating the marks obtained out of 50 in mathematics paper by 100 students. Read the bar graph and answer the following questions:

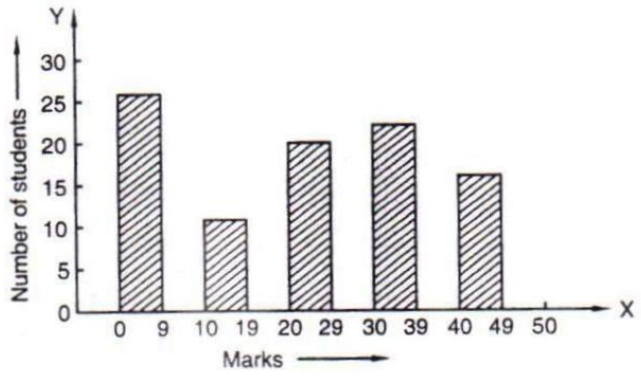
(i) It is decided to distribute work books on mathematics to the students obtaining less than 20 marks, giving one work book to each of such students. If a work book costs Rs. 5, What sum is required to buy the work books?

(ii) Every student belonging to the highest mark group is entitled to get a prize of Rs. 10. How much amount of money is required for distributing the prize money?

(iii) Every student belonging to the lowest mark-group has to solve 5 problems per day. How many problems, in all, will be solved by the students of this group per day.

(iv) State whether true or false.
(a) 17% students have obtained marks ranging from 40 to 49.
(b) 59 students have obtained marks ranging from 10 to 29.

(v) What is the number of students getting less than 20 marks?
(vi) What is the number of students getting more than 29 marks?
(vii) What is the number of students getting marks between 9 and 40?
(viii) What is the number of students belonging to the highest mark group?
(ix) What is the number of students obtaining more than 19 marks?



Solution 7

(i) Total number of students obtaining less than 20 marks = 27 + 12 = 39
The Cost of one work-book = Rs. 5

∴ The Cost of 39 work-books = 5 x 39
= Rs195

(ii) The number of students belonging to the highest mark group = 17
The cost of a prize = Rs. 10

∴ The cost of 17 prizes = 10 x 17

= Rs. 170
(iii) The number of students belonging to the lowest mark-group = 27
The number of problems solved by 1 student = 5

∴ Total number of problems solved by 27 students = 5 x 27

= 135
(iv)
(a) Total number of students = 100
The number of students in range 40 - 49 = 17
Percentage of students obtaining marks ranging 40 – 49

$= \frac{17}{100} \times 100$

= 17%

So, the given statement is true.

(b) Total number of students in range 10 – 29
= 12 + 20 = 32

Percentage of students obtaining marks ranging 10 – 29 = $\frac{32}{100} \times 100 = 32\%$

So, the given statement is false.

(v) Total number of students getting less than 20 marks = 39

(vi) Total number of students getting more than 29 marks = 41

(vii) The total number of students getting marks between 9 and 40
= 12 + 20 + 24 = 56

(viii) The number of students belonging to the highest mark group = 17

(ix) The number of students obtaining more than 19 marks = 100 – 27 – 12 = 61.

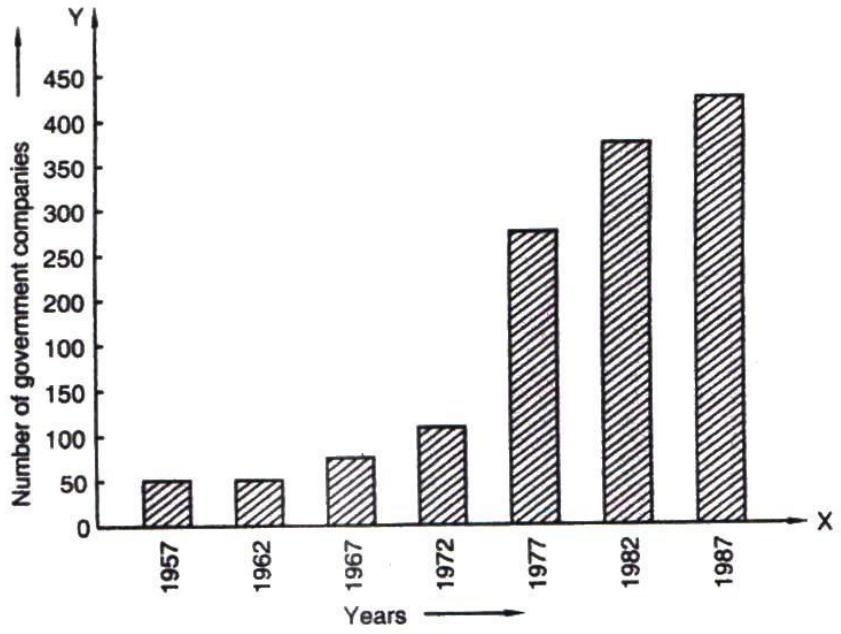
Question 8

Read the following bar graph (Fig. 23.12) and answer the following questions:

(i) What is the information given by the bar graph?

(ii) State each of the following whether true or false

(a) The number of government companies in 1957 is that of 1982 is 1:9.
(b) The number of government companies have decreased over the year 1957 to 1983.



Solution 8

(i) The given bar graph represents the number of government companies in India during some years.

(ii)

(a) The number of government companies in 1957 = 50

The number of government companies in 1982 = 375

$\therefore$ The number of government companies in 1957 is that of 1982 $= \frac{50}{375}$

$= \frac{2}{15} \neq \frac{1}{9}$

So, the given statement is false.

(b) The height of the bars increase over the years, hence, the statement is false.

Question 9

Read the following bar graph and answer the following questions:

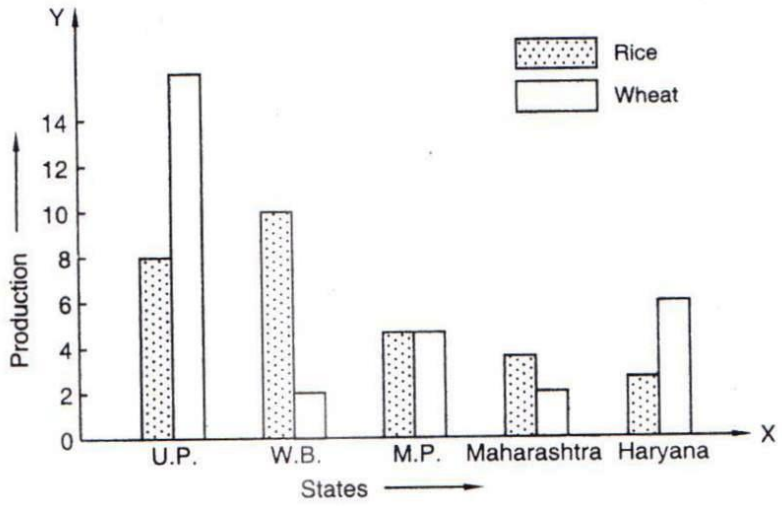
(i) What information is given by the bar graph?

(ii) Which state is the largest producer of rice?

(iii) Which state is the largest producer of wheat?

(iv) Which state has total production of rice and wheat as its maximum?

(v) Which state has total production of wheat and rice minimum?



Solution 9

(i) It gives information regarding rice and wheat production in various states of India.

(ii) W.B is the largest produer of rice.

(iii) U.P is the largest producer of wheat.

(iv) The total production of rice and wheat is maximum in U.P.

(v) The total production of rice and wheat is minimum in Maharashtra.

Question 10

The following bar graph (Fig. 23.14) represents the heights (in cm) of 50 students of class XI of a particular school. Study the graph and answer the following questions:

(i) What percentage of the total number of students have their heights more than 149 cm?

(ii) How many students in the class are in the range of maximum height of the class?

(iii) The school wants to provide a particular type of tonic to each student below the height of 150 cm to improve his height. If the cost of the tonic for each student comes out to be Rs. 55, how much amount of money is required?

(iv) How many students are in the range of shortest height of the class?

(v) State whether true or false.

(a) There are 9 students in the class whose heights are in the range of 155–159 cm.

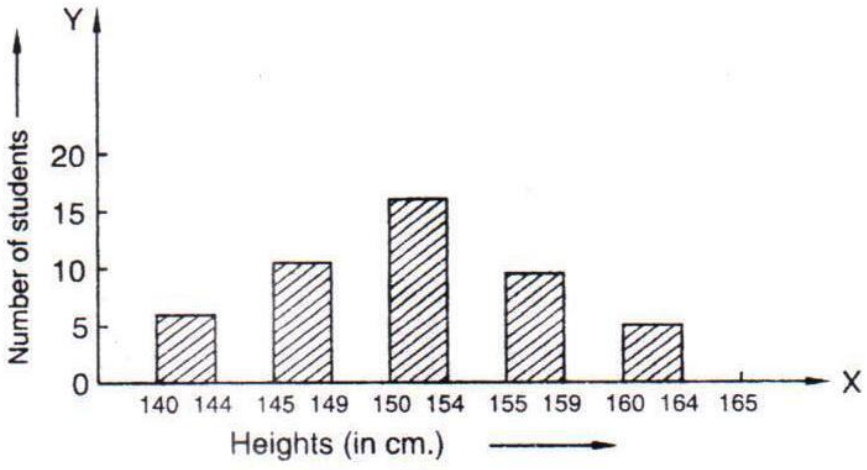
(b) Maximum height (in cm) of a student in the class is 17.

(c) There are 29 students in the class whose heights are in the range of 145–154 cm.

(d) Minimum height (in cm) of a student is the class is in the range of 140–144 cms.

(e) The number of students in the class having their heights less than 150 cm is 12.

(f) There are 14 students each of whom has height more than 154 cm.



Solution 10

(i) Total number of students have their heights more than 149 cm = 16 +10 + 5 = 31.

The percentage of the total number of students have their heights more than 149 cm

$$= \frac{31}{50} \times 100$$

$$= 31 \times 2$$

= 62%

(ii) The number of students in the range of maximum height of the class is 5.

(iii) Total number of students below the height of 150 cm = 7 + 12 = 19.
The cost of the tonic for each student = Rs. 55

The cost of the tonic for 19 student = 19 x55
= Rs. 1045

(iv) The number of students are in the range of shortest height of the class = 7

(v)
(a) True

(b) False

(c) Total number of students in the range of 145–154 = 12 + 17 = 29.

So, the given statement is true.

(d) True

(e) Total number of students in the range of 140–150 = 7 + 12 = 19

So, the given statement is false.

(f) Total number of students whose height more than 154 cm = 9 + 5 = 14.

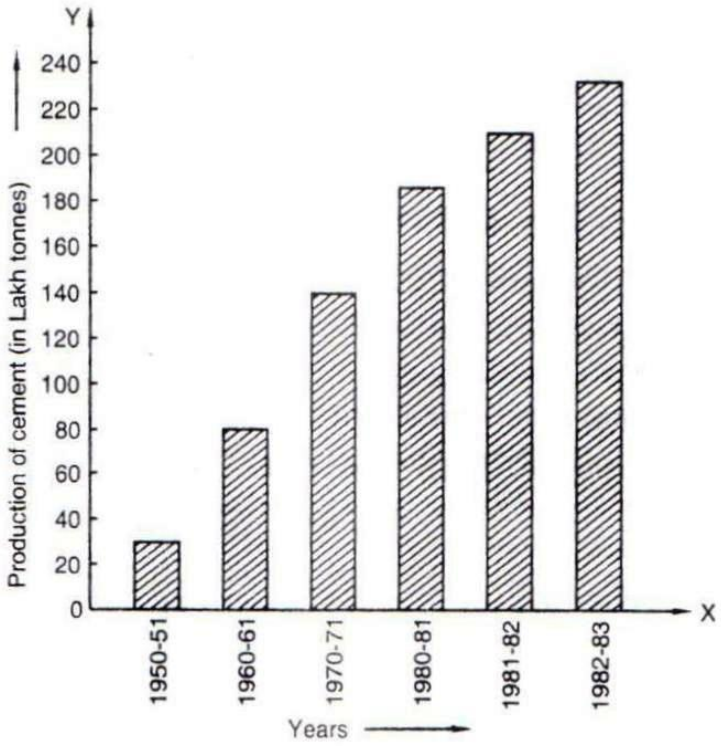
So, the given statement is true.

Question 11
Read the following bar graph (Fig. 23.15) and answer the following questions:

(i) What information is given by the bar graph?

(ii) What was the production of cement in the year 1980-81?

(iii) What is the minimum and maximum productions of cement and corresponding years?



Solution 11

(i) It gives information regarding industrial production of cement in different years in India.

(ii) The production of cement in the year 1980-81 = 186 lakh tonnes.

(iii) The minimum production is 30 lakh tonnes in 1950-51 and maximum production 232 lakh tonnes in 1982-83.

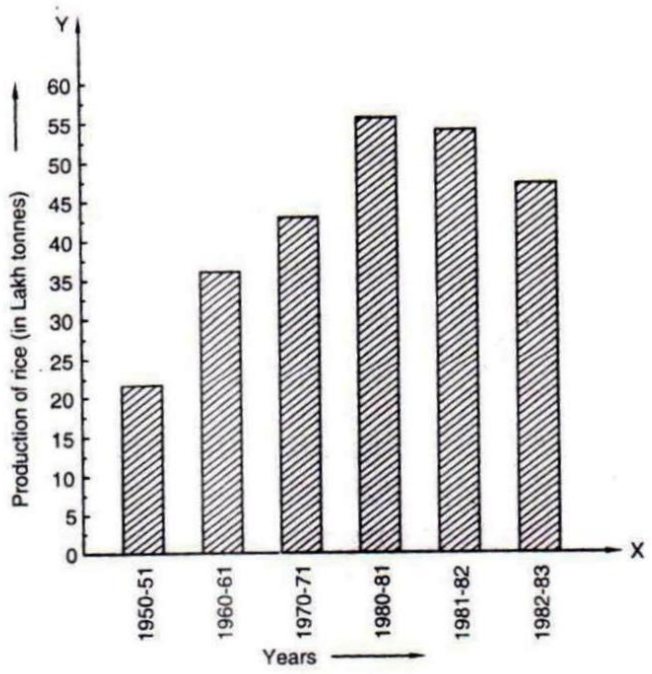
Question 13

Read the bar graph given in fig., and answer the following questions:

(i) What information is given by the bar graph?

(ii) What was the crop-production of rice in 1970-71?

(iii) What is the difference between the maximum and minimum production of rice?



Solution 13

(i) It gives information regarding the production of rice crop in India in different years.

(ii) The crop-production of rice in 1970-71 = 42.5 lakh tonnes.

(iii) The difference between the maximum and minimum production of rice = 55 - 22 = 33 lakh tonnes.

Question 14

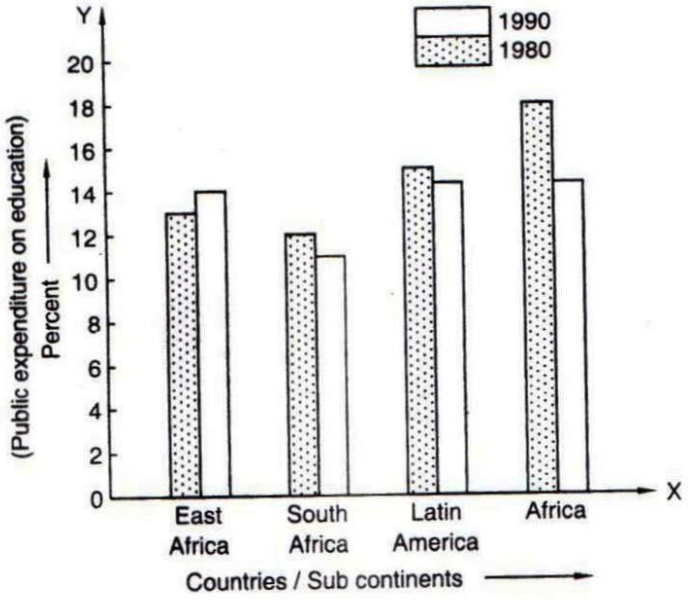
Read the bar graph given fig., and answer the following questions:

(i) What information does it give?

(ii) In which part the expenditure on education is maximum in 1980?

(iii) In Which part the expenditure has gone up from 1980 to 1990?

(iv) In which part the gap between 1980 and 1990 is maximum?



Solution 14

(i) It gives the information about the public expenditure on education by various state subcontinents.

(ii) In Africa the expenditure on edcation is maximum in 1980.

(iii) In East Africa the expenditure has gone by from 1980 to 1990.

(iv) In Africa the gap between 1980 and 1990 is maximum.

Question 15

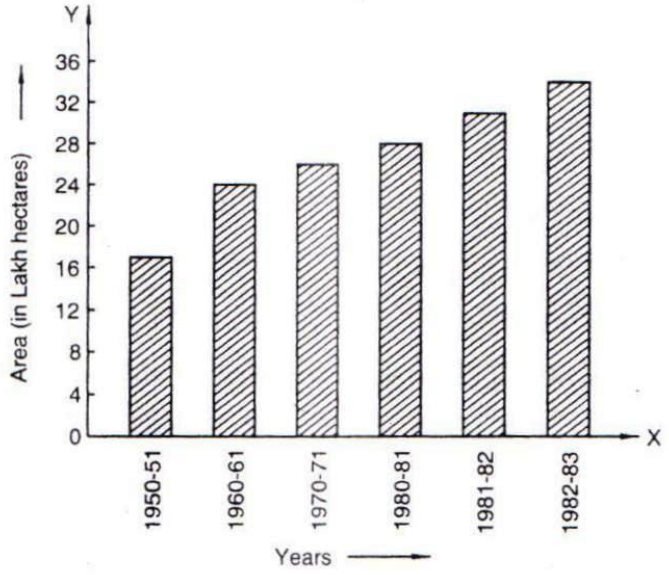
Read the bar graph given in Fig. 23.19 and answer the following questions:

(i) What information is given by the bar graph?

(ii) In which years the areas under the sugarcane crop were the maximum and the minimum?

(iii) State whether true or false:

The area under the sugarcane crop in the year 1982-83 is three times that of the year 1950-51.



Solution 15

(i) It gives the information about the areas under sugarcane crop during different years in India.

(ii) The areas under the sugarcane crop were the maximum and the minimum in 1982-83 and 1950-51 respectively.

(iii) The area under sugarcane crop in the year 1982-83 = 34 lakh hectares.

The area under sugarcane crop in the year 1950-51 = 17 lakh hectares.

Clearly, the area under the sugarcane crop in the year 1982-83 is not three times that of the year 1950-51.

So, the given statement is false.

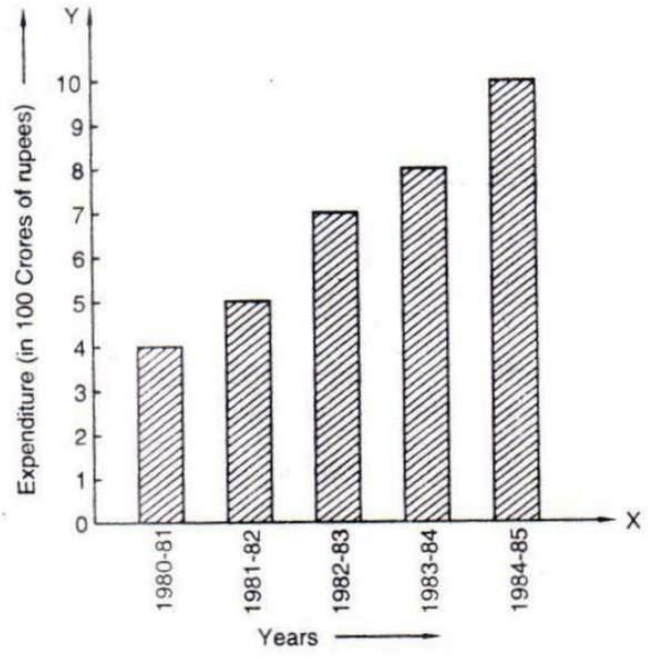
Question 16

Read the bar graph given in Fig. 23.20 and answer the following questions:

(i) What information is given by the bar graph?

(ii) What was the expenditure on health and family planning in the year 1982-83?

(iii) In which year is the increase in expenditure maximum over the expenditure in previous year? What is the maximum increase?



Solution 16

(i) It gives the information about the expenditure on health and family planning during sixth five year plan in India.

(ii) The expenditure on health anf family planning in the year 1982-83 = Rs 700 crores

(iii) 1984-85 is the year in which the increase in expenditure maximum over the expenditure in previous year.

The maximum increase = 1000 – 780

= 220 crores

Question 17

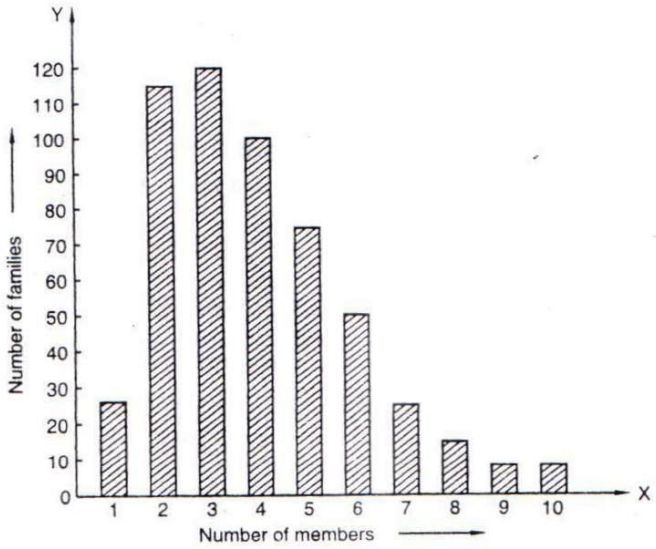
Read the bar graph given in Fig. 23.21 and answer the following questions:

(i) What is the information is given by the bar graph?

(ii) What is the number of families having 6 members?

(iii) How many members per family are there in the maximum number of families? Also, tell the number of such families.

(iv) What are the number of members per family for which the number of families are equal? Also, tell the number of such families?



Solution 17

(i) It gives the information about the number of families with different number of members in a locality.

(ii) The number of families having 6 members = 50.

(iii) 3 members per family are there in the maximum number of families.

The number of families which have 3 members = 120.

(iv) 9 and 10 are the number of members per family for which the number of families are equal.

The number of such families is 5.

Question 18

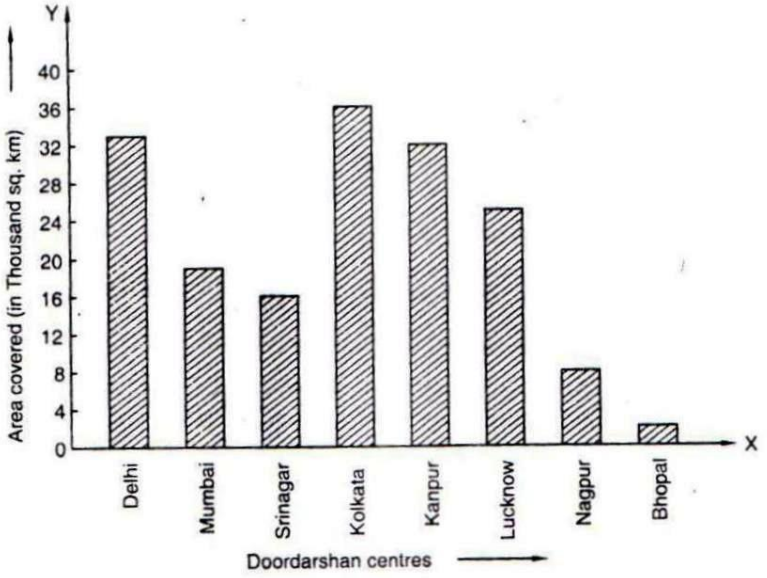
Read the bar graph given in Fig. 23.22 and answer the following questions:

(i) What information is given by the bar graph?

(ii) Which Doordarshan centre covers maximum area? Also tell the covered area.

(iii) What is the difference between the areas covered by the centres at Delhi and Bombay?

(iv) Which Doordarshan centres are in U.P state? What are the areas covered by them?



Solution 18

(i) It gives the information about the coverage of some Doordarshan centres of India.

(ii) Kolkata Doordarshan centre covers maximum area.

The area covered by Kolkata Doordarshan centre = 36000 sq. km.

(iii) The difference between the areas covered by the centres at Delhi and Bombay = 33000 – 19000

= 14000 sq. km

(iv) Kanpur and Lucknow Doordarshan centres are in U.P state.

The area covered by Kanpur Doordarshan centre = 32000 sq. km.

The area covered by Lucknow Doordarshan centre = 25000 sq. km.

Chapter 23 - Graphical Representation of Statistical Data Exercise Ex. 23.2

Question 1

Explain the reading and interpretation of bar graphs.

Solution 1

The first step in reading a bar graph is to know what it represents or what is the information given by it. For this, we read the captions which are generally written just below the horizontal line (x-axis) and adjacent to vertical line (y-axis). After knowing that what does a bar graph represent, we read the scale so that we can know the precise values in the given data.

After reading a bar graph one must be able to draw certain condusions from it. Drawing some condusions from a given bar graph means interpretation of the bar graph.

Question 2

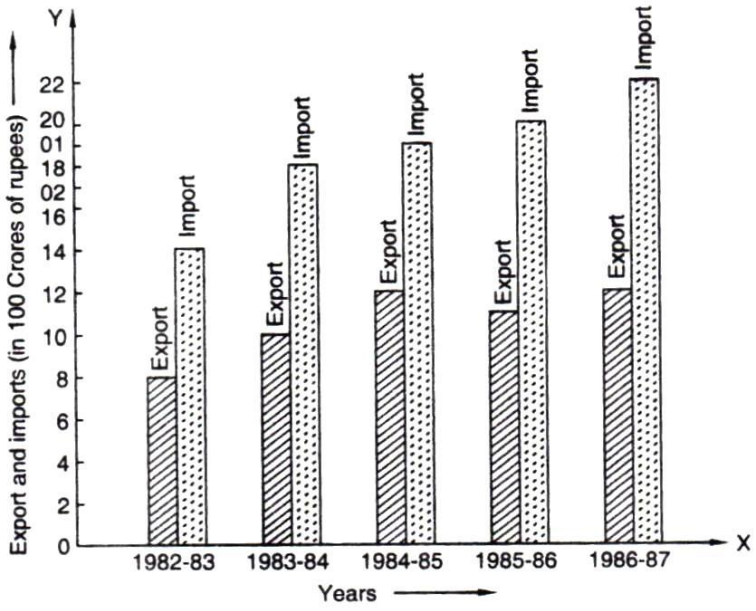
Read the following bar graph given and answer the following questions:

(i) What information is given by the bar graph?

(ii) In which year the export is minimum?

(iii) In which year the import is maximum?

(iv) In which year the difference of the values of export and import is maximum?



Solution 2

(i) It gives the information regarding import and export from 1982-83 to 1986-87.

(ii) The export is minimum in 1982-83.

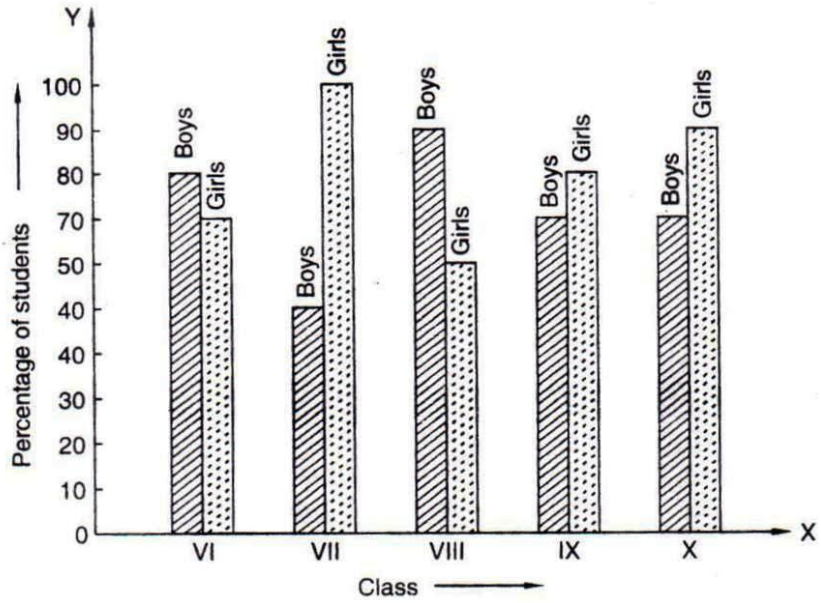
(iii) The import is maximum in 1986-87.

(iv) The difference of the values of export and import is maximum in 1986-87.

Question 3

The following bar graph shows the results of an annual examination in a secondary school.

Read the bar graph (fig.,) and choose the correct alternative in each of the following



(i) The pair of classes in which the results of boys and girls are inversely proportional are:

(a) VI, VIII

(b) VI, IX

(c) VIII, IX

(d) VIII, X

(ii) The class having the lowest failure rate of girls is

(a) VII

(b) X

(c) IX

(d) VIII

(iii) The class having the lowest pass rate of students is

(a) VI

(b) VII

(c) VIII

(d) IX

Solution 3

(i) (b) VI, IX

(ii) (a) VII

(iii) (b) VII

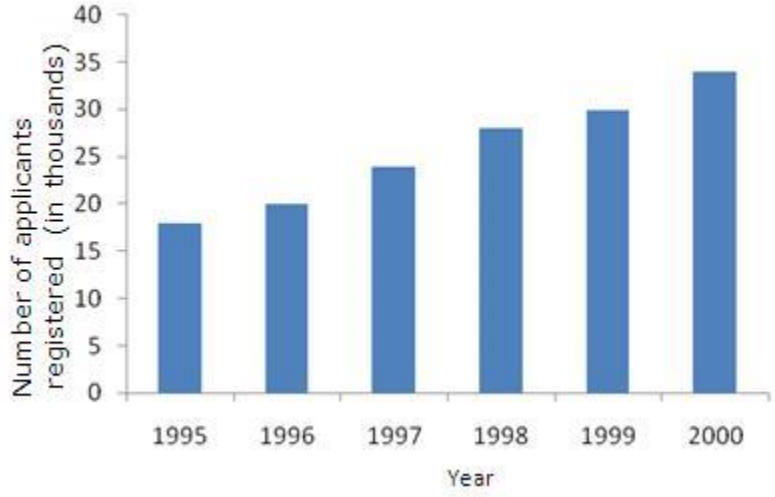
Question 4

The following data gives the number (in thousands) of applicants registered with an Employment Exchange during, 1995-2000:

year	1995	1996	1997	1998	1999	2000
Number of applicants registered (in thousands)	18	20	24	28	30	34

Construct a bar graph to represents the above data.

Solution 4



Question 5

The production of saleable steel in some of the steel plants of our country during 1999 is given below:

Plant	Bhilai	Durgapur	Rourkela	Bokaro
Production (in thousand tonnes)	160	80	200	150

Construct a bar graph to represent the above data on a graph paper by using the scale 1 big division = 20 thousand Tonnes.

Solution 5

Scale: 1 big division = 20 thousand tones.

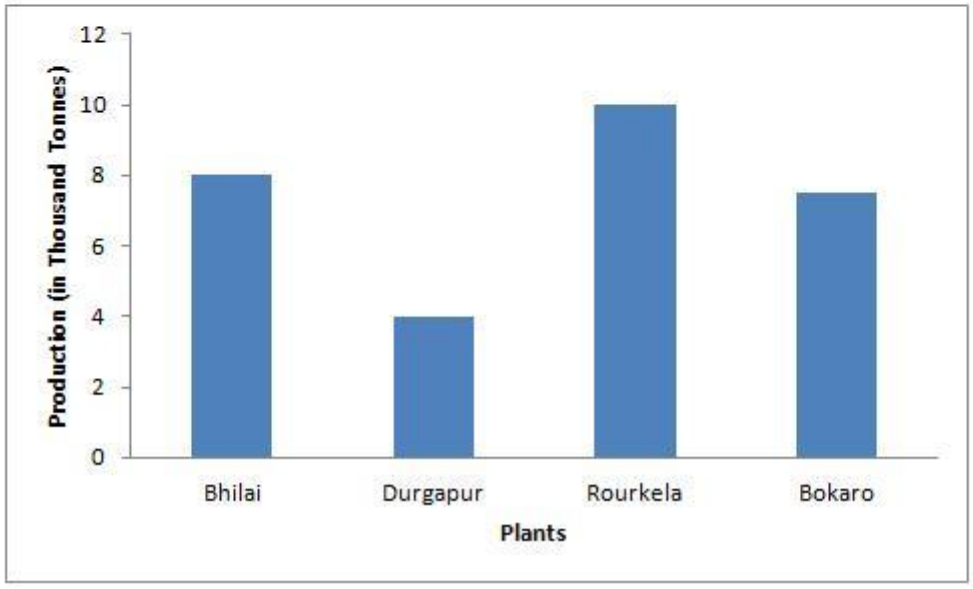
Therefore, the heights of different bars are:

1. The height of bar corresponding to Bhilai is $\frac{160}{20}$ = 8 big divisions

2. The height of bar corresponding to Durgapur is $\frac{80}{20}$ = 4 big divisions

3. The height of bar corresponding to Rourkela is $\frac{200}{20}$ = 10 big divisions

4. The height of bar corresponding to B0karo is $\frac{150}{20}$ = 7.5 big divisions



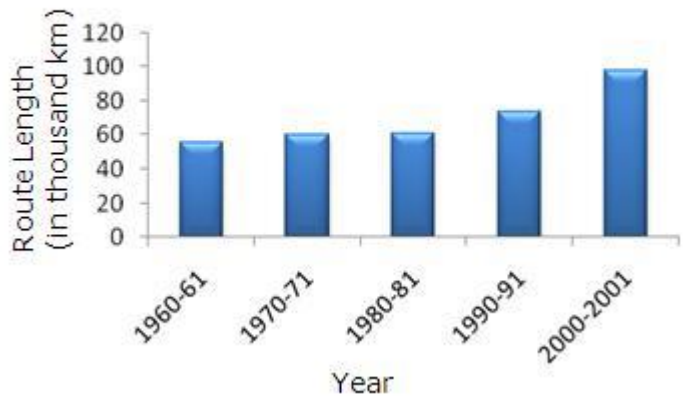
Question 6

The following table gives the route length in thousand kilometers) of the Indian Railways in some of the years:

Year	1960-61	1970-71	1980-81	1990-91	2000-2001
Route length(in thousand km)	56	60	61	74	98

Represent the above data with the help of a bar graph.

Solution 6



Question 7

The following data gives the amount of loans (in croroes of rupees) disbursed by a bank during some years:

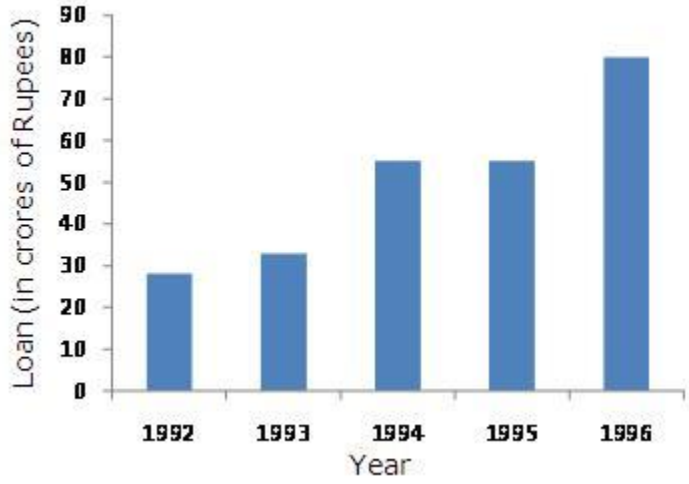
Year	1992	1993	1994	1995	1996
Loan (in crores of rupees)	28	33	55	55	80

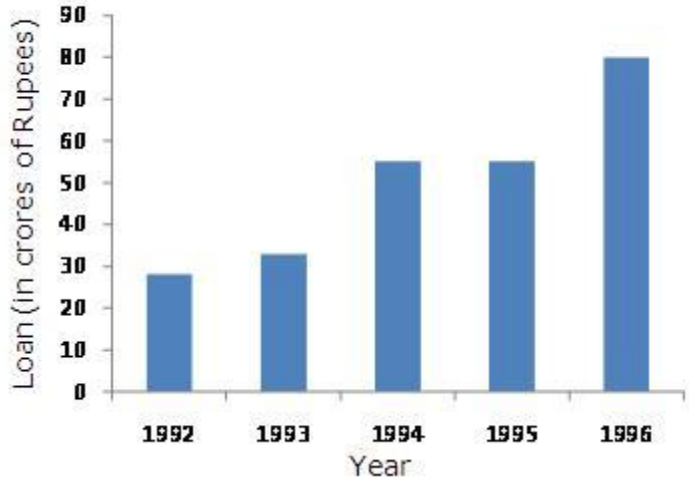
(i) Represent the above data with the help of a bar graph.

(ii) With the help of the bar graph, indicate the year in which amount of loan is not increased over that of the preceding year.

Solution 7

(i) Bar graph for the given data is as follows:





(ii) In 1995, the amount of loan is not increased over that of the preceeding year.

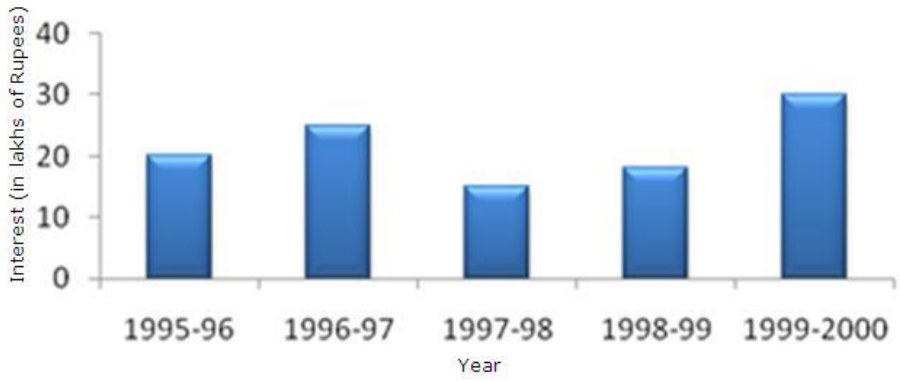
Question 8

The following table shows the interest paid by a company (in lakhs):

Year	1995-96	1996-97	1997-98	1998-99	1999-2000
Interest (in lakhs of rupees)	20	25	15	18	30

Draw the bar graph to represent the above information.

Solution 8



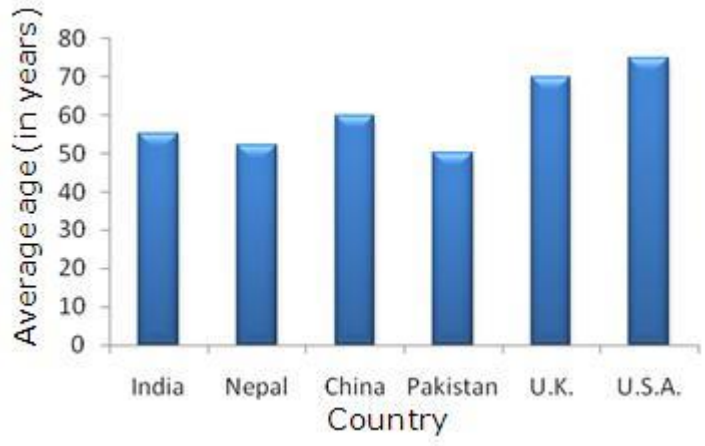
Question 9

The following data shows the average age of men in various countries in a certain year:

Country	India	Nepal	China	Pakistan	U.K.	U.S.A.
Average age (in years)	55	52	60	50	70	75

Represent the above information by a bar graph.

Solution 9



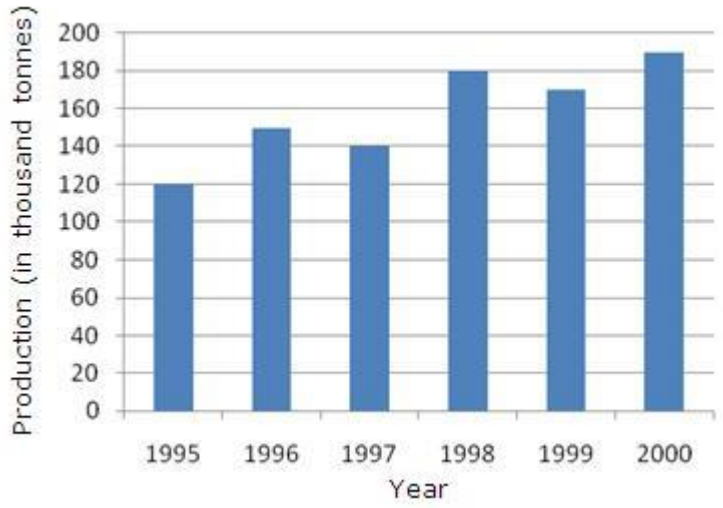
Question 10

The following data gives the production of foodgrains (in thousand tonnes) for some years:

Year	1995	1996	1997	1998	1999	2000
Production (in thousand tonnes)	120	150	140	180	170	190

Represent the above data with the help of a bar graph.

Solution 10



Question 11

The following data gives the amount of manure (in thousand tonnes) manufactured by a company during some years:

Year	1992	1993	1994	1995	1996	1997
Manure (in thousand tonnes)	15	35	45	30	40	20

(i) Represent the above data with the help of a bar graph.

(ii) Indicate with the help of the bar graph the year in which the amount of manufactured by the company was maximum.

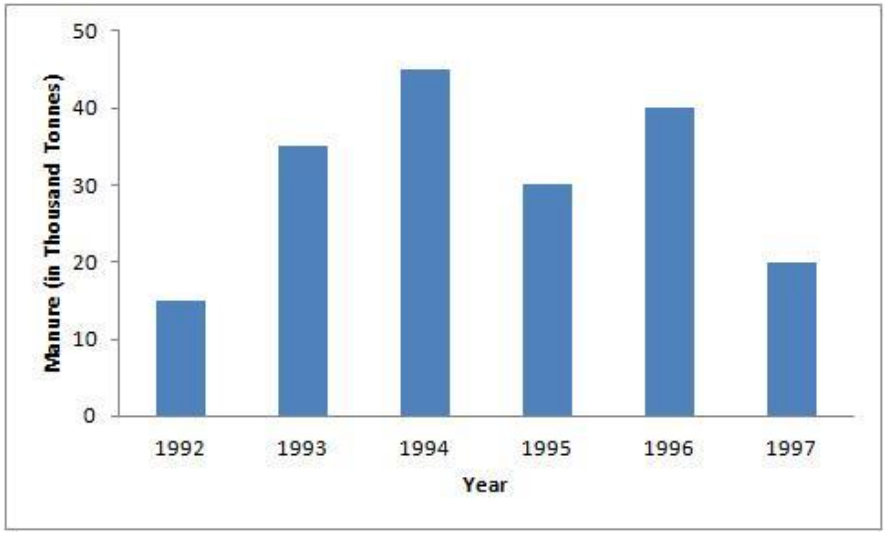
(iii) Choose the correct alternative:

The consecutive years during which there was maximum decrease in manure production are:

(a) 1994 and 1995 (b) 1992 and 1993 (c) 1996 and 1997 (d) 1995 and 1996

Solution 11

(i)



(ii) It is seen that the height of bar corresponding to year 1994 is the highest. Hence, the amount of manure manufactured by the company was maximum in 1994.

(iii) It is seen that the manure production decreased in the year 1995 and 1997.

Question 12

The following data gives the demand estimates of the Government of India, Department of Electronics for the personnel in the Computer sector during the Eighth Plan period (1990-95):

Qualifications:	MCA (Master in Computer Applications)	DCA (Diploma in Computer Applications)	DCE (Diploma in Computer Engineering)	CL (Certificate Lavel Course)	ST (Short term Course)
Personnel Required	40600	181600	18600	670600	1802900

Represent the data with the help of a bar graph. Indicate with the help of the bar graph the course where estimated requirement is least.

Solution 12

The bar graph of the given bata:

The course where estimated requirement is least is DCE

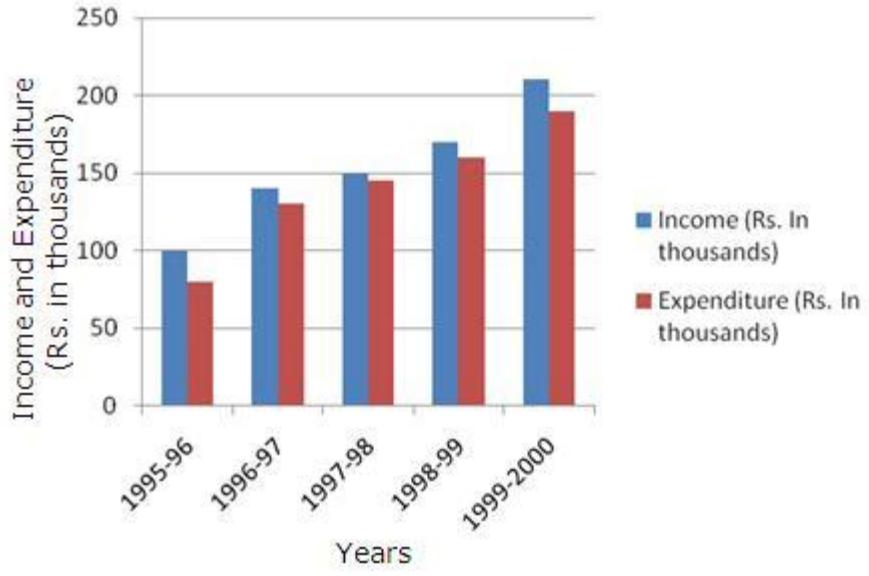
Question 13

The income and expenditure for 5 years of a family is given in the following data:

Years	1995-96	1996-97	1997-98	1998-99	1999-2000
Income (Rs. In thousands)	100	140	150	170	210
Expenditure (Rs. In thousands)	80	130	145	160	190

Represent the above data by a bar graph.

Solution 13



Question 14

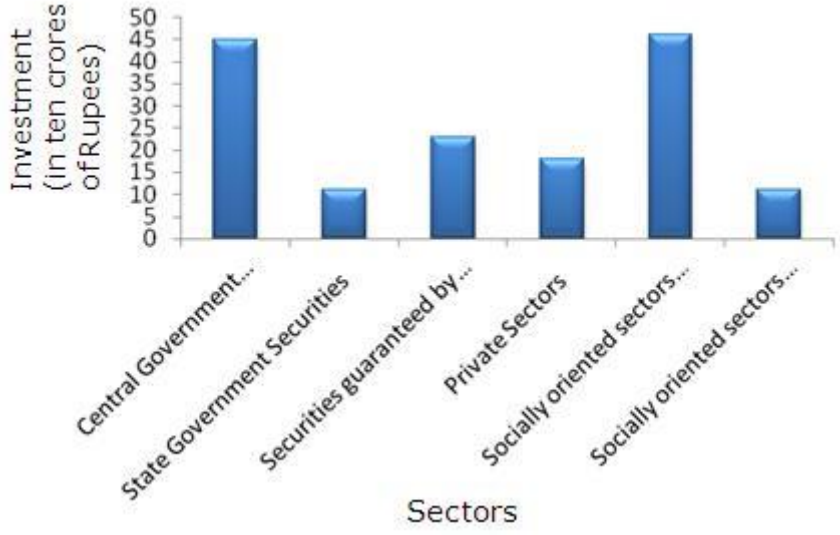
The investment (in ten crores of rupees) of Life Insurance Corporation of India in different sectors are given below:

Sectors	Investment (in ten crores of rupees)
Central Government Securities	45
State Government Securities	11
Securities guaranteed by	23
	18
	46

the Government	**11**
Private Sectros	
Socially oriented sectors (Plan)	
Socially oriented sectors (Non-Plan)	

Represent the above data with the help of a bar graph.

Solution 14



Question 15

The following data gives the value (in crores of rupees) of the Indian export of cotton textiles for different years:

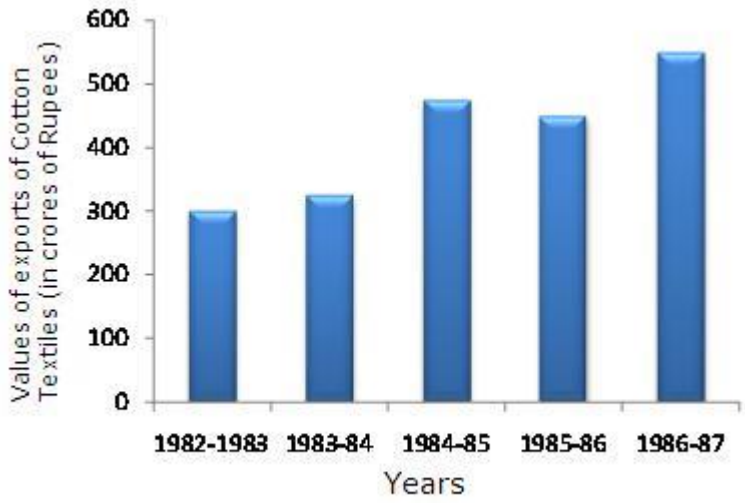
Years	1982-	1983-	1984-	1985-	1986-

	83	84	85	86	87
Value of Exports of Cotton Textiles (in crores of rupees)	**300**	**325**	**475**	**450**	**550**

Represent the above data with the help of a bar graph. Indicate with the help of a bar graph the year in which the rate of increase in exports is maximum over the preceding years.

Solution 15

The bar graph of the given data:



In 1986-87 the rate of increases in exports is maximum over the precending year.

Question 16

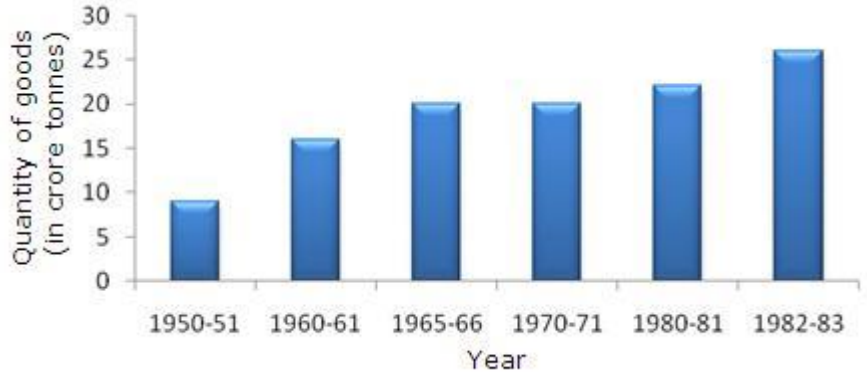
The following table gives the quantity of goods (in crore tonnes)

Year	1950-51	1960-61	1965-66	1970-71	1980-81	1982-83
Quantity of Goods (in crore tonnes)	9	16	20	20	22	26

Represent this information with the help of a bar graph.

Explain through the bar graph if the quantity of goods carried by the Indian Railways in 1965-66 is more than double the quantity of goods carried in the year 1950-51.

Solution 16



It is seen from the graph that the quantity of goods carried in the years 1950-51 and 1965-66 are 20 crores tones and 9 crores tones. Clearly 20 is more than twice of 9. Hence, the statement is true.

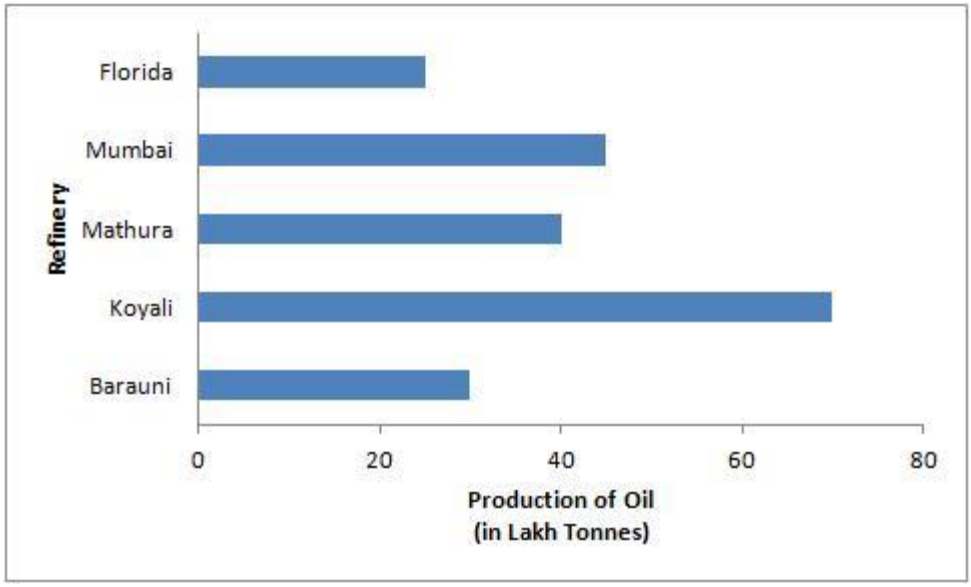
Question 17

The production of oil (in lakh tonnes) in some of the refineries in India during 1982 was given below:

Refinery:	Barauni	Koyali	Mathura	Mumbai	Florida
Production of oil (in lakh tonnes)	30	70	40	45	25

Construct a bar graph to represent the above data so that the bars are drawn horizontally.

Solution 17



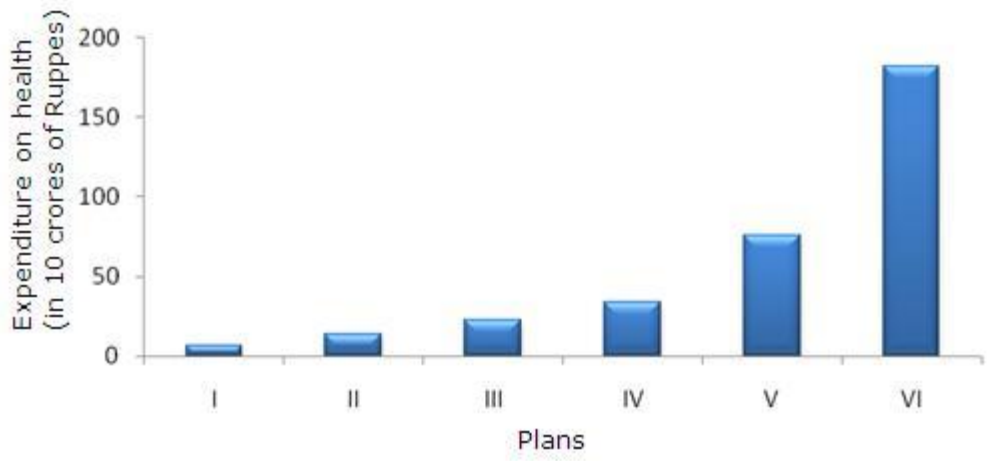
Question 18

The expenditure (in 10 crores of rupees) on health by the Government of India during the various five year plans is shown below:

Plans:	I	II	III	IV	V	VI
Expenditure on health (in 10 crores of rupees)	7	14	23	34	76	182

Construct a bar graph to represent the above data.

Solution 18



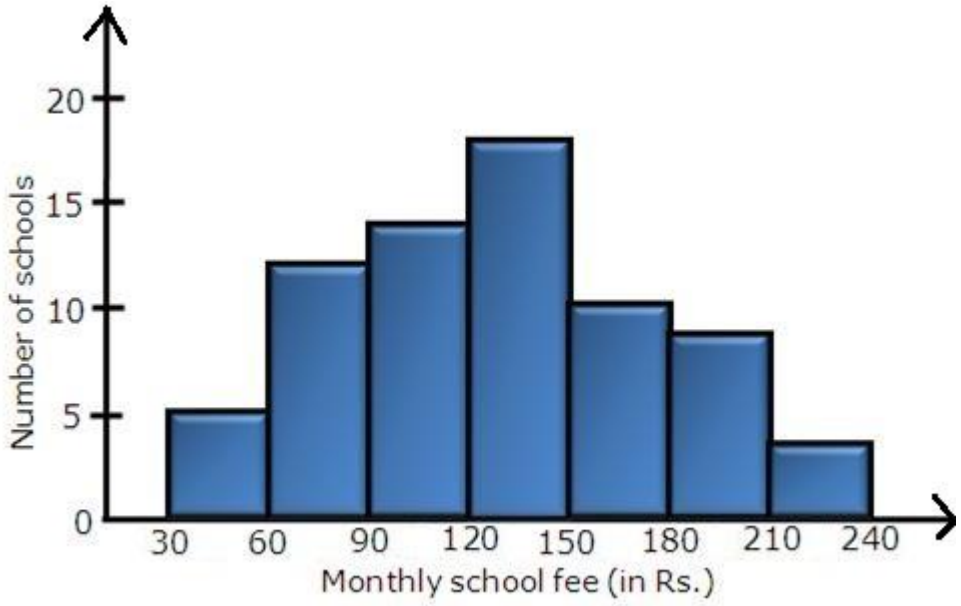
Chapter 23 - Graphical Representation of Statistical Data Exercise Ex. 23.3

Question 1

Construct a histogram for the following data:

Monthly School fee (in Rs.)	30-60	60-90	90-120	120-150	150-180	180-210	210-240
No. of Schools	5	12	14	18	10	9	4

Solution 1

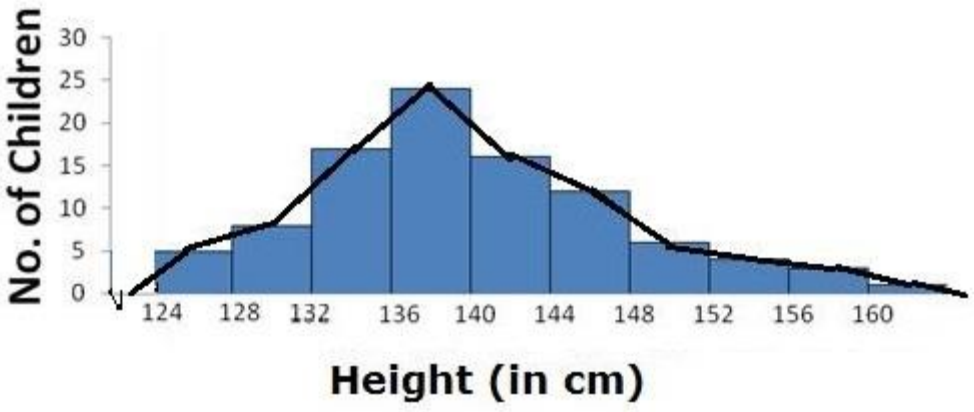


Question 2

The distribution of heights (in cm) of 96 children is given below. Construct a histogram and a frequency polygon on the same axes.

Height (in cm):	124 to 128	128 to 132	132 to 136	136 to 140	140 to 144	144 to 148	148 to 152	152 to 156	156 to 160	160 to 164
No. of Children:	5	8	17	24	16	12	6	4	3	1

Solution 2



Question 3

The time taken, in seconds, to solve a problem by each of 25 pupils is a as follows:

16,20,26,27,28,30,33,37,38,40,42,43,46,46,46,48,49,50,53,58,59,60,64,52,20

(a) **Construct a frequency distribution for these data, using a class interval of 10 seconds.**

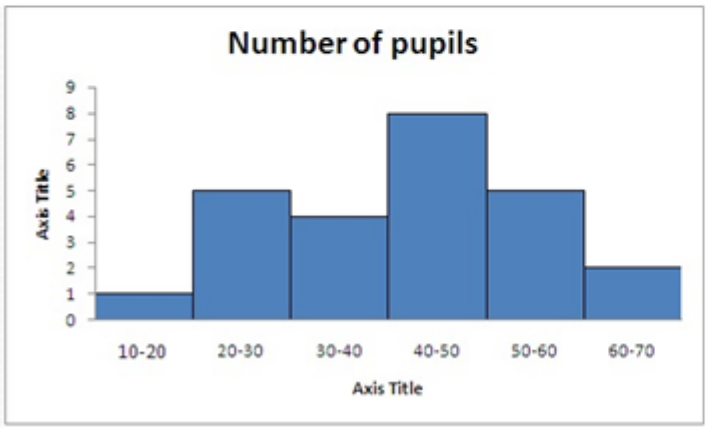
(b) **Draw a histogram to represent the frequency distribution.**

Solution 3

(a)

Time taken to solve a problem	Number of pupils
10-20	1
20-30	5
30-40	4
40-50	8
50-60	5
60-70	2

(b) Histogram of the above data:

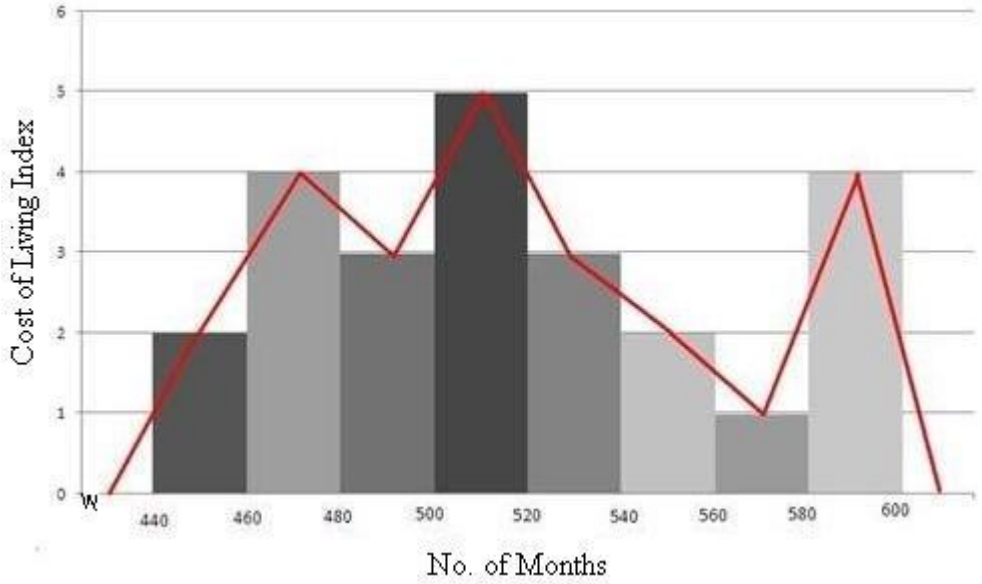


Question 4

Draw, in the same diagram, a histogram and a frequency polygon to represent the following data which shows the monthly cost of living index of a city in a period of 2 years:

Cost of living index:	440-460	460-480	480-500	500-520	520-540	540-560	560-580	580-600
No. of months:	2	4	3	5	3	2	1	4

Solution 4



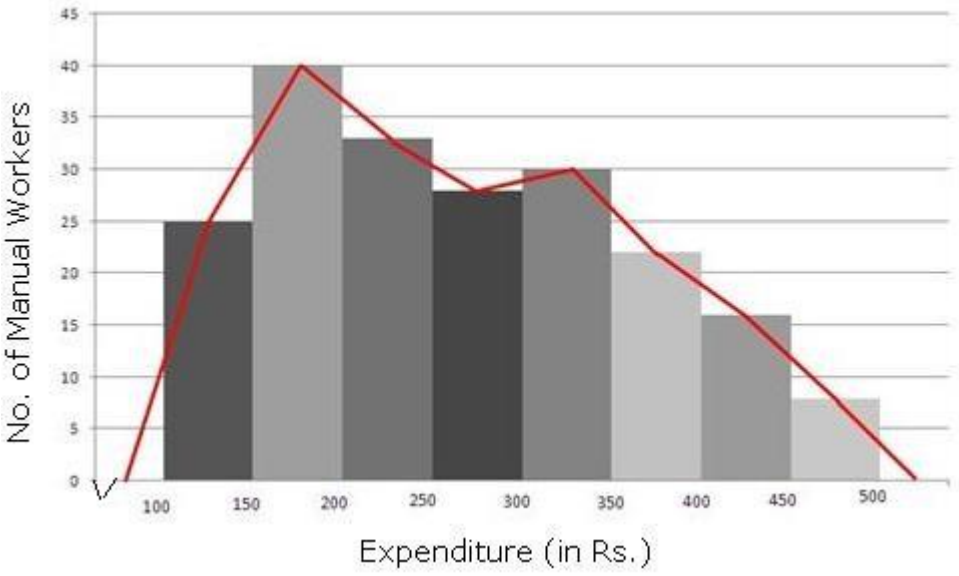
Question 5

The following is the distribution of total household expenditure (in Rs.) of manual worker in a city:

Expenditure (in Rs.)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500
No. of manual workers:	25	40	33	28	30	22	16	8

Draw a histogram and a frequency polygon representing the above data.

Solution 5

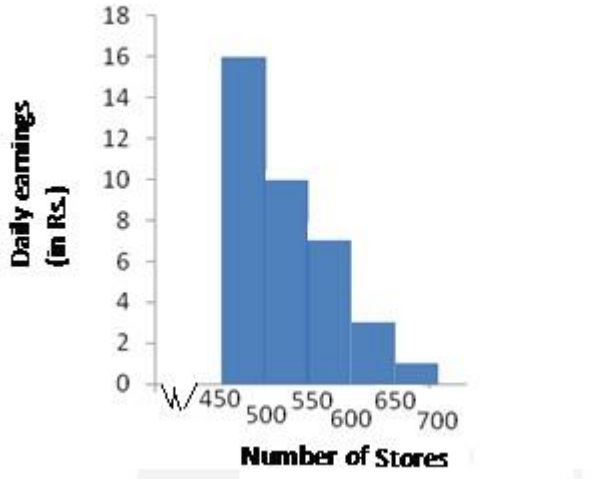


Question 7

Draw a histogram for the daily earnings of 30 drug stores in the following table:

Daily earnings (in Rs.):	450-500	500-550	550-600	600-650	650-700
Number of Stores:	16	10	7	3	1

Solution 7



Question 8

The monthly profits (in Rs.) of 100 shops are distributed as follows:

Profits	0-	50-	100-	150-	200-	250-

per shop:	50	100	150	200	250	300
No. of shops:	12	18	27	20	17	6

Draw a histogram for the data and show the frequency polygon for it.

Solution 8