Chapter 5. Data Handling

Question 1

The frequency table of the weights (in kilograms) of the students is given alongside:
Answer the questions with reference to the given table:

Class intervals (Wt. in .kg)	Frequency (Number of Students)
40 ? 45	8
45 ? 50	15
50 ? 55	14
55 ? 60	9
60 ? 65	3

(i) How many classes are there in the given table?
(ii) What is the frequency of the class 50 to 55?
(iii) Which class has the maximum frequency?
(iv) Which is the class with frequency 9?
(v) What is the lower limit of the class 50 to 55?
(vi) What is the upper limit of the class 55 to 60?
(vii) In which class will a student weighing 57 kg be included?
(ii) What is the frequency of the class 50 to 55?
(iii) Which class has the maximum frequency?
(iv) Which is the class with frequency 9?
(v) What is the lower limit of the class 50 to 55?
(vi) What is the upper limit of the class 55 to 60?
(vii) In which class will a student weighing 57 kg be included?
(viii) How many student拑 weights are given in the table?
(ix) State the number of students weighing less than 56 kg?
(x) What is the maximum weight of the student which can be included in the given table?

Solution:

(i) 5
(ii) 14
(iii) 45 to 50
(iv) 55 to 60
(v) 50

Question 2

The annual attendance of 58 girls in Std. VIII is given below:

169, 168, 171, 180, 165, 190, 195,159, 153, 185, 158, 156, 163, 167, 179, 157, 174, 164, 184, 184, 175,179, 174, 183, 197, 172, 188, 172, 161, 173, 166, 166, 162, 170, 178,182, 178, 177, 171, 177, 177, 171, 193, 187, 192, 182, 176, 176, 180,186, 181, 171, 178, 192, 177, 187, 191, 176,

Prepare a frequency table for the data using the class intervals as: 150-155, 155-160, 160-165, 165-170, 170-175, 175-180, 180-185, 185-190, 190-195, 195-200

Solution:

Frequency Distribution Table		
Class interval attendance	**Tally Marks**	**Frequency**
150-155	|	1
155-160	||||	4
160-165	𝍸	5
165-170	𝍸 |	6
170-175	𝍸 𝍸	10
175-180	𝍸 𝍸 ||||	14
180-185	𝍸 |||	7
185-190	𝍸	5
190-195	𝍸	5
195-200	|	1
	Total	58

Question 3

Write true or false with reference to the following frequency table:

Class (Science marks)	1-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Total
Frequency (Number of students)	2	4	12	15	18	25	9	3	2	1	91

(i) The frequency of 18 is 2.
(ii) The frequency of 35 is 15.
(iii) Class 90 -100 has the lowest frequency.
(iv) Class 50 - 60 has a frequency of 18.
(v) Class 60-70 has the highest frequency.
(vi) The frequency of 48 is 18.
(vii) The total number of students is 100.
(viii) There are 10 class intervals.
(ix) If the passing marks are 41, the number of students that failed is 33.

Solution:

(i) False
(ii) True
(iii) True
(iv) False
(v) False
(vi) True
(vii) False
(viii) True
(ix) True

Question 4

Make a circle graph to show the number of votes received in the election of class monitor.

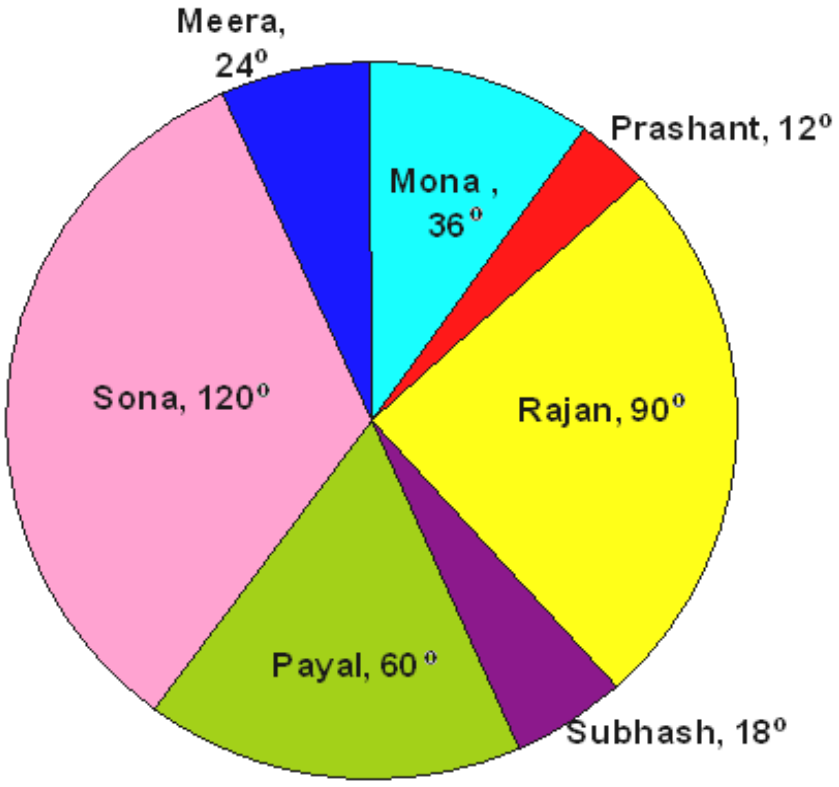
Mona - 6 votes, Payal -10 votes, Prashant -2 votes, Sona -20 votes, Rajen -15 votes, Meera -4 votes, Subhash - 3 votes.

Solution:

Total number of votes = 6 + 10 + 2 + 20 + 15 + 4 + 3 = 60

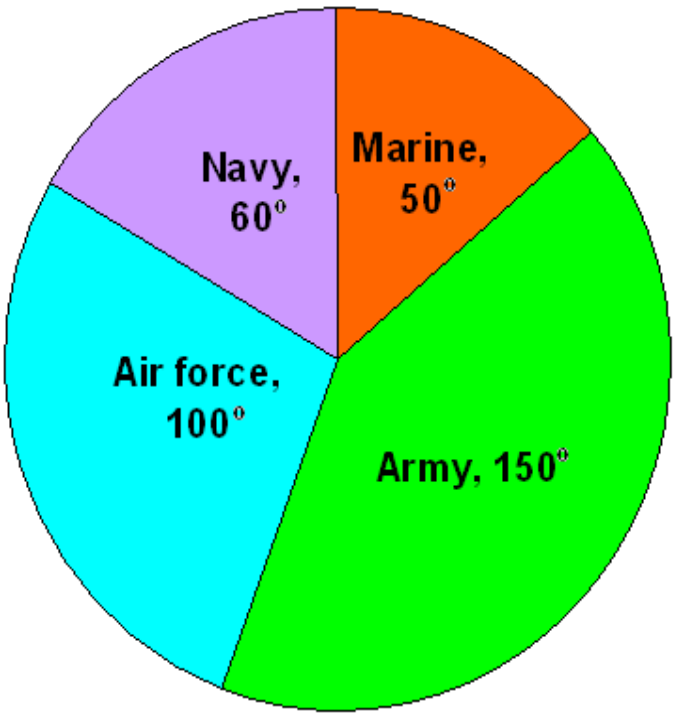
The central angles corresponding to the various votes:

Mona: $\frac{6\times360}{60}=36^\circ$	**Payal:** $\frac{10\times360}{60}=60^\circ$
Prashat: $\frac{2\times360}{60}=12^\circ$	**Sona:** $\frac{20\times360}{60}=120^\circ$
Rajen: $\frac{15\times360}{60}=90^\circ$	**Meera:** $\frac{4\times360}{60}=24^\circ$
Subhash: $\frac{3\times360}{60}=18^\circ$	



Question 5

Nine hundred men volunteered for joining the armed force. The pie-graph represents the proportion of men in the different armed services. Study the pie-graph and answer the questions given below:



(i) Find how many men volunteered for each service?

(ii) What percent of the men volunteered to join Navy force?

Solution:

(i) Number of men joining Army force = $\frac{150}{360}\times 900 = 375$

Number of men joining Air force = $\frac{100}{360}\times 900 = 250$

Number of men joining Navy force = $\frac{60}{360}\times 900 = 150$

Number of men joining Marine force = $\frac{50}{360}\times 900 = 125$

(ii) Percent of the men volunteered to join Navy force = $\frac{60}{360}\times 100 = 16.67\%$

Ans:16.67%

Question 6

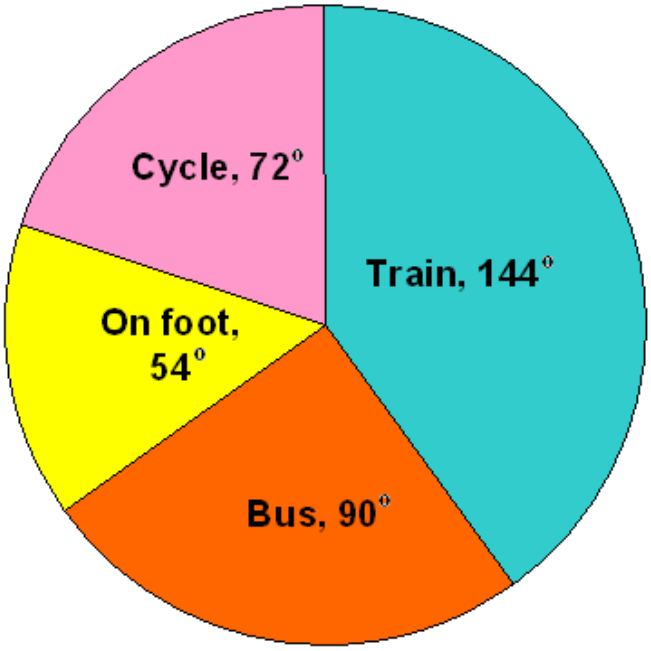
There are 1000 workers who travel from home to factory.

The pie-graph shows the proportion of workers using various mode for traveling to work.

Study the pie-graph and answer the questions given below:

How many workers travel to factory

(i) by bus? (ii) by train? (iii) by cycle? (iv) on foot?



Solution:

Totally there are 1000 workers.

(i) No. of workers traveling by bus = $\frac{90}{360} \times 1000 = 250$

(ii) No. of workers traveling by train = $\frac{144}{360} \times 1000 = 400$

(iii) No. of workers traveling by cycle = $\frac{72}{360} \times 1000 = 200$

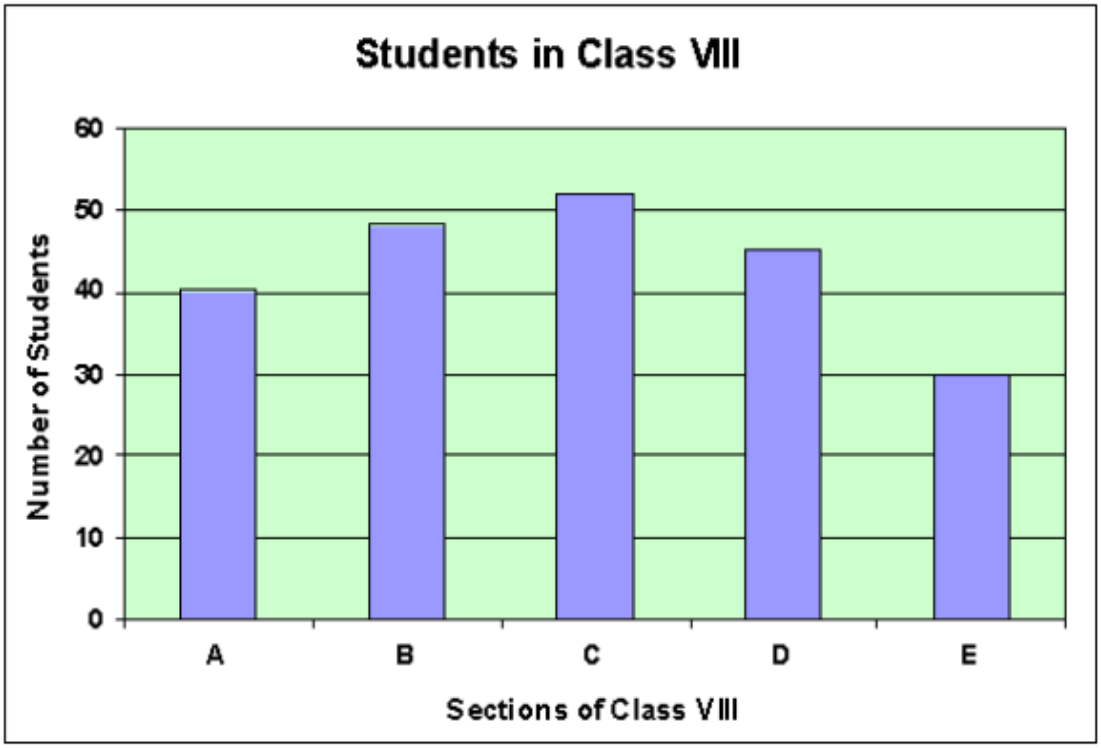
(iv) No. of workers traveling on foot = $\frac{54}{360} \times 1000 = 150$

Question 7

In a school, there are five sections of class VIII. The number of students in each section is given below. Construct a bar graph representing this data:

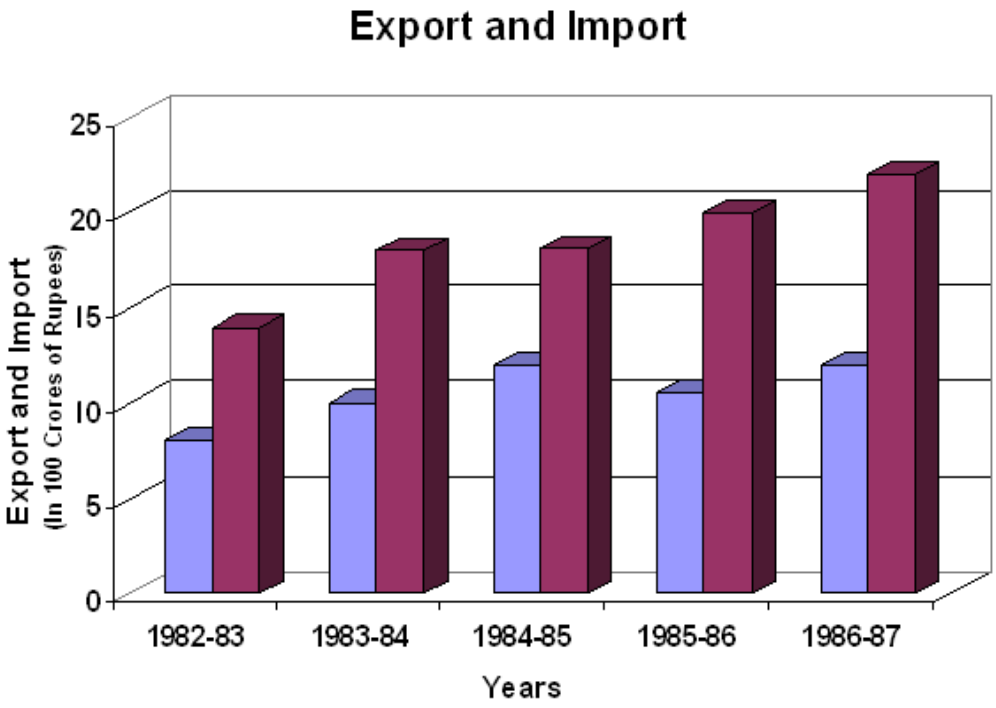
Section	A	B	C	D	E
Number of students	40	48	52	45	30

Solution:



Question 8

Read the following bar graph 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:

(i) The bar graph talks about the export and import in 100 crores of rupees from 1982 to 1987.

(ii) The export is minimum during the year 1982-83.

(iii) The import is maximum during the year 1986-87.

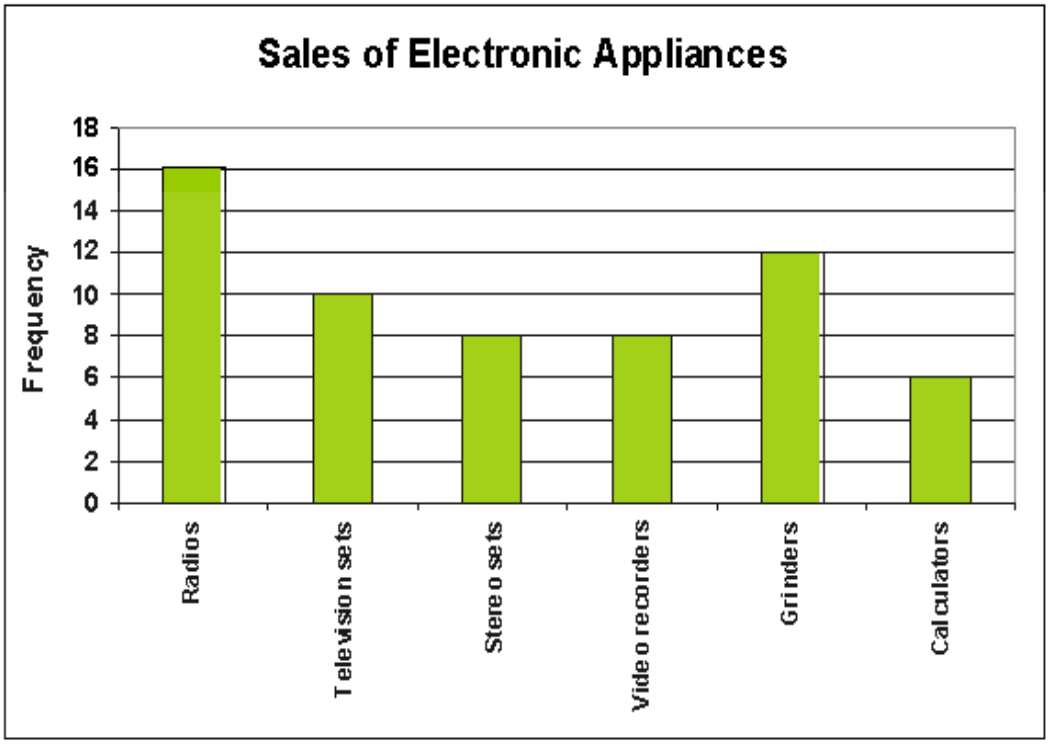
(iv) The difference of the values of export and import is maximum during the year 1986-87.

Question 9

Suman owns an electronic shop in Nehru Place. The following frequency table shows appliances sold during a month. Represent the data on a bar graph.

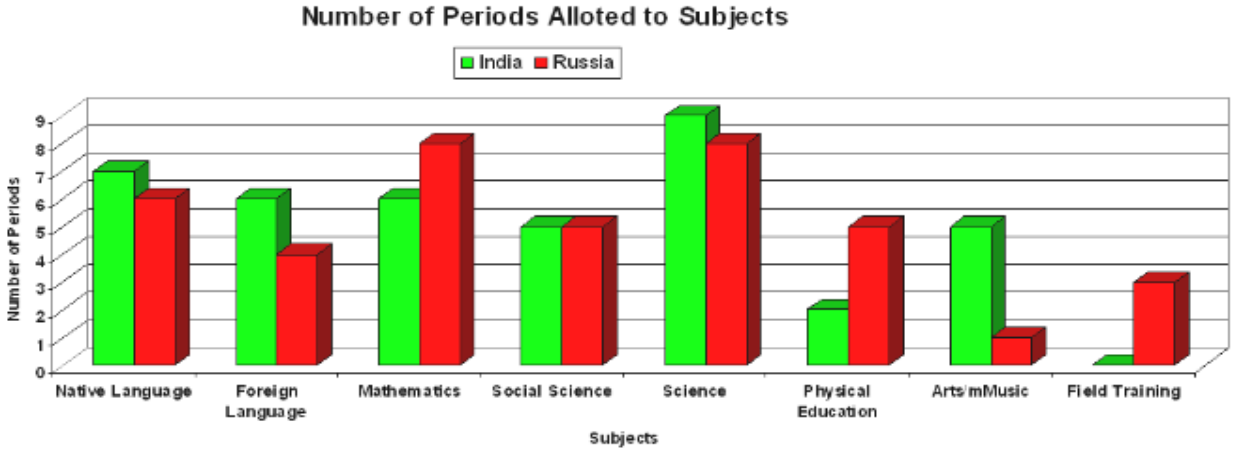
Electronic Appliance	Tallies	Frequency
Radios	𝍸 𝍸 𝍸 1	16
Television sets	𝍸 𝍸	10
Stereo sets	𝍸 111	8
Video recorders	𝍸 111	8
Grinders	𝍸 𝍸 11	12
Calculators	𝍸 1	6
	Total	60

Solution:



Question 10

Study the following bar graph which shows the allocation of periods to different subjects in the secondary level in India and Russia.



a. How many periods are given to mathematics in each country?

b. Which subject has more periods in India?

c. Which subjects have the same number of periods in both the countries?

d. Which subject is not given proper attention in India while in Russia it gets proper attention?

e. Prepare a table showing the number of periods for each subject in each country.

Solution:

a. India 6 periods. Russia 8 periods

b. Science

c. Social Sciences

d. Field training

e. Table is given below.

Subjects	India	Russia
Native Language	7	6
Foreign Language	6	4
Mathematics	6	8
Social Science	5	5
Science/Technology	9	8
Physical Education	2	5
Art/Music/Library	5	1
Field Training	0	3
Total	40	40

Question 11

Sikander spent his day in the following manner:

6 AM -9AM at home?'

9AM - 3PM at school

3PM - 5PM at play field

5PM - 9PM at home

9PM - 6AM sleep

Illustrate the above by a pie diagram

Solution:

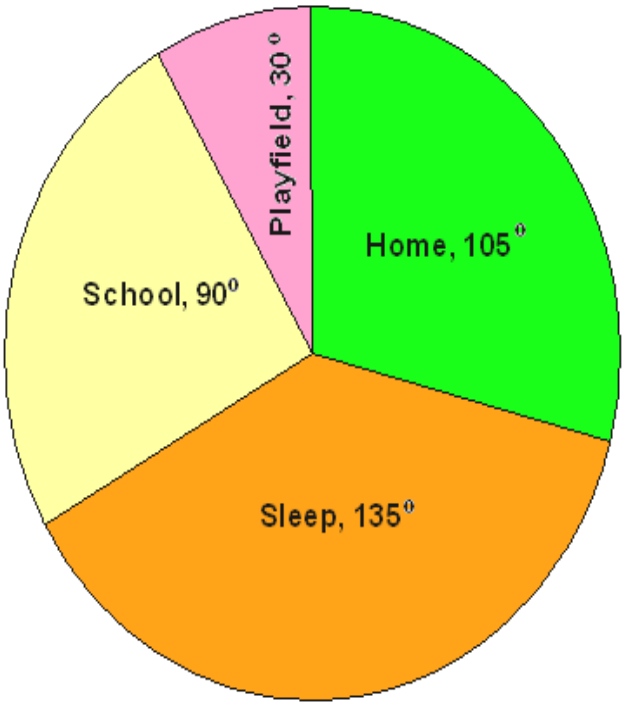
Angle for "at home"? $= 360 \times \frac{7}{24} \Rightarrow 105°$

Angle for "Sleep"? $= 360 \times \frac{9}{24} \Rightarrow 135°$

Angle for "at school"? $= 360 \times \frac{6}{24} \Rightarrow 90°$

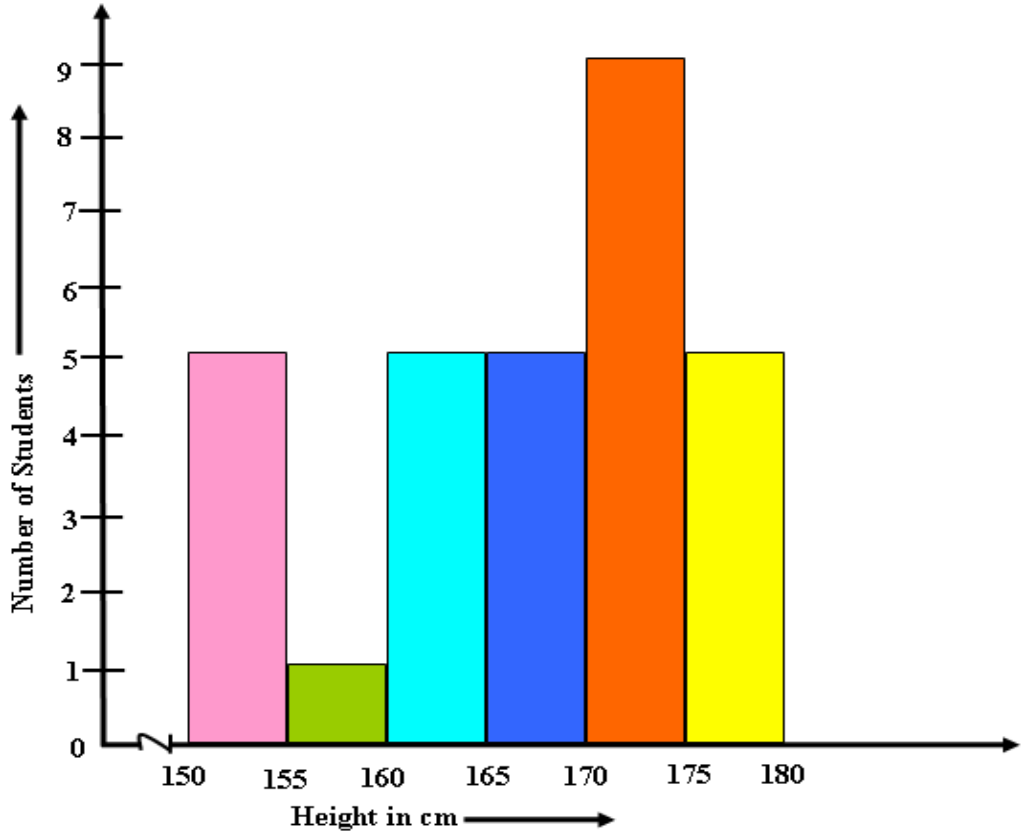
Angle for "at playfield"? $= 360 \times \frac{2}{24} \Rightarrow 30°$

Draw a circle of convenient radius and draw radius to start with. Mark off the different angles and divide the circle into corresponding sectors.



Question 12

Look at the histogram and answer the following:



1. What is the variable being represented by the histogram? Is the discrete or continuous?
2. How many students are over 170cm tall?
3. How many students are there in all?
4. What is the minimum height possible of the shortest student?
5. What is the minimum height possible of the tallest student?

Solution:

1. The variable being represented is the height of the students in a class. It is continuous since it has to be measured and not counted
2. There are 9 + 5 = 14 students over 170cm tall
3. There are thirty students in all
4. The lowest class interval is 150cm ?155cm, so the minimum height possible is 150cm
5. The highest class interval is 175cm ?180cm, so the maximum height possible in that group is 175cm.

Question 13

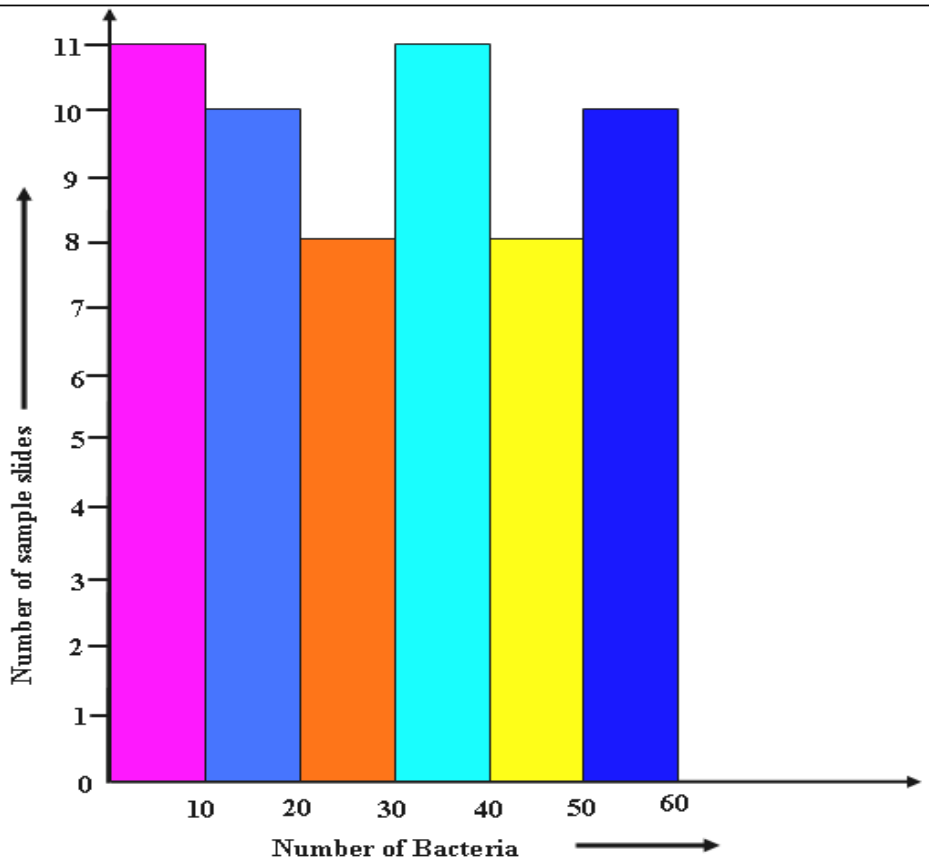
List given below was made by a researcher to record the number of bacteria in each sample side. Draw a histogram for the data.

4	1	22	33	43	52	4	11	22	34	43	53	5	12	22	34	44	53	38
5	12	23	35	44	53	5	13	23	36	45	54	6	14	24	36	45	57	58
6	15	24	37	45	57	7	15	28	37	46	57	8	16	38	58	9	18	19
39																		

Solution:

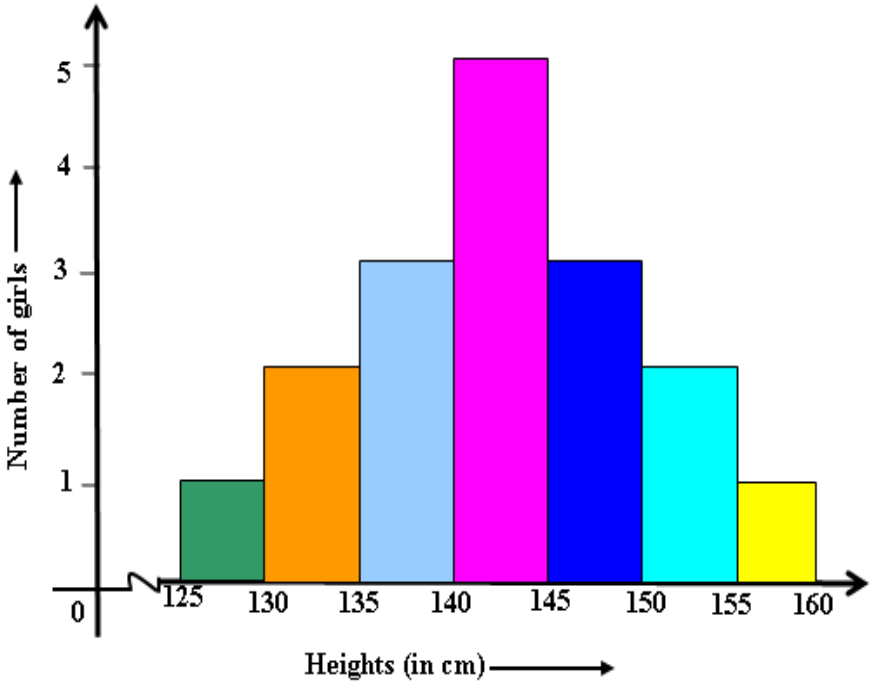
Make a frequency table for the given observation.

Project Z		
Number of bacteria	Number of slides	
0-10	𝍸 𝍸 I	11
10-20	𝍸 𝍸	10
20-30	𝍸 III	8
30-40	𝍸 𝍸 I	11
40-50	𝍸 III	8
50-60	𝍸 𝍸	10
Total 58		



Question 14

Read the following histogram and answer the questions given at the end:



(i) What information is depicted by the histogram?

(ii) Which group contains the maximum number of girls?

(iii) Which groups contain the same number of girls?

(iv) Heights of how many girls are 145 cm or more?

Solution:

(i) The histogram depicts the heights (in cm) of 17 girls of a class

(ii) The group 140-145 has the maximum number of girls

(iii) Number of girls in the following groups are equal:

125-130 and 155-160

130-135 and 150-155

135-140 and 145-150

(iv) Heights of 6 girls are 145 cm or more

Question 15

A school bag has 3 science books, 3 social studies books, 1 maths book, 2 language books. What is the probability of getting a science book? Is it more or less than getting a social studies book?

Solution:

There are in all (3 + 3 + 1 + 2 = 9) outcomes of the event.

Getting a science book consists of 3 outcomes

$\therefore$Probability of getting a science book is $\frac{3}{9}=\frac{1}{3}$

In the same way

Probability of getting a social studies book $=\frac{3}{9}=\frac{1}{3}$

Therefore probability of getting a science book is same as getting a social studies book.

Question 16

Give two examples for which outcomes are equally likely.

Solution:

1. In tossing a coin getting head or tail
2. While throwing a die getting any one of 6 numbers on its faces.