Exercise 13.1

1- ***Fifty junior school children joined the school's computer club. Their ages were recorded.***

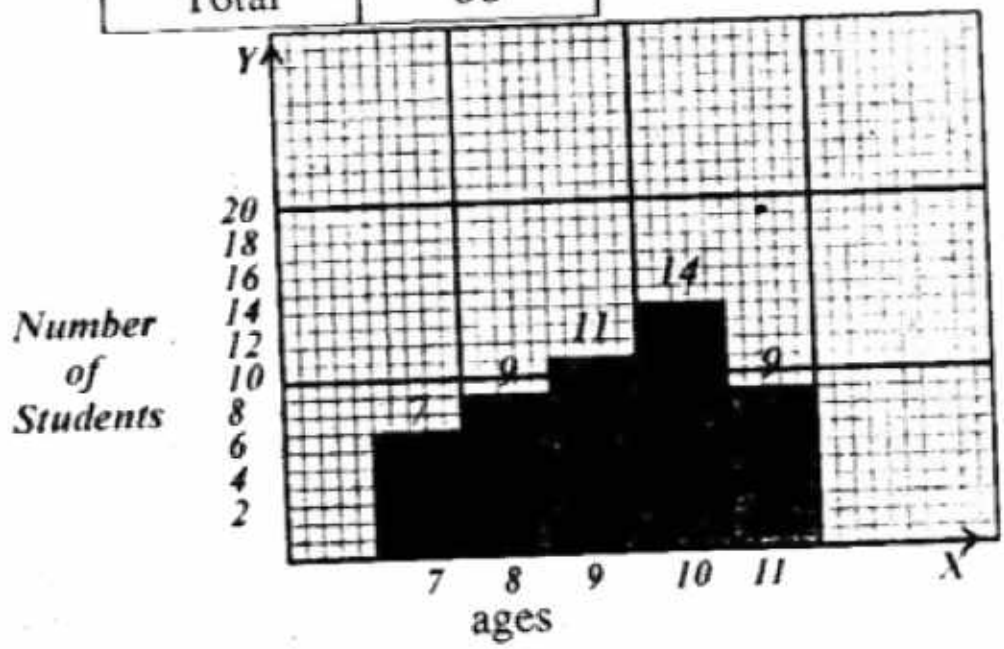
10	8	9	10	7	8	8	11	10	9
7	8	9	9	10	11	11	10	9	8
8	7	9	7	10	7	10	8	9	11
10	11	8	10	9	8	9	7	11	10
9	10	10	11	10	11	7	11	10	9

Make a frequency table showing the number of each age and illustrate this information with a bar chart.

Solution:-

Frequency table of 50 students ages.

Students ages	Numbers
7	7
8	9
9	11
10	14
11	9
Total	50



2- ***The local fish and chip shop had 56 customers on Saturday evening. They spent the following amount in rupess.***

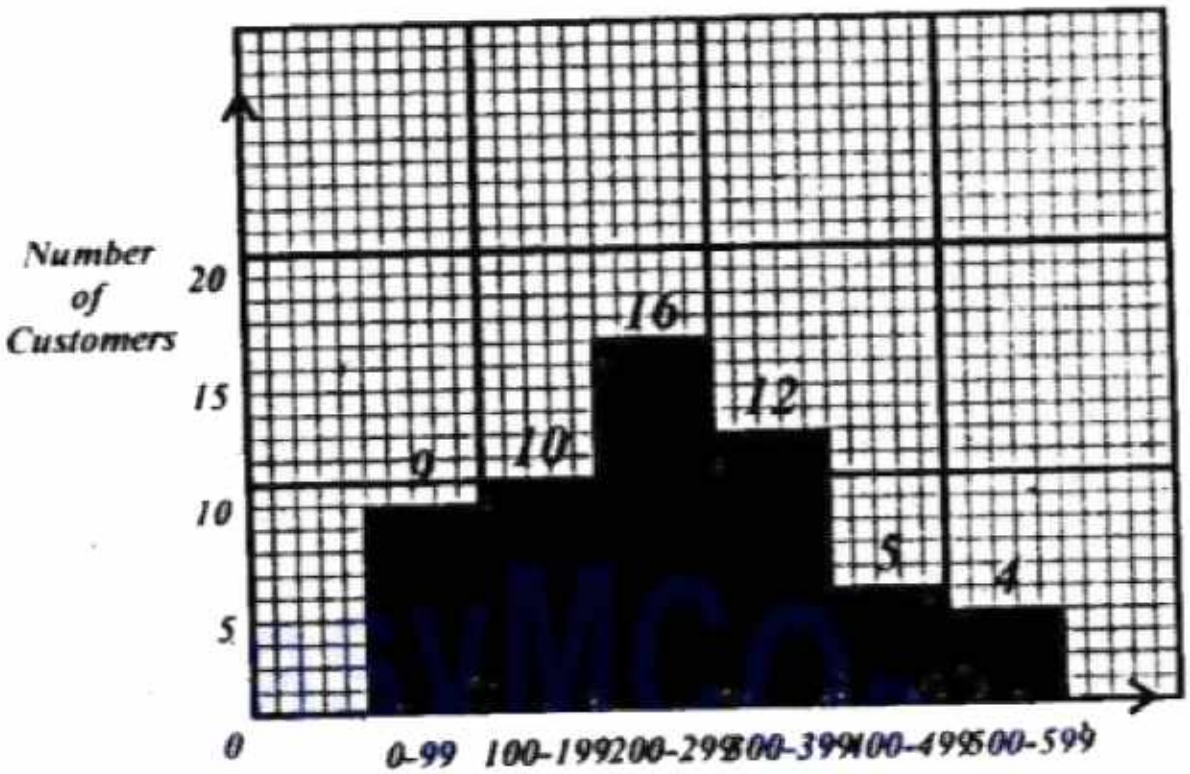
270	110	45	96	250	490	325	45
382	136	125	450	420	380	150	250
85	250	320	525	218	210	216	120
155	430	250	40	510	150	510	245
320	120	316	150	260	45	180	310
273	280	85	280	318	45	210	282
462	316	218	316	325	45	560	315

Use groups Rs. 0-99, Rs. 100-199, Rs. 200-299, Rs. 300-399, Rs. 400-499, Rs. 500-599 to make a frequency table illustrate the data with a bar chart.

Solution:-

Group frequency table

Income (Rs)	Tally	Frequency
0 - 99	𝍸 |	9
100 - 199	𝍸 𝍸	10
200 - 299	𝍸 𝍸 𝍸 |	16
300 - 399	𝍸 𝍸 ||	12
400 - 499	𝍸	5
500 - 599	||||	4
Total		56



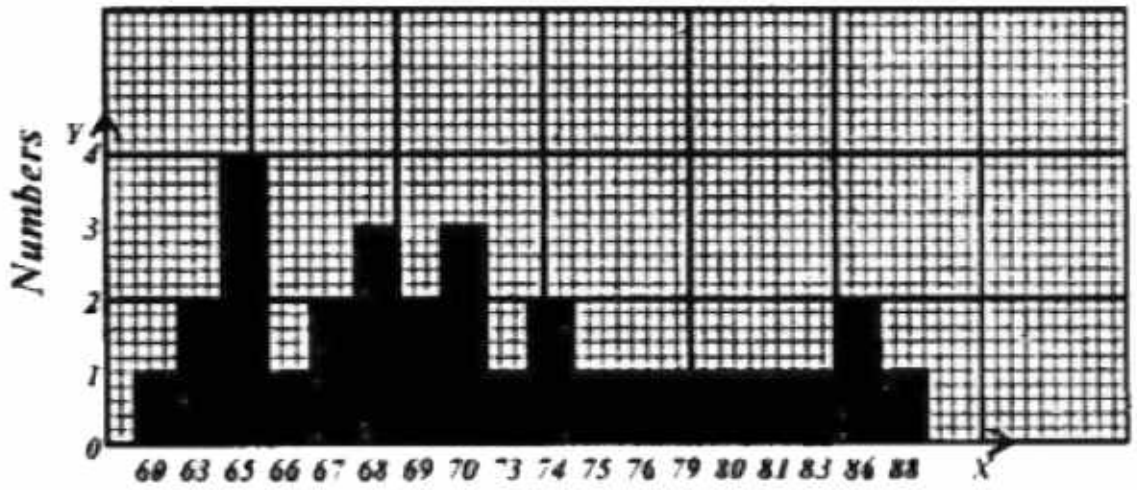
3- ***The weights to the nearest gram of 30 bags of popcorn sold at a festival are given as:***

69	83	75	65	68	68	73	70	80	79
70	76	63	86	69	65	66	74	86	68
70	60	67	74	65	65	67	88	81	63

Make a frequency table, illustrate the data with a bar chart.

Solution:-

Weights of Bags (gm)	Numbers
60	1
63	2
65	4
66	1
67	2
68	3
69	2
70	3
73	1
74	2
75	1
76	1
79	1
80	1
81	1
83	1
86	2
88	1
Total	30



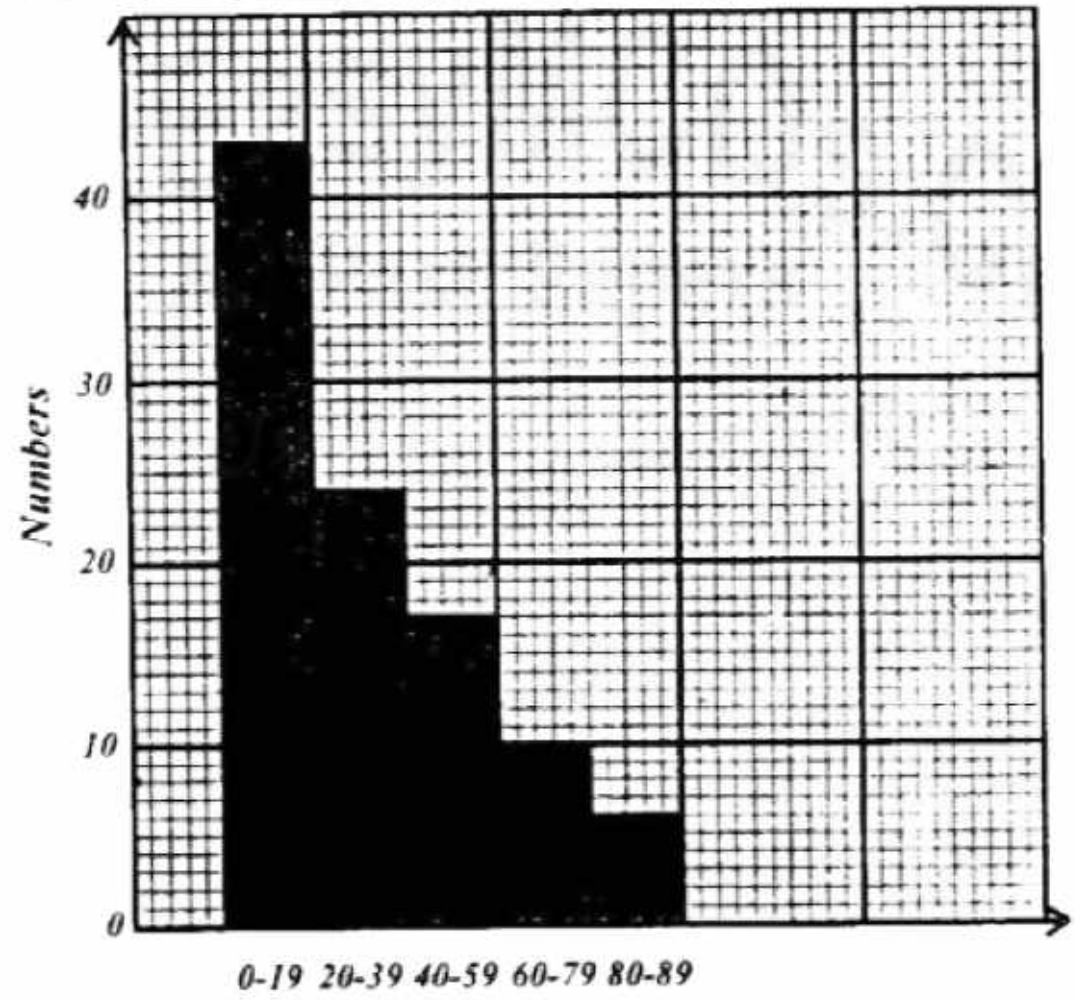
Weights (gm)

Exercise 10.2

1- ***Draw a histogram to represent the frequency table in each of the following tables.***

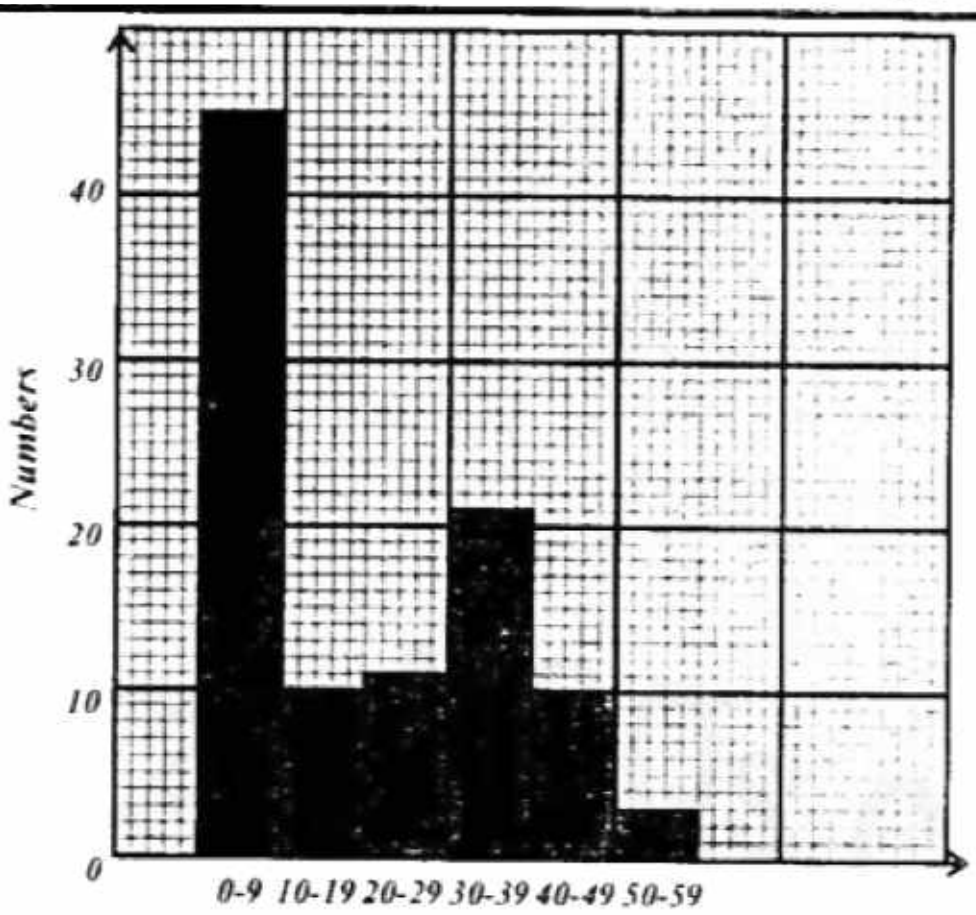
(i) The table shows the distribution of ages 100 people attending a school function.

Age(years)	0-19	20-39	40-59	60-79	80-89
Frequency	43	24	17	10	6



(ii) The table shows the results of a surves on the weekly earnings of 100 sixteen-years old boys.

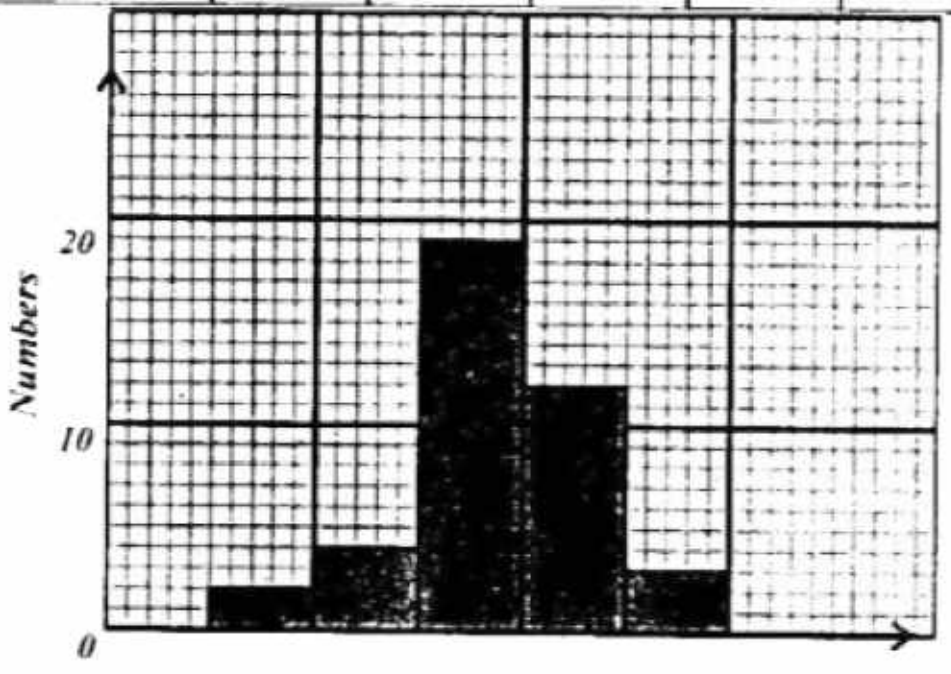
Weekly income	0-9	10-19	20-29	30-39	40-49	50-59
Frequency	45	10	11	21	10	3



Weekly income (Rs)

(iii) The table shows the distribution of the average marks of 40 children in the end-of-year examinations.

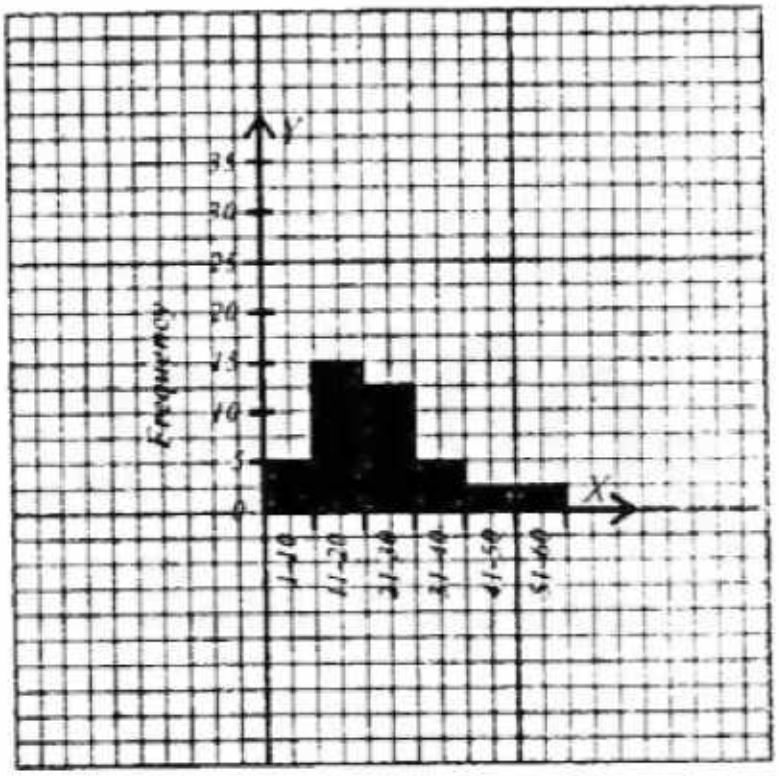
Average marks	1-20	21-40	41-60	61-80	81-100
Frequency	2	4	19	12	3



Average marks of children

2- *Following histogram shows the distribution of the times taken by 50 children to go to school. Construct a frequency table from the histogram.*

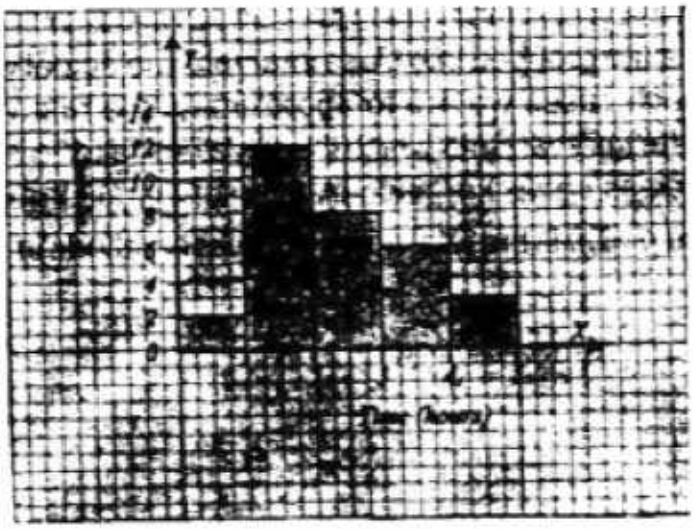
Time (min)	1-10	11-20	21-30	31-40	41-50	51-60
Frequency	5	15	13	5	3	3



Time (minutes)

3- *Following histogram is based on the number of hours that 30 children spent watching television on a particular Saturday. Construct a frequency table from the histogram.*

Time (hours)	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
Frequency	2	12	8	6	4



Frequency Table

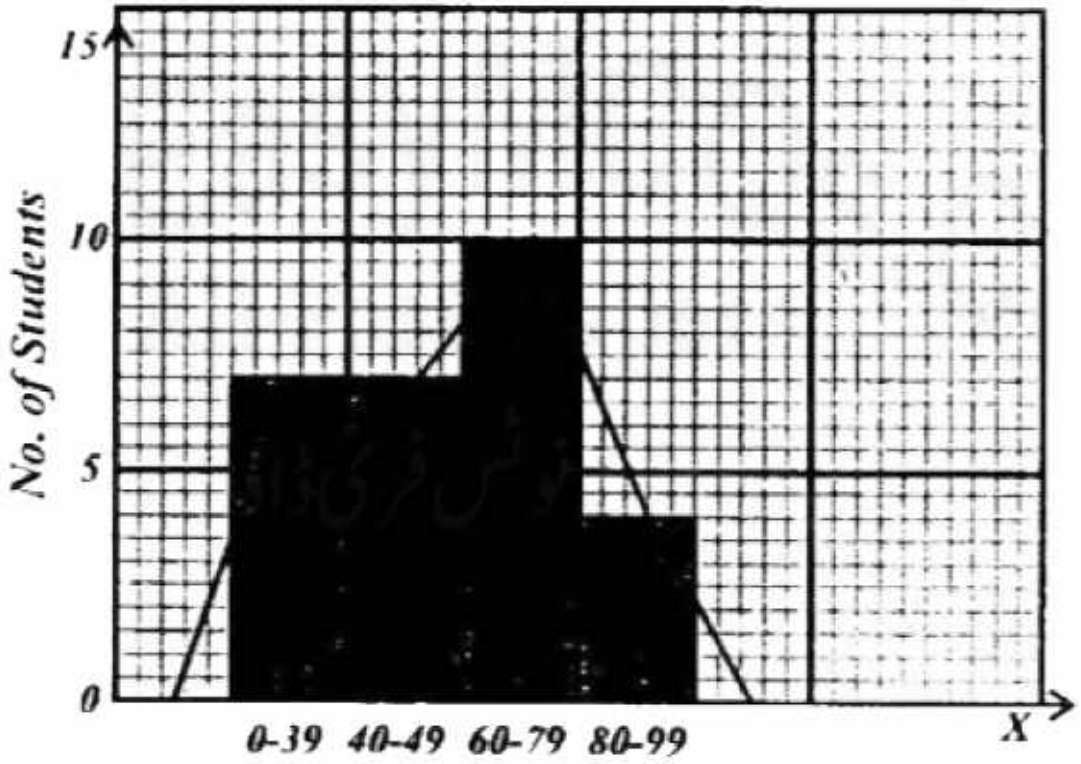
Exercise 10.3

1- ***Represent the given data using frequency polygon.***

(i) The table shows the distribution of marks of 30 children in a test.

Marks	0-39	40-49	60-79	80-99
Frequency	8	8	10	4

Solution:-



(i) obtained marks are takes along *x*-axis

(ii) 2 small squares represent 1 big square along y-axis.

(iii) Mid-point of every bar join with mid point of next bar.

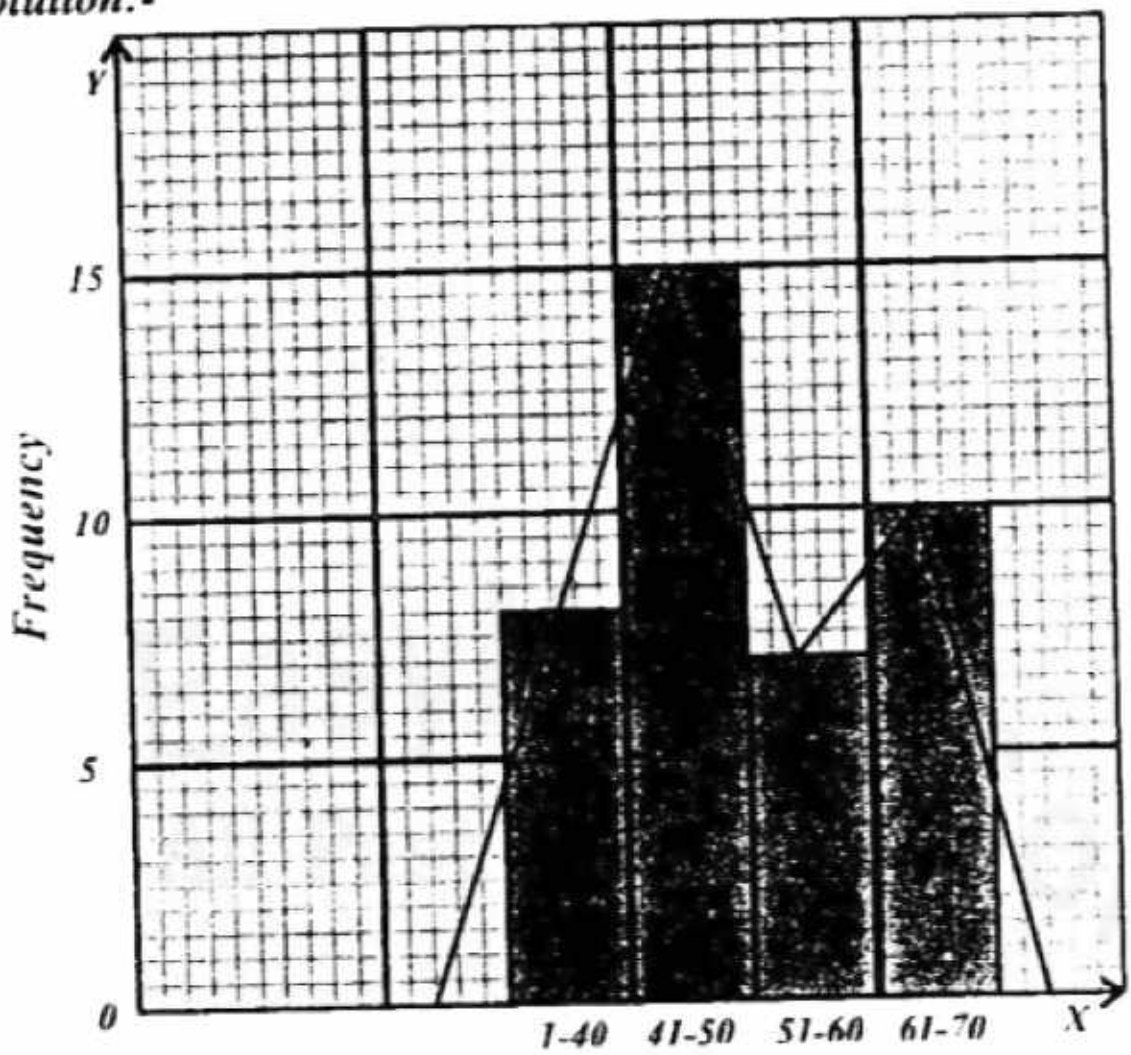
(iv) Extreme right mid point is joined 2.5 units on *x*-axis.

(v) Extreme left mid point is joined 2.5 units along *x*-axis.

(ii) ***The table shows the distribution of time (in seconds) taken for 40 children to complete the obstacle race.***

Time(sec)	*1-40*	*41-50*	*51-60*	*61-70*
Frequency	*8*	*15*	*7*	*10*

Solution:-



1- Construct a bar graph from given data while along y-axis. Represent two small squares equal one unit

2- Centre of every bar is joined by the centre of another bar.

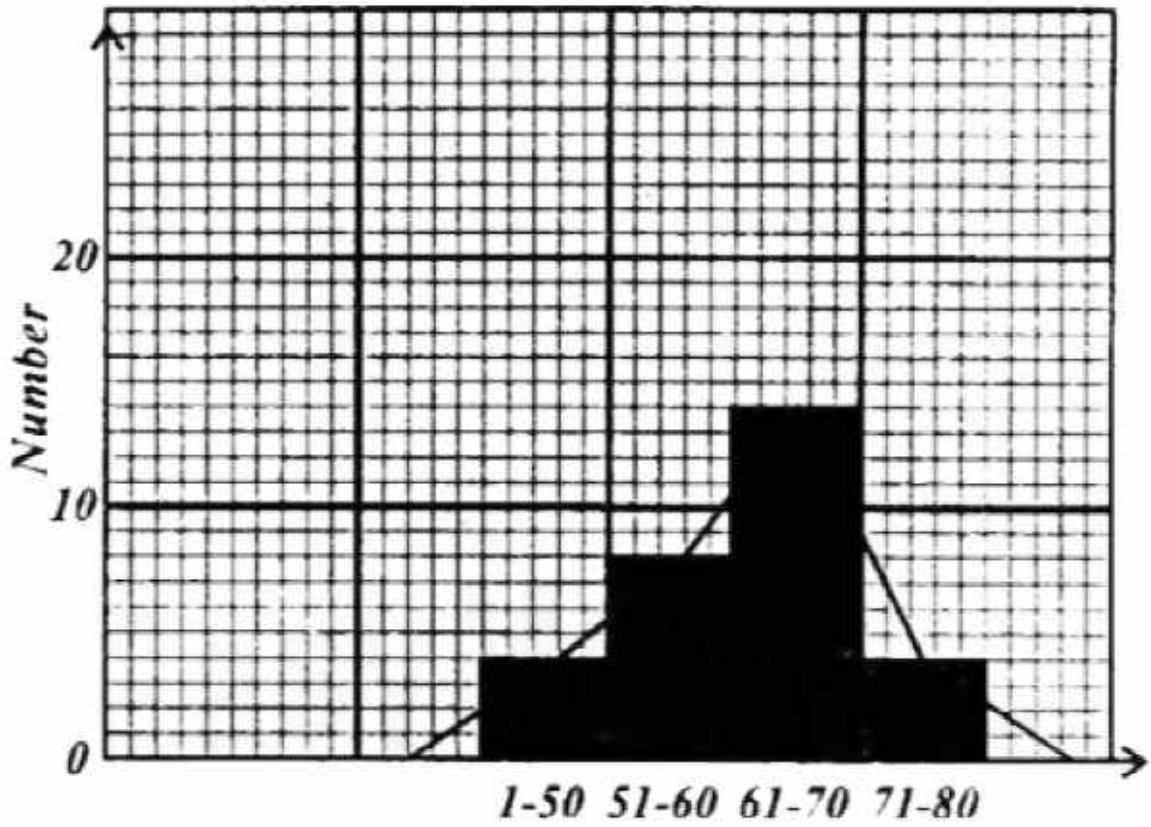
3- Centre point of left bar graph is joined by centre point of left bar graph along x-axis with the distance of 2.5

4- Centre point of right bar graph is joined by centre point of left bar graph along x-axis with the distance of 2.5.

(iii) The table shows the distribution of weights of 30 bags of chips from a fish and chip shop.

Weights(gm)	*1-50*	*51-60*	*61-70*	*71-80*
Frequency	*4*	*8*	*14*	*4*

Solution:-



1- y-axis represent small square graph along equal 1 unit.

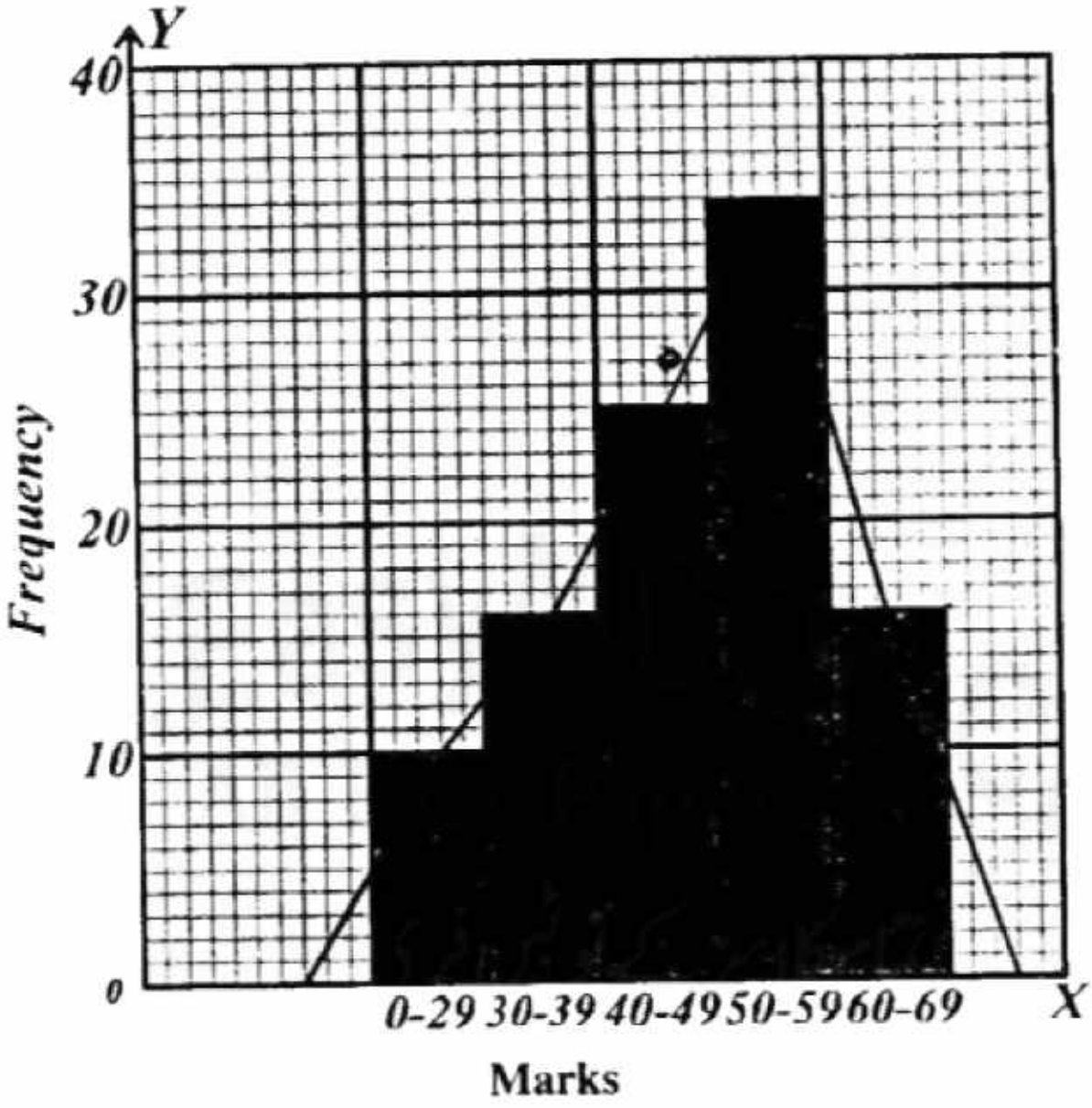
2- Bar graph is completed by given data.

3- Every centre point of bar graph is joined by another centre point of bar graph and completed frequency polygon.

(iv) ***The table shows the distribution of marks of 100 students in an end-of-terms mathematics examination.***

Marks	*0-29*	*30-39*	*40-49*	*50-59*	*60-99*
Frequency	*10*	*15*	*25*	*34*	*16*

Solution:-



(i) y-axis represent small square equal 1 unit.

(ii) Bar graph is completed by given data.

(iii) Every centre point of bar graph is joined by another centre point of bar graph and completed frequency polygon.

Exercise 10.4

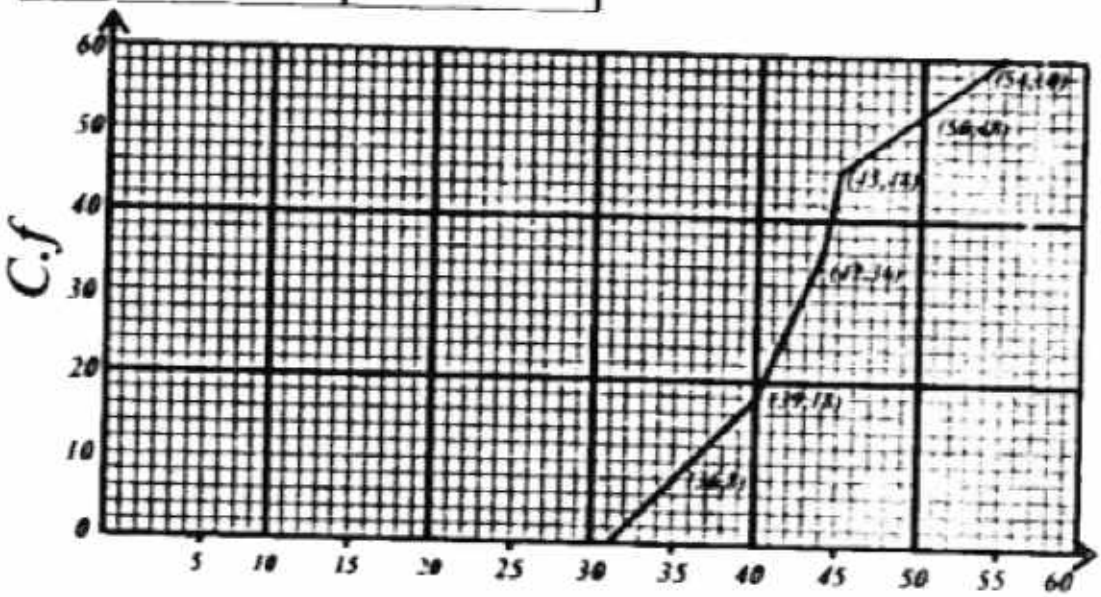
1- ***Construct a cumulative frequency polygon (that, is, an ogive) for the given data.***

(i) The table shows the distribution of weights (in kilograms) of 60 boys often years of age.

Weight (kg)	*31-36*	*37-39*	*40-42*	*43-45*	*46-54*
Frequency	*8*	*10*	*18*	*12*	*12*

Solution:-

Class intervals	Frequency	Cumulative Frequency
31 - 36	8	8
37 - 39	10	8 + 10 = 18
40 - 42	18	18 + 18 = 36
43 - 45	12	36 + 12 = 48
46 - 54	12	48 + 12 = 60
Total	60	



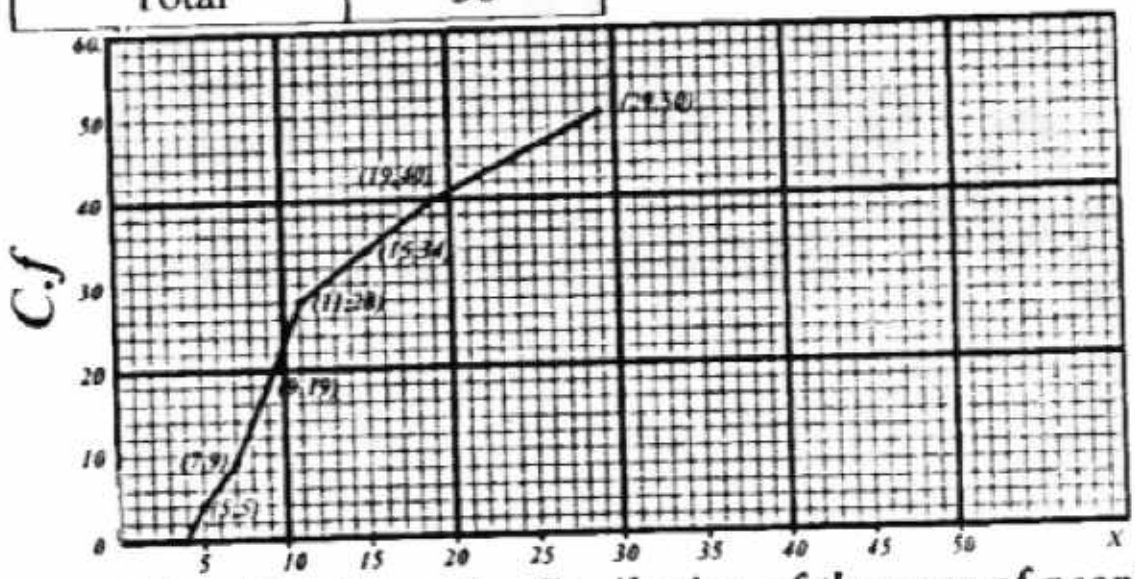
Class intervals (Ogive)

(ii) ***The table shows the distribution of times taken (in minutes) for 50 children of five years age to eat their school dinners.***

Time (min)	*4-5*	*6-7*	*8-9*	*10-11*	*12-15*	*16-19*	*20-29*
Frequency	5	4	10	9	6	6	10

Solution:-

Class intervals	Frequency	Cumulative Frequency
4 - 5	5	5
6 - 7	4	5 + 4 = 9
8 - 9	10	9 + 10 = 19
10 - 11	9	19 + 9 = 28
12 - 15	6	28 + 6 = 34
16 - 19	6	34 + 6 = 40
20 - 29	10	40 + 10 = 50
Total	50	

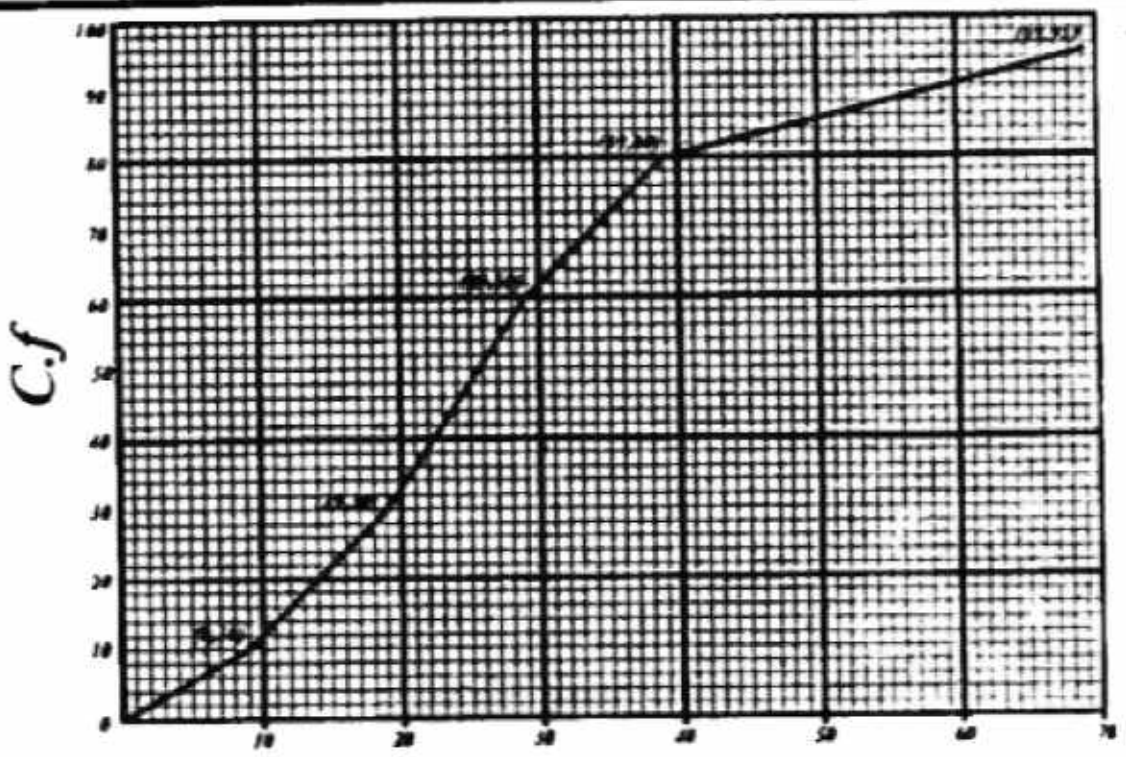


(iii) The table shows the distribution of the ages of people boarding buses at the bus station between 08.30 to 09.00 in the morning.

Age (years)	*0-9*	*10-19*	*20-29*	*30-39*	*40-69*
Frequency	*10*	*20*	*30*	*20*	*15*

Solution:-

Class intervals	Frequency	Cumulative frequency
0 - 9	10	10
10 - 19	20	10 + 20 = 30
20 - 29	30	30 + 30 = 60
30 - 39	20	60 + 20 = 80
40 - 69	15	80 + 15 = 95
Total	95	



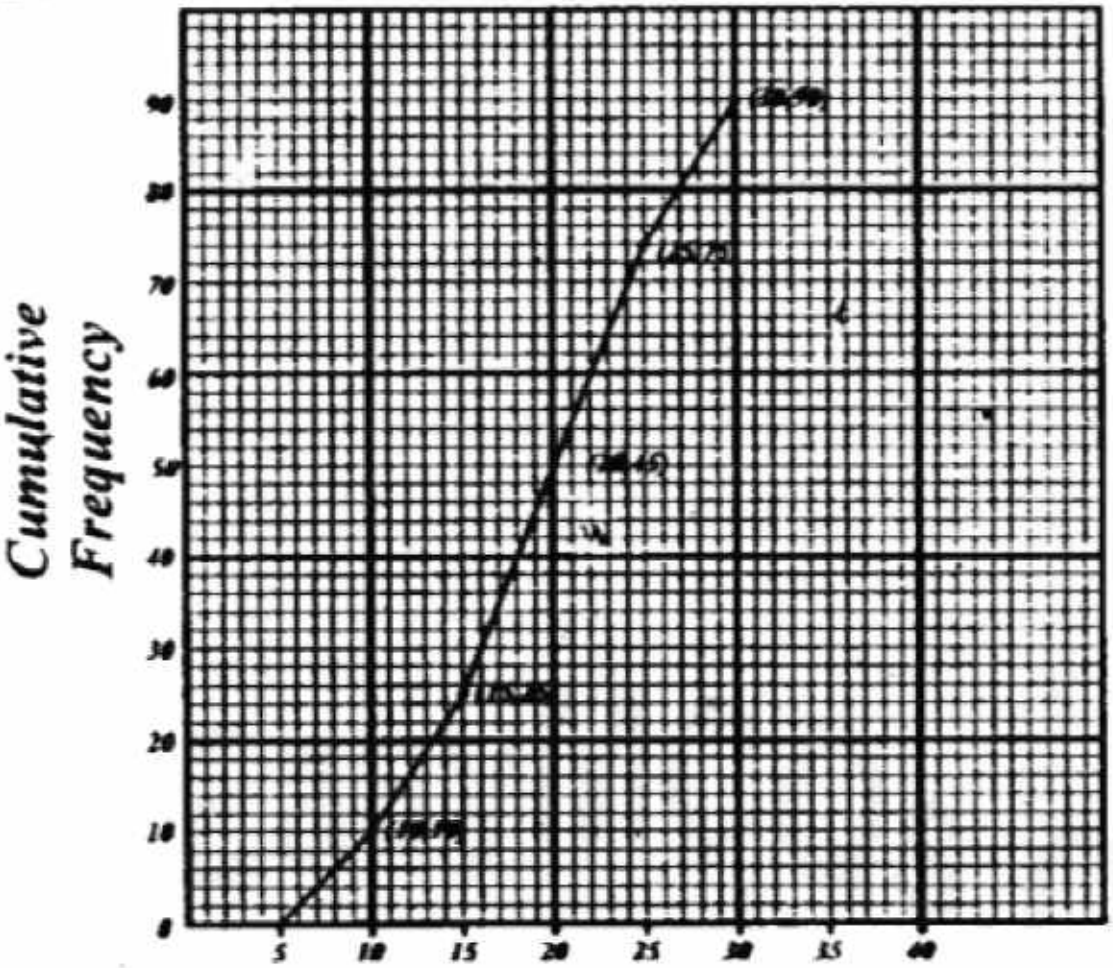
(Ogive)

(iv)

Classes	*5-10*	*10-15*	*15-20*	*20-25*	*25-30*
Frequency	*10*	*15*	*20*	*30*	*15*

Solution:-

Class intervals	frequency	Cumulative frequency
5 - 10	10	10
10 - 15	15	10 + 15 = 25
15 - 20	20	25 + 20 = 45
20 - 25	30	45 + 30 = 75
25 - 30	15	75 + 15 = 90
Total	90	



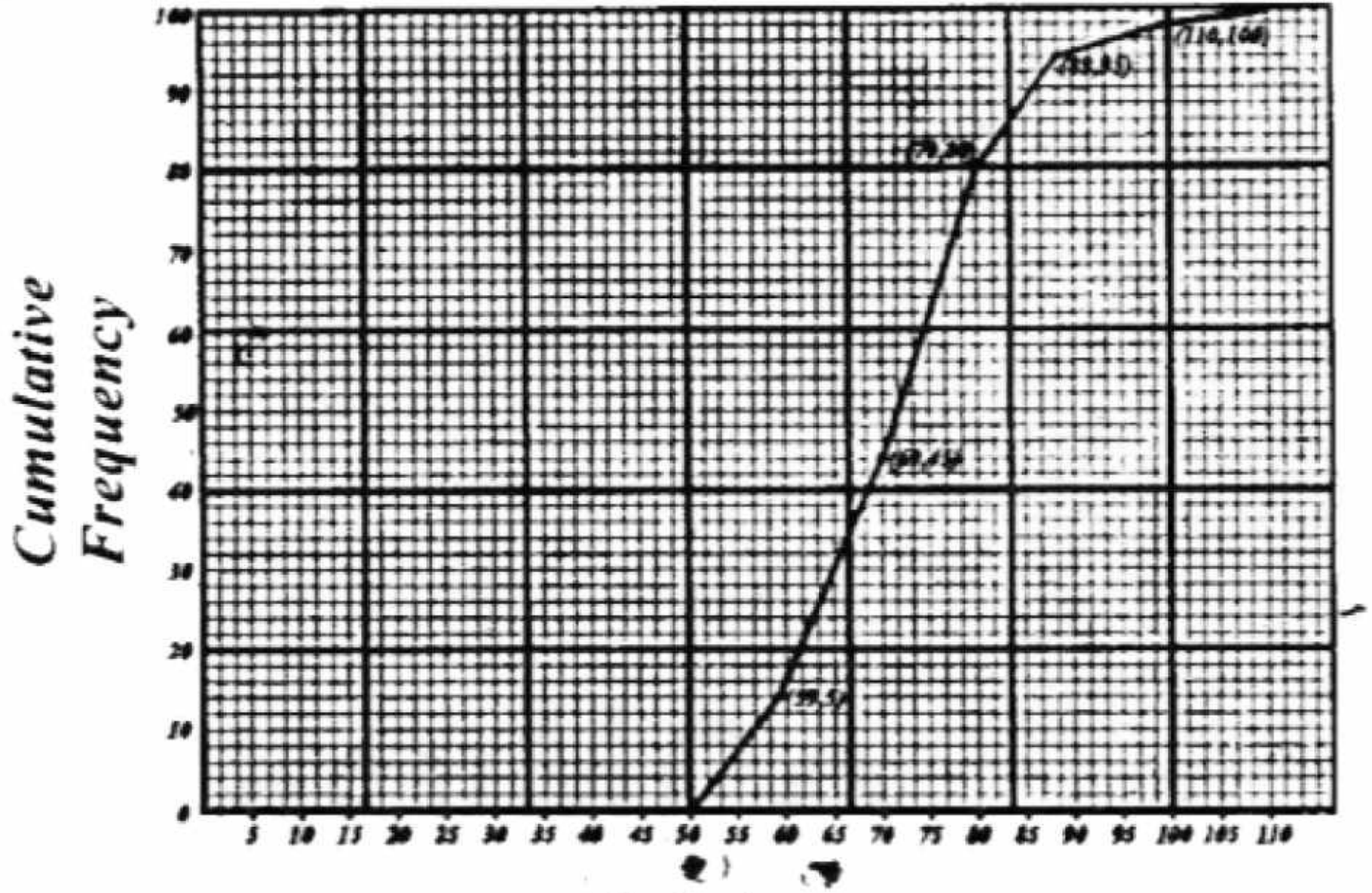
(Ogive)

(v) The table gives the distribution of weights (kilograms) of 100 people.

Weight (kilograms)	*50-59*	*60-69*	*70-79*	*80-89*	*90-99*	*100-109*
Frequency	*15*	*30*	*35*	*15*	*3*	*2*

Solution:-

Class intervals	Frequency	Cumulative frequency
50 - 59	15	15
60 - 69	30	15 + 30 = 45
70 - 79	35	45 + 35 = 80
80 - 89	15	80 + 15 = 95
90 - 99	3	95 + 3 = 98
100 - 109	2	98 + 2 = 100
Total	100	


Cumulative
Frequency
100
90
80
70
60
50
40
30
20
10
0
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110

(Ogive)