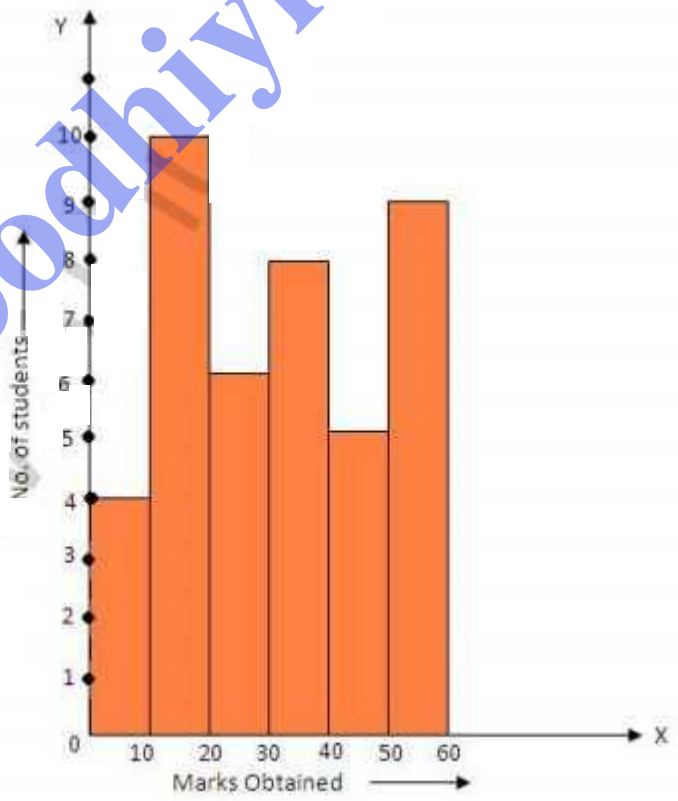
Graphical Representation

EXERCISE - 22.1

Q1. Draw a histogram to represent the following data:

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	4	10	6	8	5	9

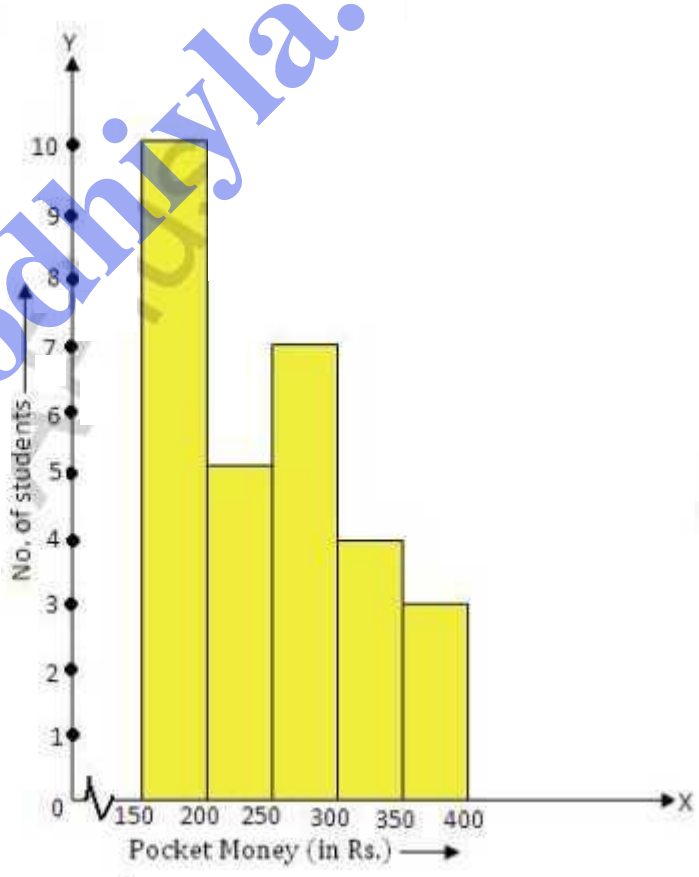
Sol. We take marks on x-axis and no. of students on y-axis and complete histogram as shown.



Q2. Draw a histogram to represent the following data:

Pocket money (in Rs)	150-200	200-250	250-300	300-350	350-400
No. of students	10	5	7	4	3

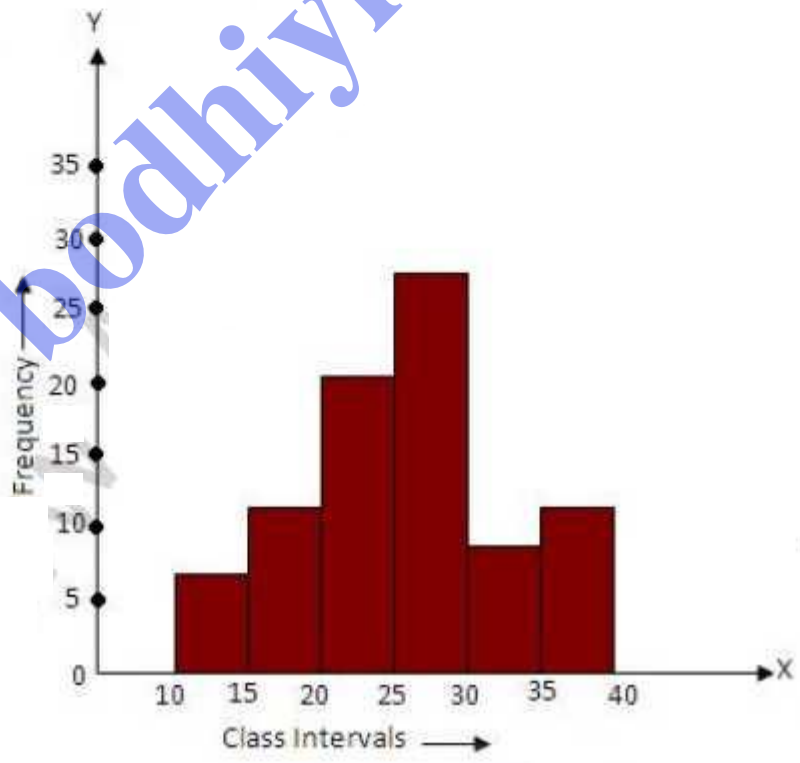
Sol. We take pocket money on x-axis and no. of students on y-axis and complete the histogram.



Q3. Draw a histogram for the following data:

Class marks	12.5	17.5	22.5	27.5	32.5	37.5
Frequency	7	12	20	28	8	11

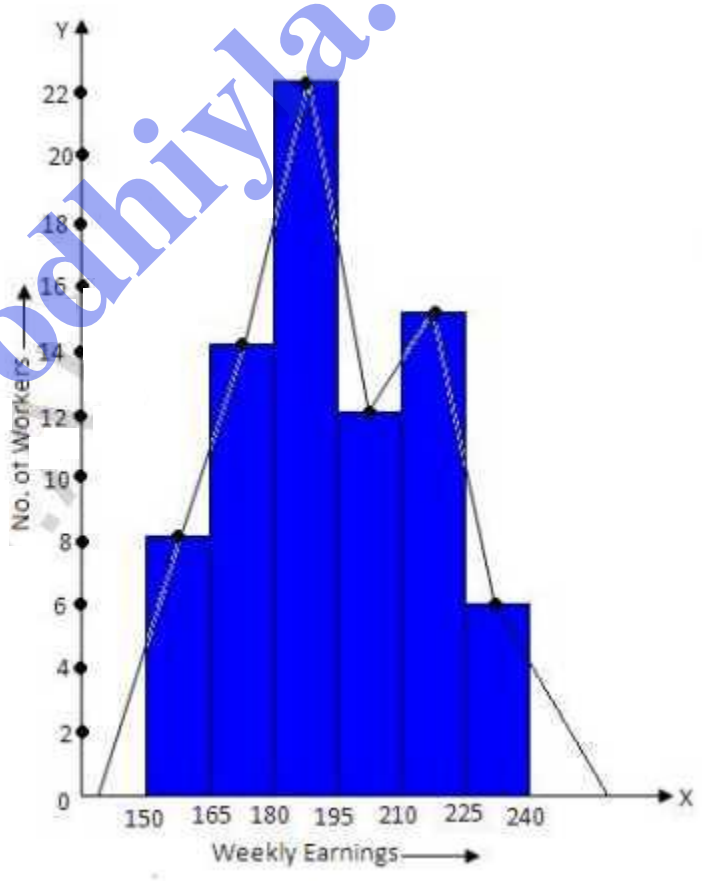
Sol. We are given mid-values (class marks) of each class interval. We represent them in class intervals as 10-15, 15-20, 20-25, 25-30, 30-35 and 35-40 respectively and then draw the histogram.



Q4. Construct a histogram for the following data:

Weekly earning (in rupees)	150-165	165-180	180-195	195-210	210-225	225-240
No. of workers	8	14	22	12	15	6

Sol. We take weekly earnings on x-axis and no. of workers on y-axis then draw the histogram and frequency polygon on the same graph as shown.

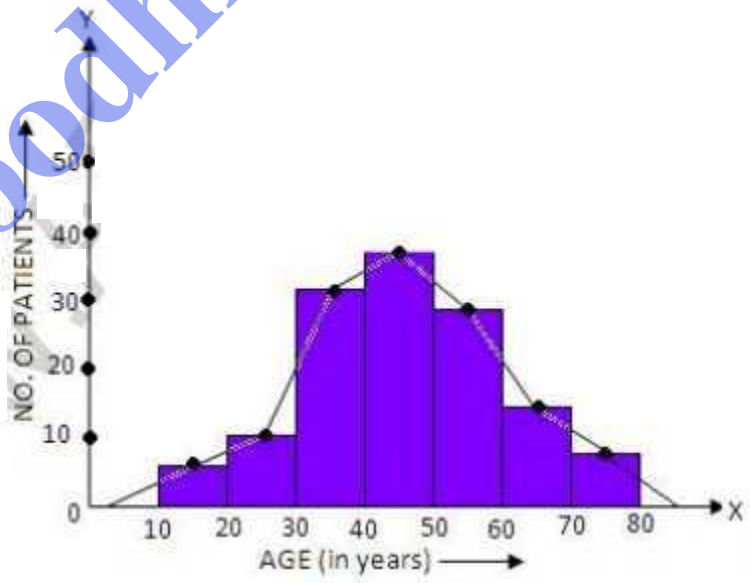


Q5. In a study of diabetic patients, the following data were obtained.

Age (in years)	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of patients	3	8	30	36	27	15	6

Represent the above data by a histogram.

Sol. We take age (in years) on x-axis and no. of patients on y-axis and then draw the histogram and frequency polygon on the same graph as shown.

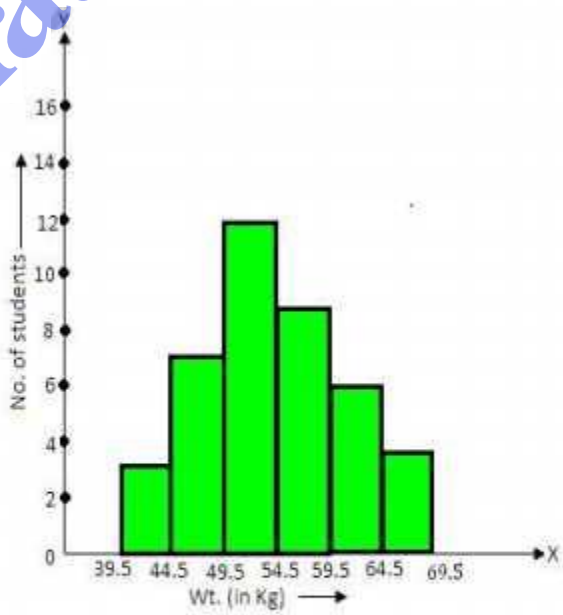


Q6. Draw a histogram for the following data:

Wt. In kg	40-44	45-49	50-54	55-59	60-64	65-69
No. of students	3	7	12	9	6	4

Sol. We convert the class interval in continuous form such as 39.5-44.5, 44.5-49.5, 49.5-54.5, 54.5-59.5, 59.5-64.5, 64.5-69.5 and then draw the histogram as shown.

Class intervals	Frequency
39.5–44.5	3
44.5–49.5	7
49.5–54.5	12
54.5–59.5	9
59.5–64.5	6
64.5–69.5	4



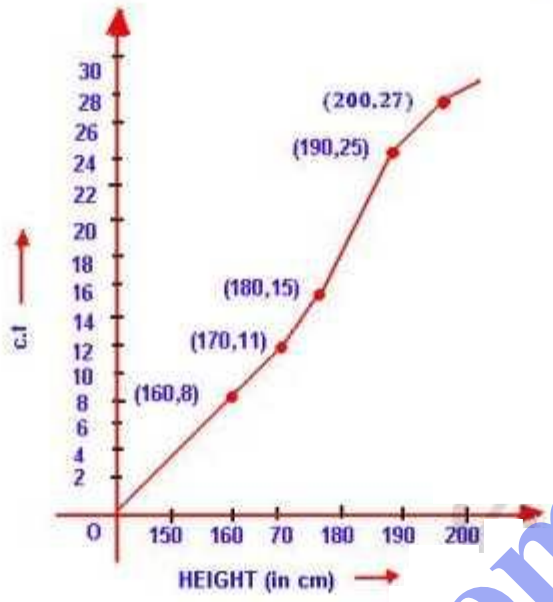
Q7. Draw an ogive for the following frequency distribution.

Height (in cm)	150-160	160-170	170-180	180-190	190-200
No. of students	8	3	4	10	2

Sol. Writing in cumulative frequency table:

Height (in cm)	No. of students	c.f.
150-160	8	8
160-170	3	11
170-180	4	15
180-190	10	25
190-200	2	27

Now we take points (160, 8), (170, 11), (180, 15), (190, 25) and (200, 27) on the graph and join them with free hand form an ogive.



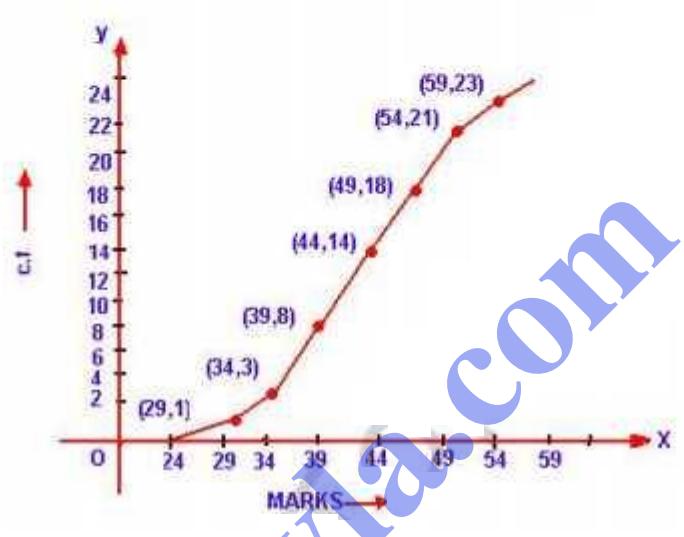
Q8. Draw an ogive for the following data :

Marks obtained	24-29	29-34	34-39	39-44	44-49	49-54	54-59
No. of students	1	2	5	6	4	3	2

Sol. Writing the given data in Cumulative frequency table :

Marks obtained	No. of students (f)	c.f.
24-29	1	1
29-34	2	3
34-39	5	8
39-44	6	14
44-49	4	18
49-54	3	21
54-59	2	23

Now take the points (29, 1), (34, 3), (39, 8), (44, 14), (49, 18), (54, 21), (59, 23) on the graph and join them in freehand to give the ogive.



Q9. Draw an ogive for the following data:

Class intervals	1-10	11-20	21-30	31-40	41-50	51-60
Frequency	3	5	8	7	6	2

Sol. Writing the given data in cumulative frequency table:

Class	No. of students	Frequency	c.f.
1-10	0.5-10.5	3	3
11-20	10.5-20.5	5	8
21-30	20.5-30.5	8	16
31-40	30.5-40.5	7	23
41-50	40.5-50.5	6	29
51-60	50.5-60.5	2	31

Now take the points (10.5, 3), (20.5, 8), (30.5, 16), (40.5, 23), (50.5, 29) and (60.5, 31) on the graph and join them with free hand to form an ogive.