DAY 7

CUMULATIVE FREQUENCY GRAPH OR AN OGIVE

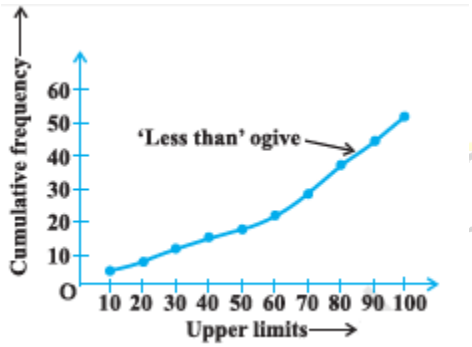
In IX class, we have learnt to draw frequency curves. The frequency curve of a frequency distribution is obtained by drawing a free hand curve. The graphs we have learnt so far are histograms and frequency polygons.

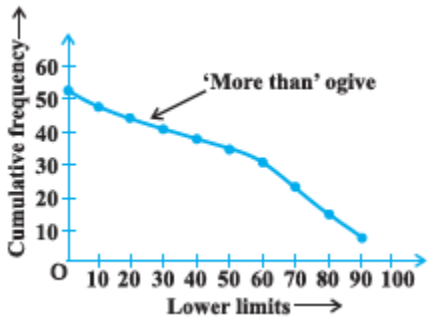
In this section, we shall draw cumulative frequency curves or **ogive curve**.

ogive are of two types (i) less than ogive (ii) More than ogive .

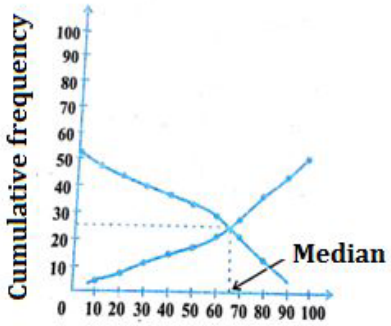
- In 'Less than' ogive, we start with the upper limits of the classes and go on adding the frequencies. When these frequencies are plotted against their corresponding upper limits, we get a ***rising curve***.

- In 'More than ogive, we start with the lower limits of the classes and from the total frequencies we subtract the frequency of each class. When these frequencies are plotted against their corresponding lower limits, we get a ***declining curve.***





- When both curves are drawn together then ***x*** **–coordinate of point of intersection is Median.**

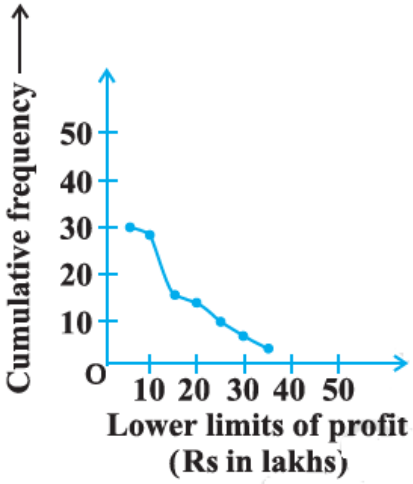


1. **The annual profits earned by 30 shops of a shopping complex in a locality give rise to the following distribution:** **[Example 9]**

Profit(in lakhs ₹)	No. of shops (f)
More than or equal to 5	30
More than or equal to 10	28
More than or equal to 15	16
More than or equal to 20	14
More than or equal to 25	10
More than or equal to 30	7
More than or equal to 35	3

Draw Ogive curve of the above data.

Sol:- We first draw the coordinate axes with lower limits of the profit along the horizontal axis and the cumulative frequency along vertical axis. Then we plot the points (5,30), (10,28), (15,16), (20,14), (25,10), (30,7)and (35,3). We join these points with free hand to get the 'more than' ogive declinig curve.



2. **Draw both 'less than' and 'more than' ogive curves on one graph and find median of the following:**

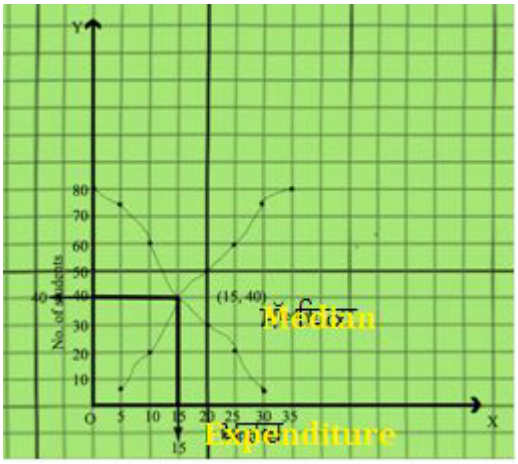
Expenditure (₹)	0–5	5–10	10–15	15–20	20–25	25–30	30–35
Students	5	15	20	10	10	15	5

Sol:- First convert the given series in less than and more than form.

less than		More than	
Expenditure (₹)	**Students**	**Expenditure** (₹)	**Students**
less than 5	5	**More than** 0	80
less than 10	20	**More than** 5	75
less than 15	40	**More than** 10	60
less than 20	50	**More than** 15	40
less than 25	60	**More than** 20	30
less than 30	75	**More than** 25	20
less than 35	80	**More than** 30	5

We first draw the coordinate axes with lower

limits of the expenditure along the horizontal axis and the students along vertical axis. Then we plot the points(5,5), (10,20), (15,40), (20,50)(25,60), (30,75), (35,80) and join these points with free hand to get the 'less than ogive' curve. After that we plot the points (0,80), (5,75), (10,60), (15,40), (20,30), (25,20), (30,5) to get the 'more than' ogive declining curve. They intersect at point(15,40), So x coordinate of that point is 15 which is required Median.



EXERCISE

1. Ex 14.4