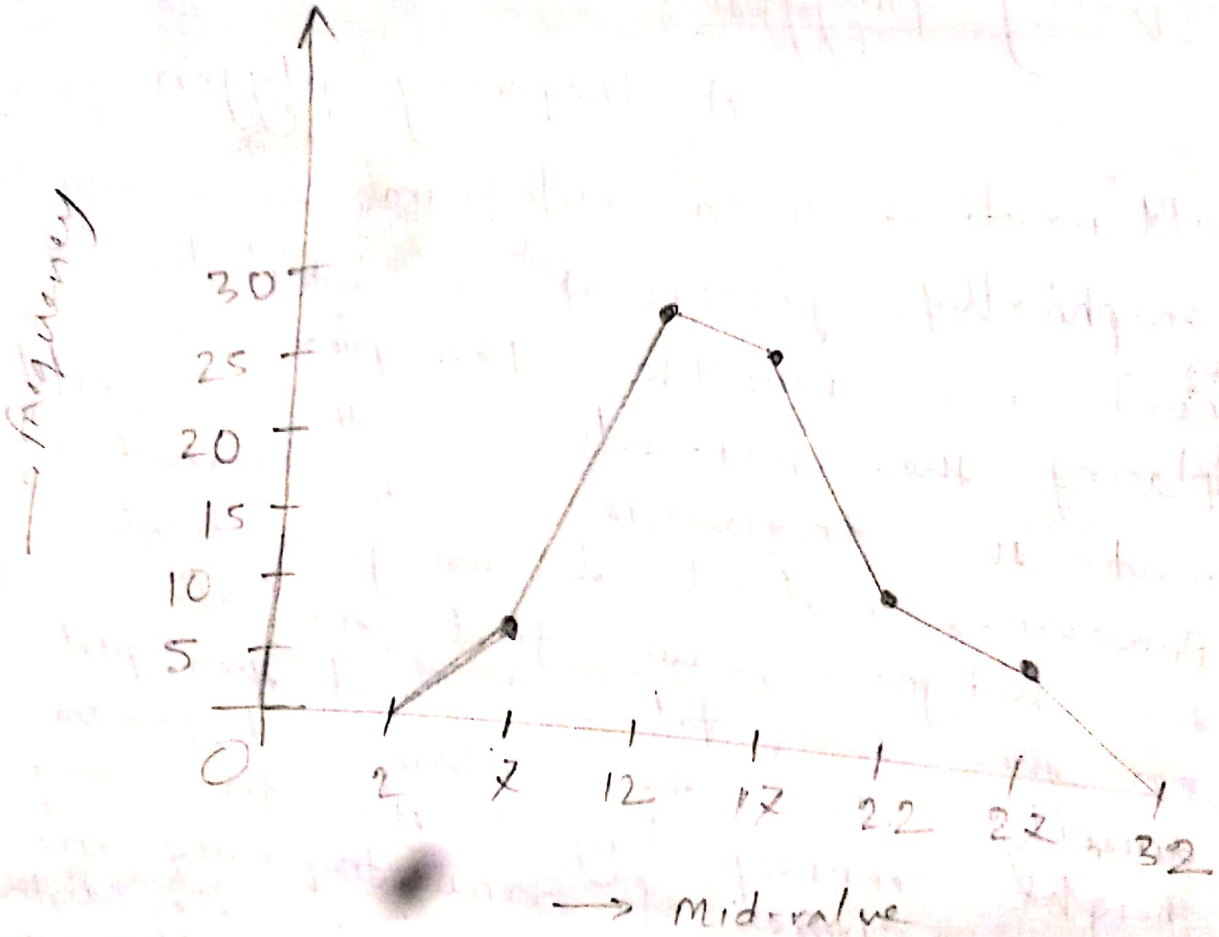
Frequency polygon:

A frequency polygon provides an alternative to a histogram as a way of graphically presenting a distribution of a continuous variable. The presentation involves placing the mid-values on the horizontal axis and the frequencies on the vertical axis. However, instead of using rectangles, as with the histogram, we find the class mid-points on the horizontal axis and then plot points directly above the class mid-points at a height corresponding to the frequency of the class. Classes of zero frequency are added at each end of the frequency distribution so that the frequency polygon touches the horizontal axis at both ends of the graph. This makes the frequency polygon a closed figure. The frequency polygon is then formed by connecting the points with straight lines.

Table:

Expenditure class interval	class midpoint	Class frequency
04.5 – 9.5	7	8
9.5 – 14.5	12	20
14.5 – 19.5	17	22
19.5 – 24.5	22	12
24.5 – 29.5	27	4



Ogive or Cumulative frequency polygon:

An ogive is based on a cumulative frequency distribution. To arrive at a cumulative frequency distribution, the frequencies are to be cumuled just by summing the class frequencies. Two types of cumulative distributions are used to draw an ogive: less than type and more than type.

Constructing ogive:

A graph of the cumulative frequency distribution or cumulative relative frequency distribution is called an ogive. To construct a less than type ogive, the upper class limits are put on the horizontal axis and cumulative frequencies are shown on the vertical axis. A point is then plotted directly above each upper class limit at a height corresponding to the cumulative frequency at that upper class limit. One additional point is then plotted above the lower class limit for the first class at a height of zero. These points are then connected by straight lines. The resulting graph is a less than type ogive.

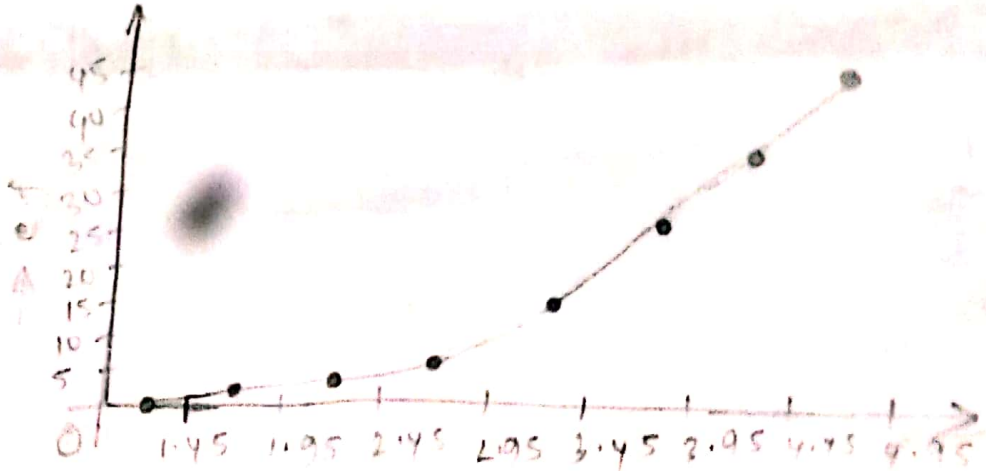
To construct a more than type ogive a point is plotted against each lower class limit at a height corresponding to the

cumulative frequency at that lower class limit. An additional point is to be plotted above the upper class limit for the terminal class at a height of zero. These points are then connected by straight lines. The resulting graph is a more than type ogives

Example: The following table is constructed from data collected on the life length of 20 rats in years for a laboratory experiment. Display the data by a less than type and a more than type ogive.

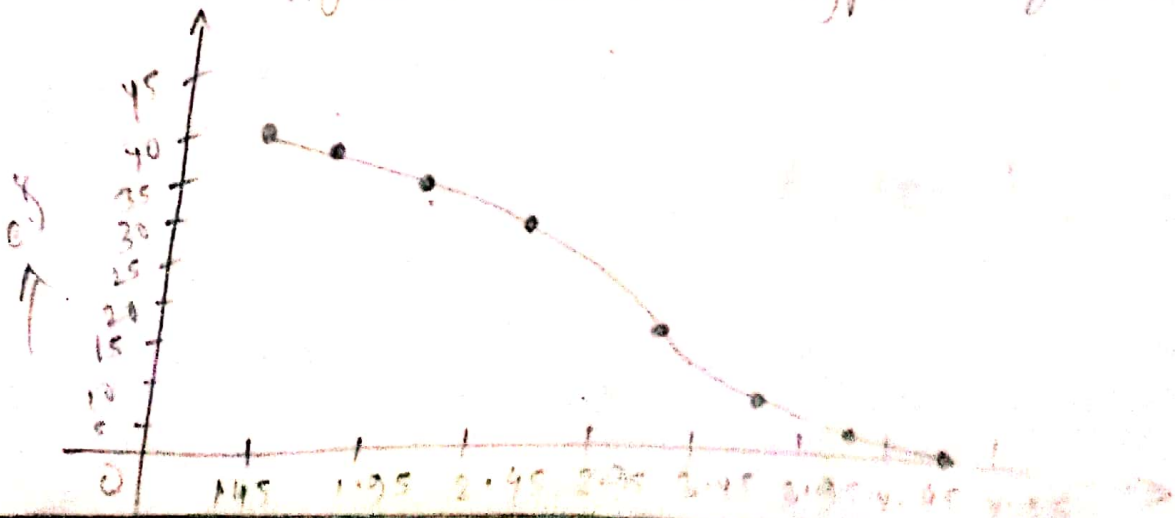
Life lengths (in years)	Number of rats
1.45 – 1.95	2
1.95 – 2.45	1
2.45 – 2.95	4
2.95 – 3.45	15
3.45 – 3.95	10
3.95 – 4.45	5
4.45 – 4.95	3
Total	40

Less than type		More than type	
Age	cumulative frequency	Age	cumulative frequency
Less than 1·45	0	1·45 or more	40
Less than 1·95	2	1·95 or more	38
Less than 2·45	3	2·45 or more	37
Less than 2·95	7	2·95 or more	33
Less than 3·45	22	3·45 or more	18
Less than 3·95	32	3·95 or more	8
Less than 4·45	37	4·45 or more	3
Less than 4·95	40	4·95 or more	0



→ Upper limits of class intervals

figure : Less than type ogive



Line graph:

A Line graph is particularly useful for numerical data if we wish to show time series data such as production of jute for a period of 20 years, export of raw materials from Bangladesh for a period of say 40 years from 1995 to 1999 and the like.

Table: There are different types of line charts or line graphs and these are:

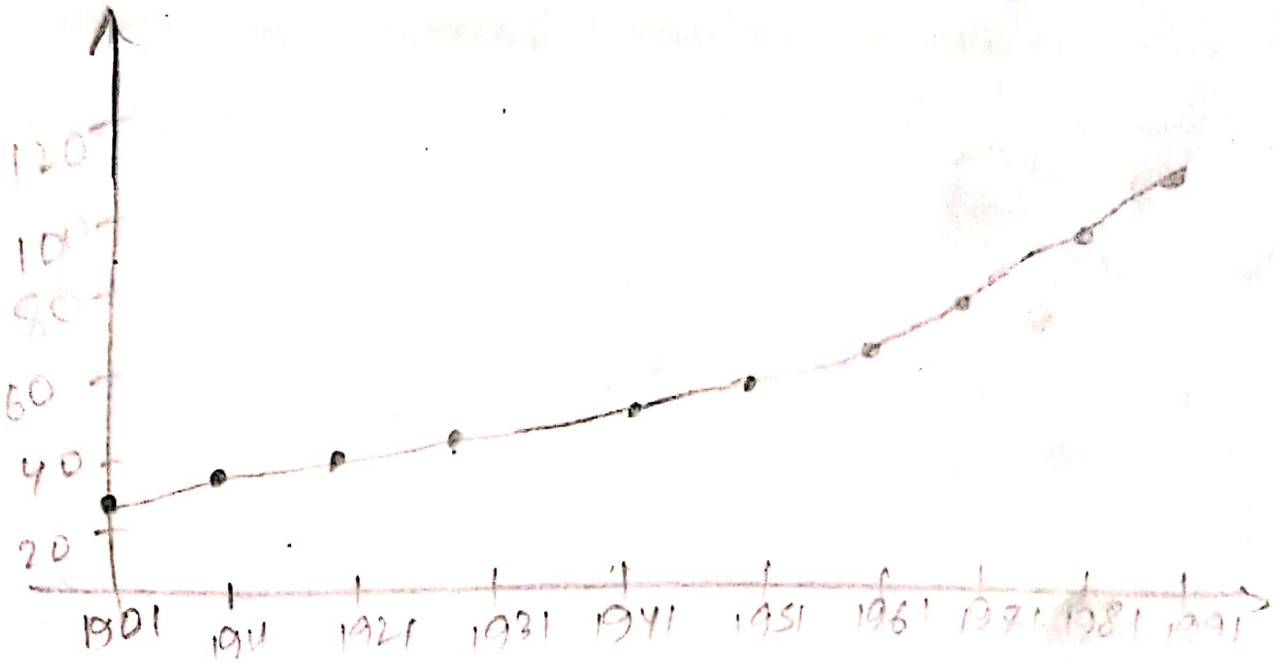
1. Simple line graph
2. Component line graph
3. Balance line graph.

Simple Line graph:

Let there are two variables and for both the variables, the numerical data are available.

Table: Census population of Bangladesh in million: 1901-1991

year	Population	year	Population
1901	28.9	1951	44.2
1911	31.6	1961	55.2
1921	33.2	1971	76.4
1931	35.6	1981	89.9
1941	42.0	1991	111.5



Census years

figure: Line graph for Bangladesh population