# Unit 5 Charts

## 5.0 Introduction

Charts are the graphic component of Excel. The data which is entered as tables can be viewed in the graphical form as charts which makes the figures of data effective, interesting, easy to understand, and easy to analyse and compare data. Chart can be of two types :

**Embedded Charts -** These charts are included in the worksheet and can be moved, copied, and resized as any other graphical object. It's advantage is that it can be viewed alongwith the data and many charts can be inserted.

**Chart Sheet -** Separate Chart Sheets are inserted when a chart is created. It contains only one chart. To create Chart Sheets, choose **Insert -> Chart -> As New Sheet**.
Excel helps you to create chart as either 2-dimensional or 3-dimensional. The Chart Wizard guides you all the way till you finish your work of creating it. After creating a chart, you can enhance the information by adding chart items, such as data labels, a legend, titles, text, and gridlines. You can also format these items using patterns, colours, alignment, fonts, and other formatting attributes. Any change in data will update the changes in the chart which was made using that data.

## 5.1 Objectives

After the study of this unit, you are able to
Draw charts which are graphic component of EXCEL.
Resize and move charts in the worksheet
Format the charts
Use built in formats and user defined formats.

## 5.2 Chart Components

An example of a 2-dimensional chart is :

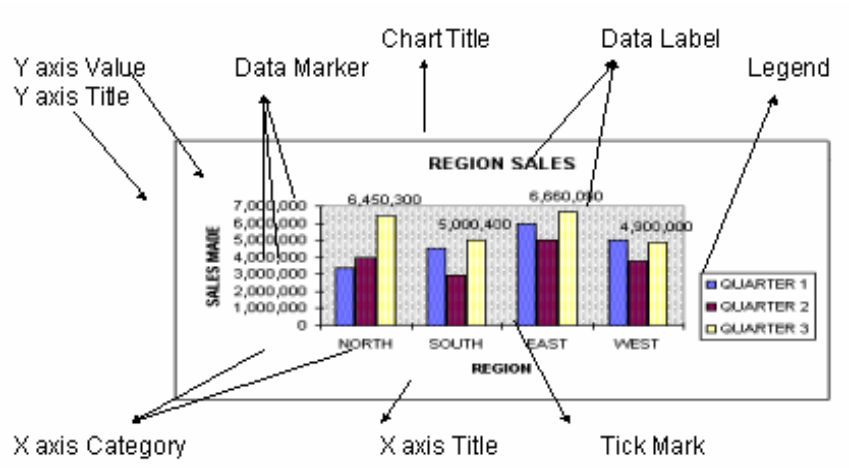



**Chart Title -** A title given to the whole chart.

**X axis Title -** A title given to the X-axis range.

**X axis Category -** This is the categories of the data which have been plotted. These are taken from the leftmost column or the topmost row.

**Y axis Title -** A title given to the Y-axis range.

**Y axis Value -** This is the data-range marked to plot the data series.

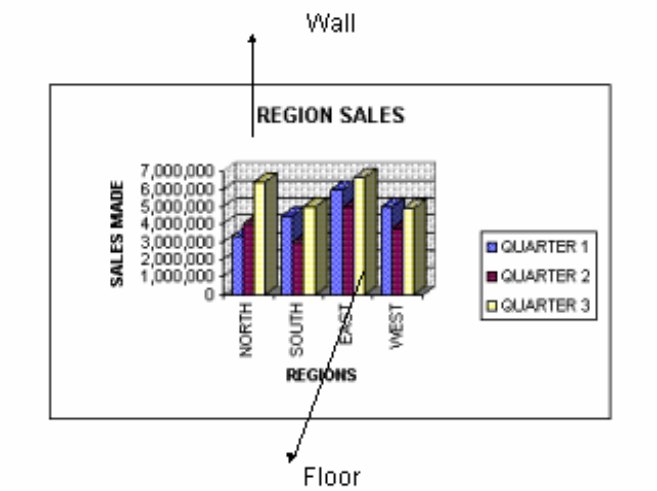
**Data Labels -** The values of the data series plotted.

**Data Markers -** These are used to distinguish one data series from another.

**Legend -** It specifies the colour, symbol or pattern used to mark the data series.

**Tick Mark -** These marks are used to show the scaling of X-axis and Y-axis.

An example of a 3-dimensional chart is :




**Wall -** This is the background of the plotted area.

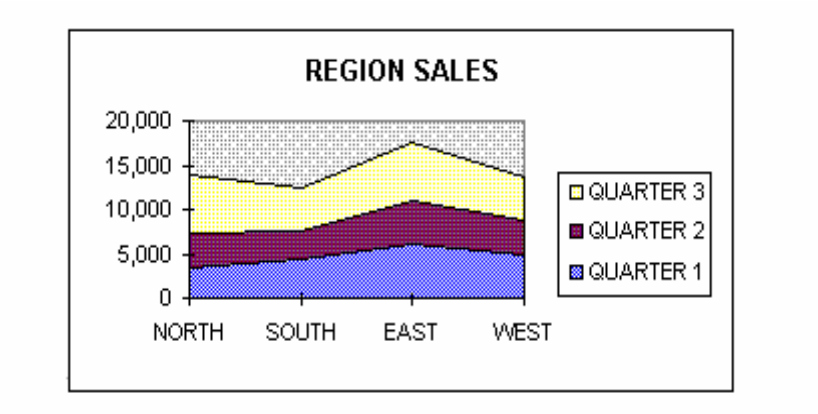
**Floor -** This is the base upon which the data series is plotted.

# 5.3 Chart Types

MS-Excel offers 15 different major chart types, each of which has at least one subtype, or variation. You can change the chart type to present your data most clearly and effectively. The various chart types are :

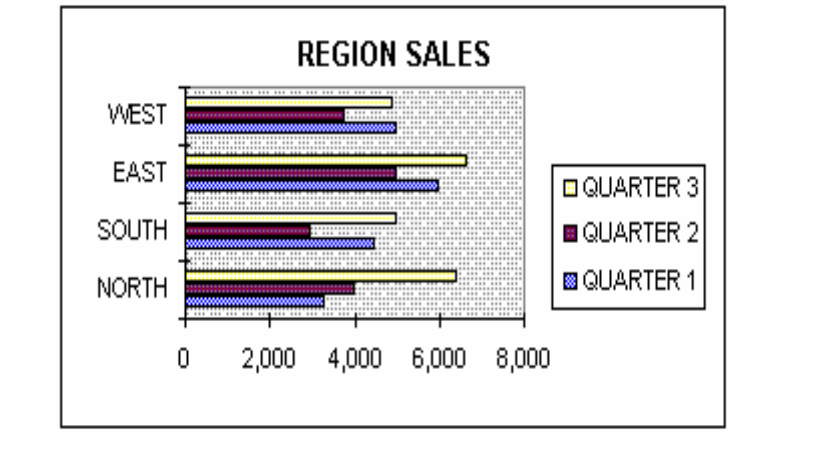
## Area Chart

This shows the magnitude of change over time. It is a stacked line chart, with the area between the lines filled with colour and shading. The data series are plotted one on top of the other.



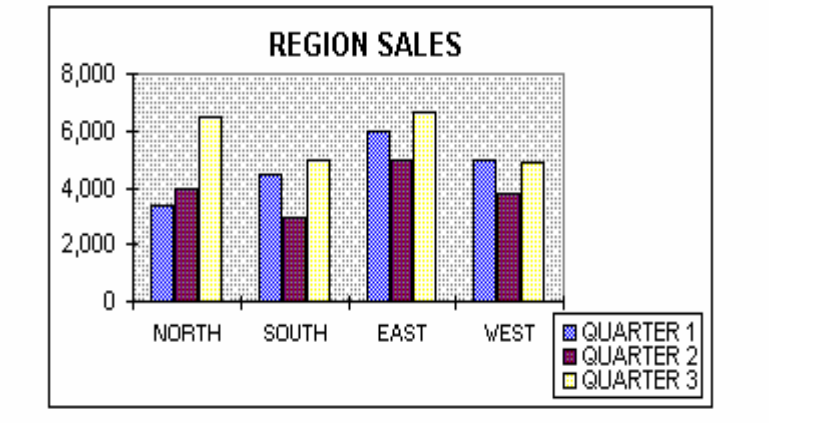

## Bar Chart

It consists of the series of horizontal bars that allow comparison of the relative size of two or more items.



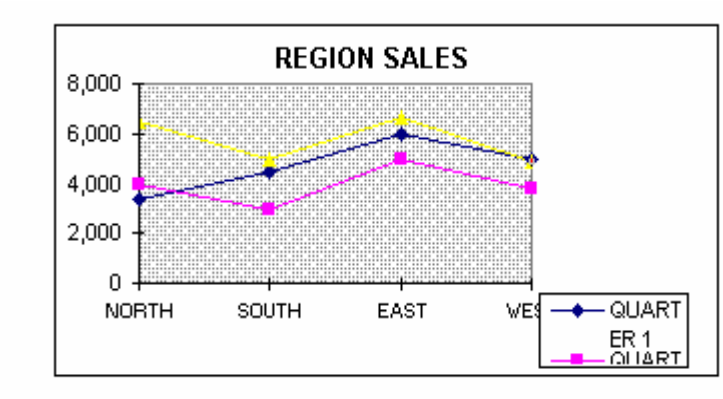

## Column Chart

This consists of a series of vertical columns that allow comparison of the relative size of two or more items.



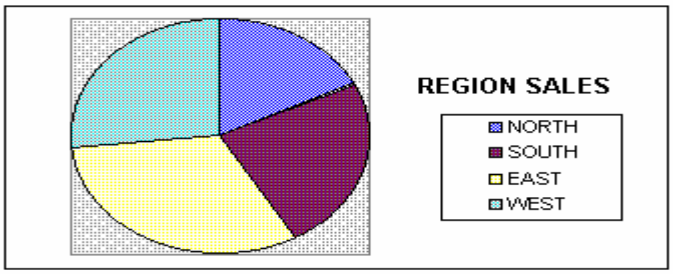

## Line Chart

Each of the data series are plotted as lines of different colour and shading.



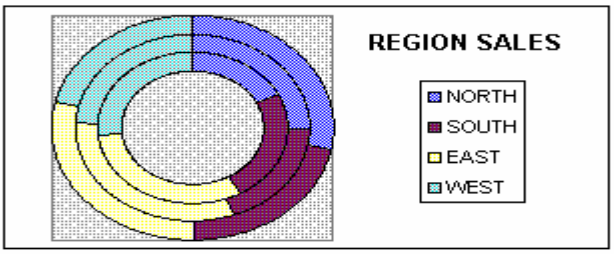

## Pie Chart

These are the best charts to compare the percentages of the sum the data series. It represents only one data series.



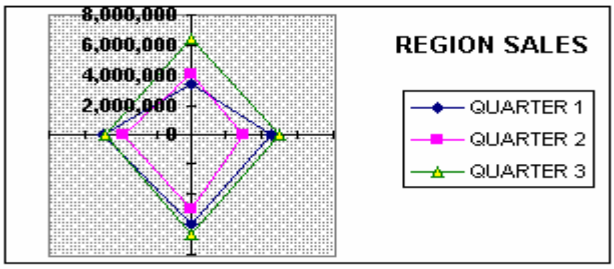

## Doughnut Chart

It is similar to Pie Chart but it represents more than one data series.



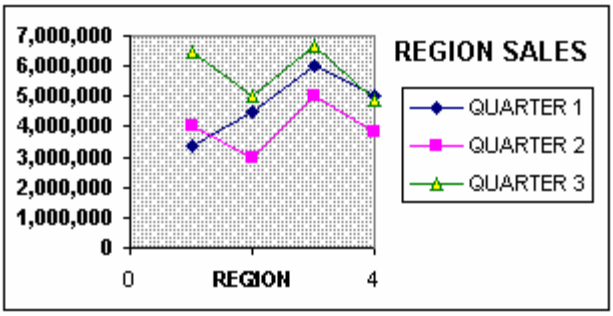

## Radar Chart

This shows the data values in relation to the centre point and to each other. Data of the same data series are connected by lines.




## XY (Scatter) Chart

The value of the data series is plotted as the intersection point of the X-axis and Y-axis.




# 5.4 Chart Wizard

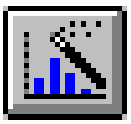
The Chart Wizard is a series of dialog boxes that guides you through the steps required to create a new embedded chart or modify settings for an existing embedded chart. It displays either five steps or two steps, depending on what is selected. If worksheet data is selected, all five steps are displayed because you're creating a new chart. If you've selected an existing chart to modify it, only two steps are displayed. When you choose the Finish button in any of the steps, the ChartWizard finishes your chart for you.

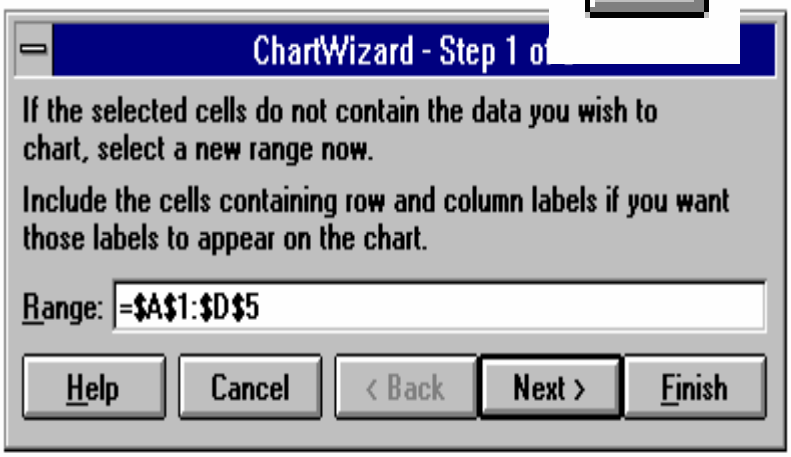
Following are the steps to create the chart through Chart Wizard :

1. To create a new chart, enter the data given below.

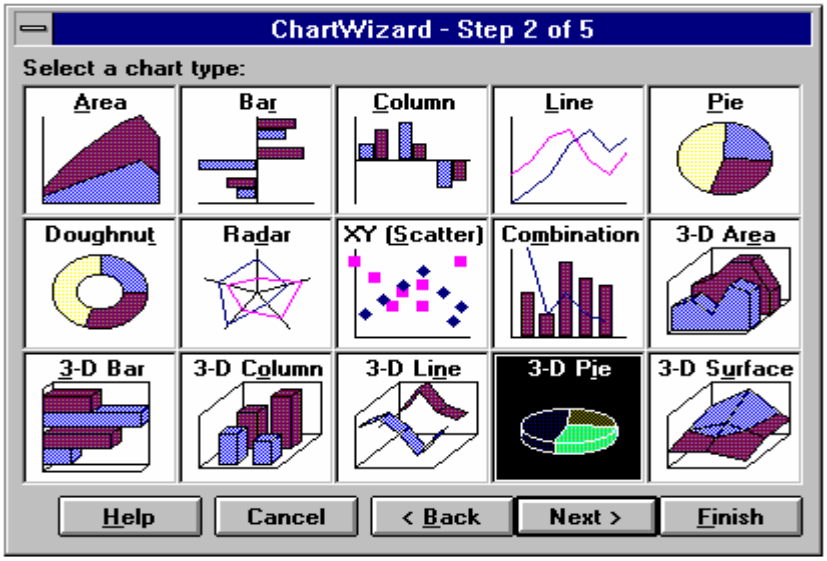
| | A | B | C | D |
|---|---|---|---|---|
| 1 | REGION | QUARTER 1 | QUARTER 2 | QUARTER 3 |
| 2 | NORTH | 3,335 | 4,000 | 6,450 |
| 3 | SOUTH | 4,500 | 2,960 | 5,000 |
| 4 | EAST | 6,000 | 5,000 | 6,660 |
| 5 | WEST | 5,000 | 3,800 | 4,900 |

2. Click on Chart Wizard tool button from Standard Toolbar. The pointer changes to crosshair shape.

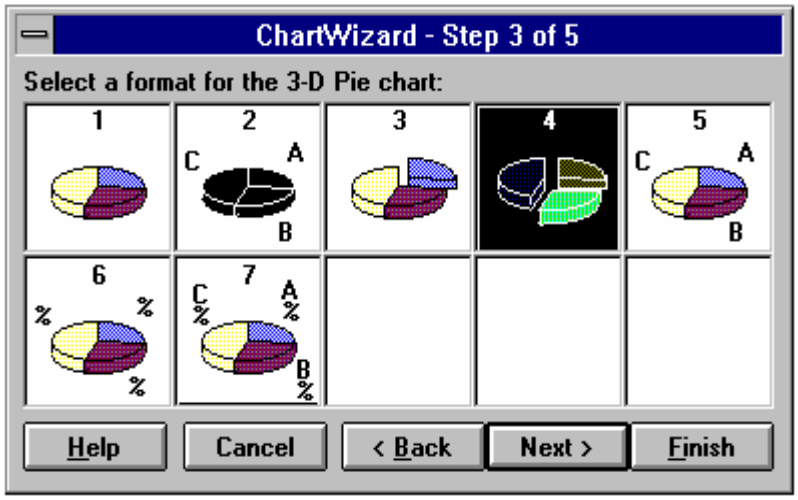
3. Mark the area on the worksheet to place the  chart.



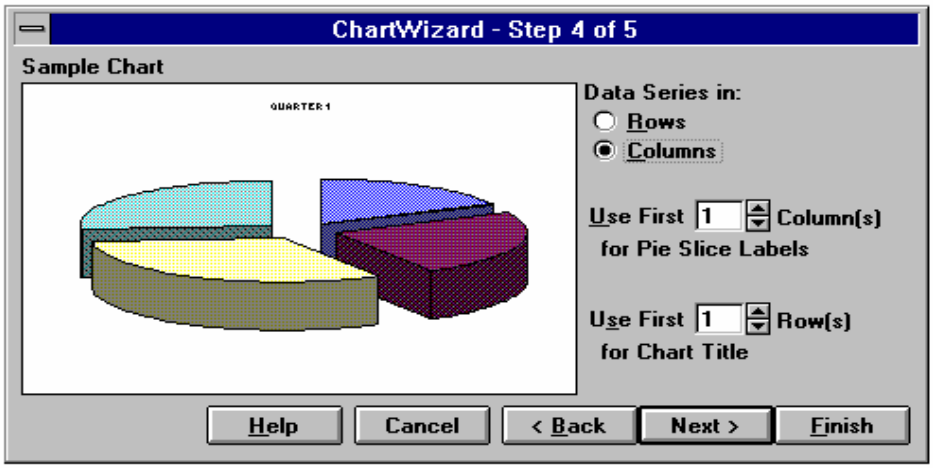

4. Enter the range of data from the worksheet in the **Range** box and click on **Next**.



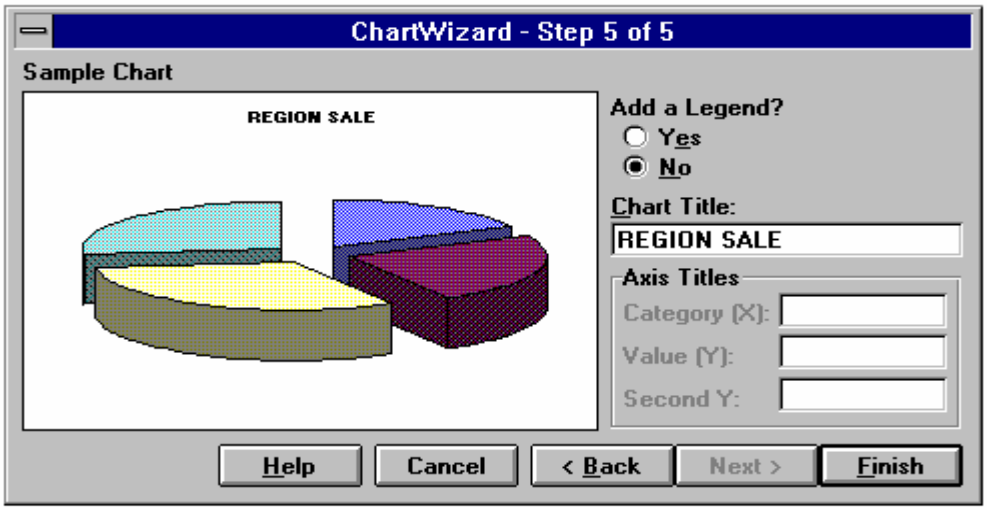

5. Select the chart type from the charts displayed and click on **Next**.




6. Select the format for the selected chart and click on **Next**.




7. Sample of the chart is shown. Alongwith this, you can specify X-axis Label and Legend text. Even the data series can be changed. By default, data in the columnar pattern is taken, which can be changed to be taken as row by row. Click on Next.




8. Enter the Title for the chart, X-axis and Y-axis. Click on **Finish**.

# 5.5 Resizing and Moving Charts

You can easily resize or move the chart to the new location by clicking on the cell. The whole chart is selected showing a border around it with the handles on its sides.
If you place the pointer on these handles, the shape of the pointer changes to the double arrow. Drag it to increase or decrease the size of the chart.
If you place the pointer on the sides of the border and drag it, the whole border will move. Thus the chart can be moved and placed anywhere you want.

# 5.6 Editing Charts

Once you have created a chart, you may want to update it by adding or deleting more data series or data points from the worksheet, change the chart type format a chart, or draw inside a chart. The method you use to add data is determined by the kind of chart (embedded chart or chart sheet) you want to update.

## 5.6.1 Adding or Deleting Data

Adding or deleting data automatically updates any existing legend. Using the Chart Wizard, you can change the range that a chart is based on. If your chart was created from multilevel categories and series, you must use the ChartWizard to reselect your data and recreate the chart.

1. To add data to an embedded chart on a worksheet, you can drag and drop data from that worksheet. Using copy and paste is the easiest way to add data to a chart sheet. Or you can use the **New Data** command for either embedded charts or chart sheets.
2. You can also delete data series from a chart by double clicking on that and pressing the **Delete** key.

## 5.6.2 Change the Chart Type

There are various chart types to choose from. This can be done if you follow the given steps :

1. Select the chart by double clicking on it. It puts a border around the chart.
2. Choose **Format -> Chart Type**, and select the new chart.

**or**
Click on Chart Wizard tool button. (this will show only 2 steps out of 5.

## 5.6.3 Format a Chart

Once you create a chart and add chart items such as data labels or titles, you can then format many of the items in the chart.

1. Select the chart area or plot area.
2. Press the right mouse button to get the short-cut menu, and choose **Format Chart Area**.
3. This opens up the dialog box where you can globally apply colours, patterns, borders, and text fonts.
   One chart item at a time can also be selected and formatted.

There is an easy alternative to selecting and formatting individual chart items, i.e., you can apply a built-in chart autoformat. Or you can create your own custom (user-defined) autoformats, which you can apply to charts. Autoformats work much like templates or styles. Each autoformat is based on a chart type. It can also include subtype, legend, gridlines, data labels, colours, patterns, and the placement of various chart items. When you apply an autoformat to an active chart, it changes the entire look of the chart but does not affect your data.

### To use a Built-in Format

1. Select the chart.

2. Choose **Format -> Autoformat**.

3. From the dialog box, select **Built-in** choose any of the charts from **Galleries.** On the right side, various formats are displayed from where you can select any.

### To Create a Custom Format

1. Create a chart having all those features (chart type, font, pattern and other formats).

2. Activate the chart.

3. Choose **Format -> Auto Format**.

4. Select the **User-defined** option and click on **Customise** button.

5. Click on the **Add** button.

6. Enter the name for the format, if desired.

7. Click on OK.

## 5.6.4 Drawing in the Chart

You can draw the objects in the chart in the similar manner as you draw on the worksheet. For this,

1. Select the chart.

2. Activate the Drawing Toolbar, if it is not activated already.

3. Click on the appropriate tool button of the toolbar and draw on the chart.

# 5.7. Use Charts for Analysis

The data shown as charts can be best analysed if a trendline is also added to the data series to show the trend, or the direction of the data in the series. Trendlines graphically illustrate trends in data series. Trendlines are commonly used when you are charting problems of prediction, also called regression analysis. Using regression analysis, you can extend the trendline forward or backward beyond the actual data to show a trend. You can also create a moving average, which smoothes out fluctuations in data, showing the pattern or trend more clearly.

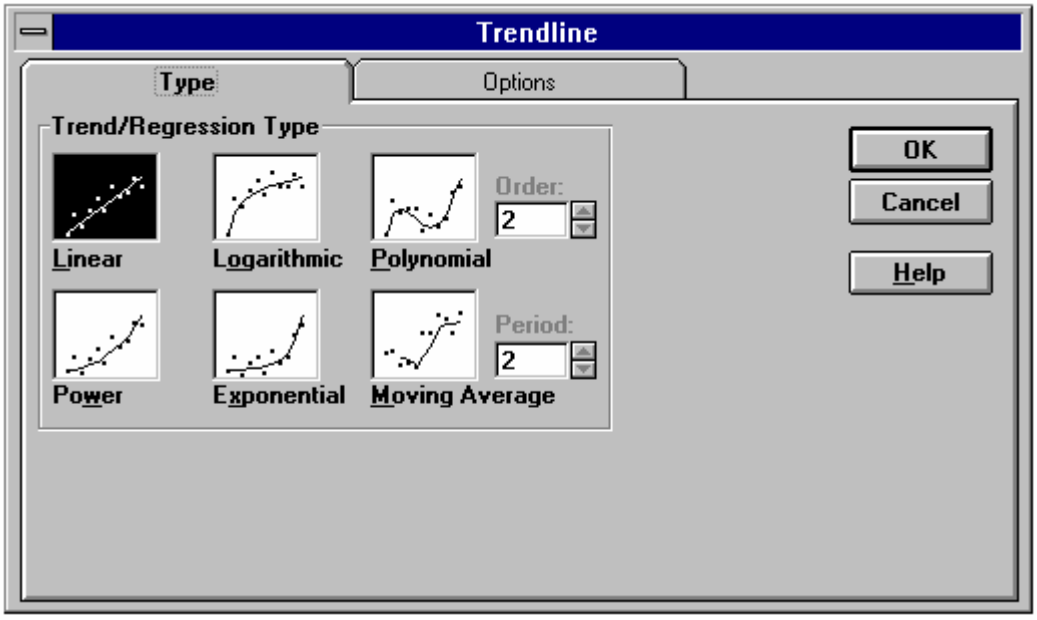
You can add trendlines to data series that are formatted as bar, column, line, and xy (scatter) charts, but You cannot add trendlines to a data series in 3-D charts, or radar, pie, or doughnut chart groups. If the data series of any of these chart types is modified, the associated trendlines is deleted permanently.

If there is a change in the data series, the trendlines values are recalculated and the shape is adjusted accordingly.

## 5.7.1 Create a Trendline

To add the trendlines in the chart, follow the given steps :

1. Activate the chart.
2. Select the data series to which the trendline has to be associated.
3. Choose **Insert -> Trendline** command.




4. On the Type tab, select the type of trendline you want. You can choose from among five regression types: linear, polynomial, logarithmic, exponential, and power. The type you choose determines how the trendline is calculated.
5. On the Options tab, specify the name for the trendline.

## 5.7.2 Format the Trendline

After creating a trendline, you can change its color, style and weight by double clicking the trendline to display the Format Trendline dialog box.

### 5.7.3 Delete the Trendline

1. Select the trendline you want to delete.

2. Choose Edit -> Clear -> Trendline command.

or

Press the DEL key.

# 5.8 Printing Charts

The chart which is created can be printed in the similar way as the worksheet is printed.

### To Print the Embedded Chart

This can be printed either with the data by selecting the range of worksheet including the data and the chart, or without data also by :

1. Select the chart.
2. Choose **File -> Print**.

### To Print the Chart Sheet

1. Choose **File -> Page Set-up**.
2. After selecting the appropriate options for chart size, page size, margins, header and footer, Click on **Print...** (**Print Preview** button allows the user to view the chart before taking the print out.)

# 5.9 Summary

In this session, you learned:

1. To draw charts using Chart Wizard.
2. Charts can be resized and moved in the worksheet.
3. Editing of chart type, pattern, colour and text font can be easily done.
4. Once you select the chart, most of the menu commands are displayed in relation to charts only.
5. Short-cut menu can be used to insert data labels, legends, and select the chart type.
6. Built-in formats and User-defined formats can be used to easily and quickly format the charts.
7. Charts are very useful tools to analyse data.
8. Embedded charts as well as Chart Sheets can be printed.

# 5.10Exercise

1. What is the significance of formulas in calculations ?
2. Explain the recalculation feature of MS-Excel.
3. Give the basic properties of formulas.
4. What are functions ?
5. Give two examples for each category of functions.

6. Differentiate between VLOOKUP() and HLOOKUP() functions.
7. What is Function Wizard ?