

Spreadsheet

4.0 INTRODUCTION

Spreadsheet applications (sometimes referred to simply as spreadsheets) are computer programs that let you create and manipulate spreadsheets electronically. In a spreadsheet application, each value sits in a cell. You can define what type of data is in each cell and how different cells depend on one another. The relationships between cells are called formulas, and the names of the cells are called labels.

A table of values are arranged in *rows* and *columns*. Each value can have a predefined relationship to the other values. If you change one value, therefore, you may need to change other values as well, or they will change automatically.

Once you have defined the cells and the formulas for linking them together, you can enter your data. You can then *modify selected values* to see how all the other values change accordingly. This enables you to study various what-if scenarios.

Excel 2010 is a popular spreadsheet program, where you design worksheets using this software package. Excel 2010 uses a workbook-style presentation which is made up of several worksheets, like pages in a notebook.

4.1 OBJECTIVES

The reader will be able to understand the following:

- Elements of Spreadsheet
- Manipulation of Cells in MS-Excel
- Functions and Charts in MS-Excel

4.2 ELEMENTS OF ELECTRONIC SPREADSHEET

When you are working with a spreadsheet package such as MS-Excel 2010 you have to know some spreadsheet terminologies. Some such terms are given in the following paragraphs.

Workbook

A workbook is a collection of many worksheets. In a single workbook, you can store information in an organized manner. By default, a workbook opens with three worksheets and it can contain a maximum of 255 worksheets.

Worksheet

A worksheet is a sheet made up of rows and columns. It is used for planning a project or financial documents of an organization. Worksheet refers to the actual document you create by using the spreadsheet program. A worksheet is always stored in a workbook.

-
- *Excel is a popular spreadsheet program, where you design worksheets using this program.*
-

Chartsheet

Chartsheet is a separate sheet in a workbook that contain only graphs or charts. It is useful when you want to see a chart or tabular data separated from other type of data.

Row

A row is a horizontal block of cells that runs through the entire width of the worksheet. The rows are numbered from top to bottom along the left edge of the worksheet. The first row is numbered 1, the second 2, and so on. There can be a maximum of 1,048,576 rows in an Excel 2010 worksheet.

Column

A column is a vertical block of cells that runs through the entire worksheet. A worksheet contains 16,384 (A to XFD) columns. The first column is A, the second is B and so on until you reach Z. Then comes column AA through XFD. The last (or rightmost) column of the worksheet, XFD is the 16,384th column.

Cell

A cell is the intersection of a row and a column. For example, the uppermost cell is A1 (column A, row 1). Cell G9 is the intersection of column G, row 9. When you select a cell by clicking it with the mouse, or moving to it using the keyboard, it becomes the active cell.

Formula

Formulas are equations that perform calculations on values in your worksheet. It is an order of values, names, cell references, functions and operators in a cell that together give a new values. A formula always begins with = (equal) sign.

Function

Functions are pre-defined formulas or programs that perform calculations in Excel on specific values, called arguments. Each function takes specific types of arguments such as numbers, references, text, or logical values.

Working with Spreadsheet

In Excel 2010, each workbook can contain many worksheets. These sheets may also contain *charts*, *macros*, etc. Sheets may contain different types of information but all data or information is related to each other.

Generally, spreadsheet is a software tool and worksheet is a work file created with spreadsheet software. But sometimes, worksheet is also called a spreadsheet.

Each worksheet contains 16,384 columns and 1,048,576 rows. The intersection of a row and a column forms a cell in which you can enter data or a formula. Column headings start at A and as they reach the letter Z column, headings restart with AA, AB, and so on till XFD. Row headings, down the left side of a sheet, go from 1 to 1,048,576. It is equally easy for formulas to refer to information in another worksheet of the same workbook as it is in the same worksheet.

Terminologies used in Ms-Excel

The following terminologies should be kept in mind, while using MS-Excel.

Select	Highlight a cell or group of cells, dialog box option, or graphical object with the keyboard or mouse action.
Choose	Execute and complete a command.
Active	Bring an application or document window to the foreground.

Table 4.1 gives the details of the terminology for the mouse operations.

Table 4.1 Terminologies for Mouse Function

Action	Function
Position	Position the mouse pointer on an item.
Click	Point to an item and then quickly press and release the mouse left button.
Double click	Point to an item and quickly press and release the mouse left button two times.
Drag	Point to an item, press and hold the mouse left button as you move the mouse pointer to a new location, then release the mouse button.
Right click	Point to an item and click the right mouse button.

4.2.1 Opening of Spreadsheet (Excel 2010)

MS Excel 2010 needs Windows 7 as operating system to run on an IBM PC. However, Excel 2010 can also be run on Windows XP operating system, if service pack 3 is installed on Windows XP.

→ To start Excel 2010 in Windows 7, do this:

1. Click the Start button on the taskbar, highlight All Programs, click Microsoft Office and then click Microsoft Excel 2010 (Figure 4.1).

→ To start Excel 2010 in Windows XP, do this:

1. Click the Start button on the taskbar, highlight All Programs, click Microsoft Office and then Microsoft Excel 2010 (Figure 4.2).

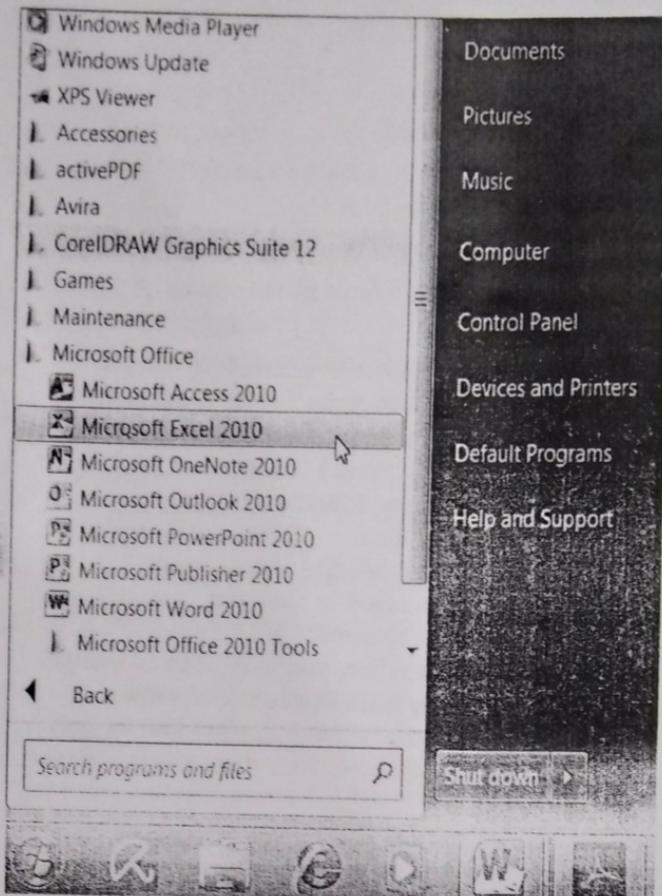


Figure 4.1 Starting Excel 2010 in Windows 7

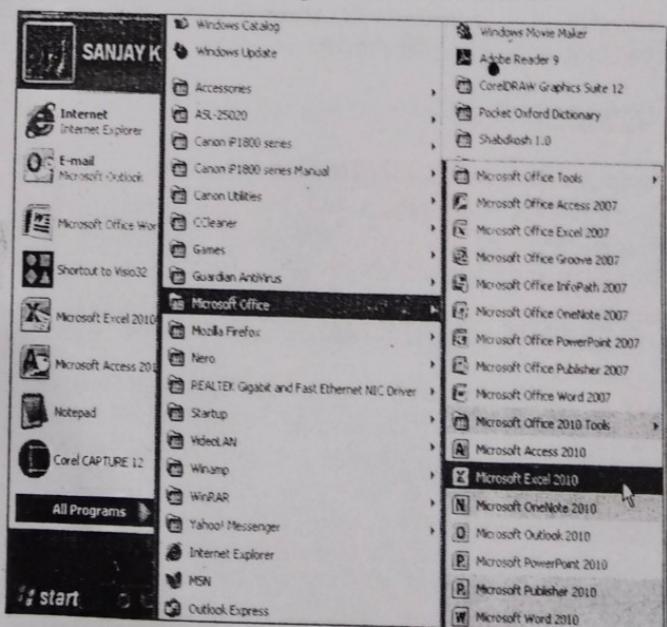


Figure 4.2 Starting Excel 2010 in Windows XP
Excel 2010 Interface

Excel 2010 includes the Microsoft Office Fluent interface, which consists of a customizable visual system of tools and commands. Figure 4.3 shows the elements of Excel 2010 application window and an open Excel 2010 workbook in detail.

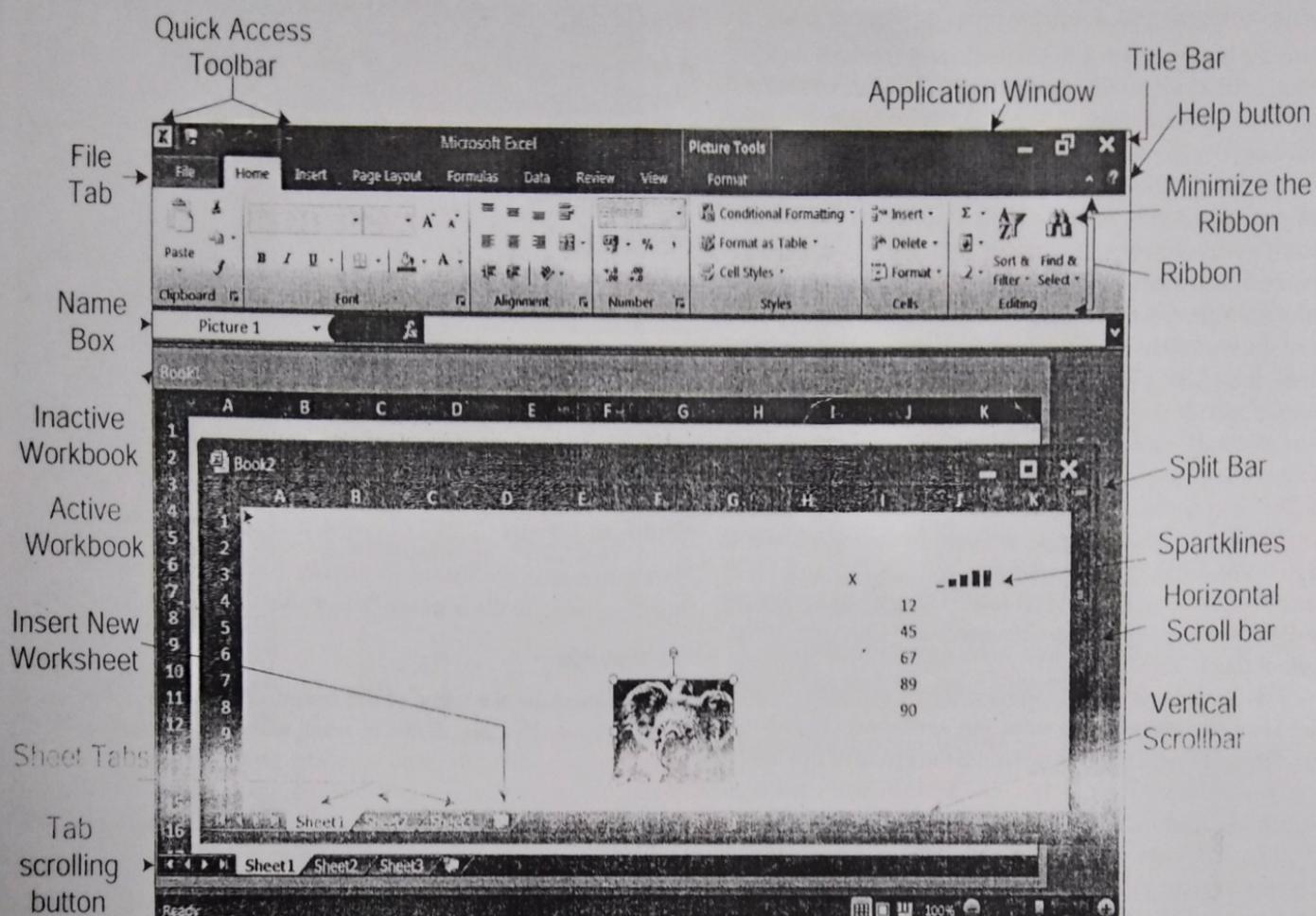


Figure 4.3 Elements of Excel 2010 window

Title Bar

At the top of an Excel 2010 window, there is the title bar. The left edge of this bar has the Office button next to which the name of the open document is displayed. On the right edge of the title bar, the *minimize, restore/maximize* and *close* button are placed (Figure 4.3).

Application Window

The window within which Excel 2010 runs.

Quick Access Toolbar

The Quick Access Toolbar is a customizable toolbar that contains a set of commands that are independent of the tab that is currently displayed. You can add buttons that represent commands to the Quick Access Toolbar. You can move the Quick Access Toolbar from one of the two possible locations. This toolbar is located by default at the top of Excel 2010 window. It provides tools that you use frequently such as Save, Undo and Repeat buttons (See Figure 4.3). You can customize the Quick Access Toolbar by adding commands to it.

Workbook Window

A window within the Excel 2010 application window in which a worksheet, chart, or dialog box is shown.

File Tab

File tab is the colored tab which is located in the upper-left corner of Microsoft Office 2010 programs and below the Quick Access Toolbar (See Figure 4.3). When you click the File tab, you can see the Backstage view. File Tab replaces the office button in Excel 2007. It contains commands like New, Open, Save, Save As, Print, etc.

Active Workbook

The Excel 2010 workbook window that accepts entries and commands.

Inactive Workbook

A window that contains Excel 2010 information. It is not affected by commands. Such a window has a gray title bar and is behind the active workbook window.

Ribbon

Ribbon is displayed just below the title bar (See Figure 4.3). In Ribbon, *Commands* are organized in logical *groups*, which are collected together under *tabs*. You can hide the Ribbon by double-clicking the active tab. Different types of Tabs described hereunder are available in the Ribbon of Excel 2010.

Home Tab: When you open Excel 2010, Home Tab is active. It contains the buttons related to the worksheet contents such as entering, editing, and formatting data. It is divided into seven groups i.e. Clipboard, Font, Alignment, Number, Style, Cells and Editing.

Insert Tab: Insert tab contains the button related to the items which you can insert in your worksheet. Groups of this tab are Tables, Illustrations (picture, clipart) Charts, Sparklines, Filter, Links, Text and Symbols.

Page Layout Tab: It includes the buttons related to the appearance of the worksheet. This tab is divided into five groups i.e. Themes, Page Setup, Scale to Fit, Sheet Options, and Arrange.

Formulas Tab: It contains the button related to functions. Group of this tab are Function Library, Defined Names, Formula Auditing and Calculation.

Data Tab: It contains the button related to data analysis. Get External Data, Connections, Sort & Filter, Data Tools, Outline and Analysis are the group of this tab.

Review Tab: It contains the button related to security and accurate data. Proofing, Language Comments and Changes are the group of this Tab.

View Tab: It contains the button related to view of the worksheet i.e. how you want to view the worksheet. Workbook view, Show/Hide, Zoom, Window are the group of this tab.

Macro Tab: It contains the button related to create, run and edit macros. It also includes commands or buttons to import XML (eXtensible Markup Language) view of the worksheet i.e. how you want to view the worksheet. Code, Add-Ins Controls, XML and Modify are the groups of this tab.

ScrollBar

The scroll bar appears at the *left* for vertical scrolling and at the *bottom right* for horizontal scrolling as seen in Figure 4.3.

- To scroll one cell at a time, click the scroll button with arrows at the corners of the scroll bars.
- To scroll more, drag the scroll button in the scroll bar.

Split Bar

The split bar is located at the top of the *vertical* scroll bar and to the right of the *horizontal* scroll bar (Figure 4.3). Double click the split button on the vertical scroll bar. It splits the sheet horizontally.

Tab Scrolling Buttons

These are the arrow buttons to the left of the sheet tabs for scrolling the worksheet. (See Figure 4.3)

- To scroll between sheet tabs, click an arrow for the direction you want to scroll.
- To scroll one sheet tab at a time in left or right direction, click the middle tab scrolling buttons.
- To scroll through a group of sheet tabs in left or right direction, click the tab scroll buttons at the left and right corner.
- To display a list of the sheets in the workbook right click a tab scrolling button to display the menu.

Sheet Tabs

A tab is near to the bottom of a work book window that displays the name of a sheet (See Figure 4.3). Click the sheet tab to move to the next sheet. To display the shortcut menu, right click the sheet tab. To scroll through the sheet tabs, use the tab scrolling button.

Name Box

The *name box* is at the left end of the formula bar (Figure 4.3). It identifies the selected *cell, chart item or drawing object*.

Formula Bar

The *formula bar* displays the constant value or formula used in the active cell. The formula bar is also used for editing the cell contents. (See Figure 4.3)

Shortcut Menus

Shortcut menus are meant to display frequently used commands relating to the selected *item or object*.

ScreenTips

ScreenTips show the name of the command button shown in ribbon. ScreenTips are shown in small windows appearing as soon as you position the mouse pointer on the toolbar button. Enhanced ScreenTips are larger windows that display more descriptive text than a ScreenTip and can take a link to a Help topic.

Status Bar

Status bar appears at the bottom of the Excel 2010 window. It displays information regarding a selected command or an operation in progress. Note that the right side of the status bar shows zoom slider, different views tool such as Normal, Page Layout and Page Break view.

Creating a new Workbook

→ **To create a new workbook, do this:**

1. Click the File Tab as seen in Figure 4.4. Here, Select **New**. Under Available Templates, click **Blank Workbook** and then click **Create** button or *Alternatively*, press **Ctrl + N** keys together.

☞ You can create a blank workbook or create new workbook based on an existing workbook, the default workbook template, or any other template.

4.2.2 Opening a Workbook

→ **To Open a workbook, do this:**

1. Click the File Tab as seen in Figure 4.4. Here, choose **Open** or *alternatively*, press **Ctrl + O** keys together. The Open dialog box appears as shown in Figure 4.5.
2. In Dialog box, choose the drive, folder name that contains the workbooks. After finding the required workbook, select it.
3. Then click **OK**.

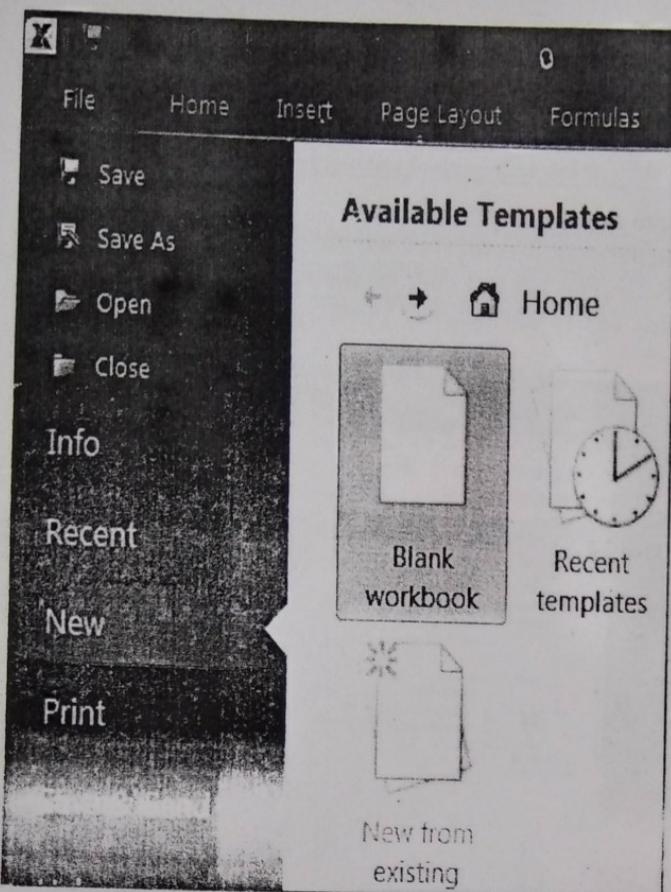


Figure 4.4 File Tab

→ To Open more than one workbook simultaneously, do this:

1. Repeat step 1. and 2. of opening a single workbook.
2. Click the name of one file and then hold down **Ctrl** key and click another file name and then press **Enter** key.

4.2.3 Saving a Workbook

Excel has two commands for saving workbooks. **Save** command used to save an existing workbook; **Save As** command used to save the workbook when you save it for the first time or save the workbook under a new name.

→ To save the workbook for the first time, do this:

1. Click on the File Tab as seen in Figure 4.4. Here, choose **Save As**. The **Save As** dialog box appears as in Figure 4.6.
2. In the **Save in:** box specify the location where you want to save the file.
3. In the **File name:** box give the name of the file.
4. In the **Save as type:** box give the type of file.
5. Click **Save** button.

☞ *Excel 2010 worksheet is saved with .xlsx extension indicating that it uses the XML-based file format.*

Closing a Workbook Window

When you finish using worksheet or chart, you close its window. If you have made any changes since the last time you saved the workbook, Excel 2010 displays an alert dialog box, as seen in Figure 4.7, asking whether you want to save your work before closing.

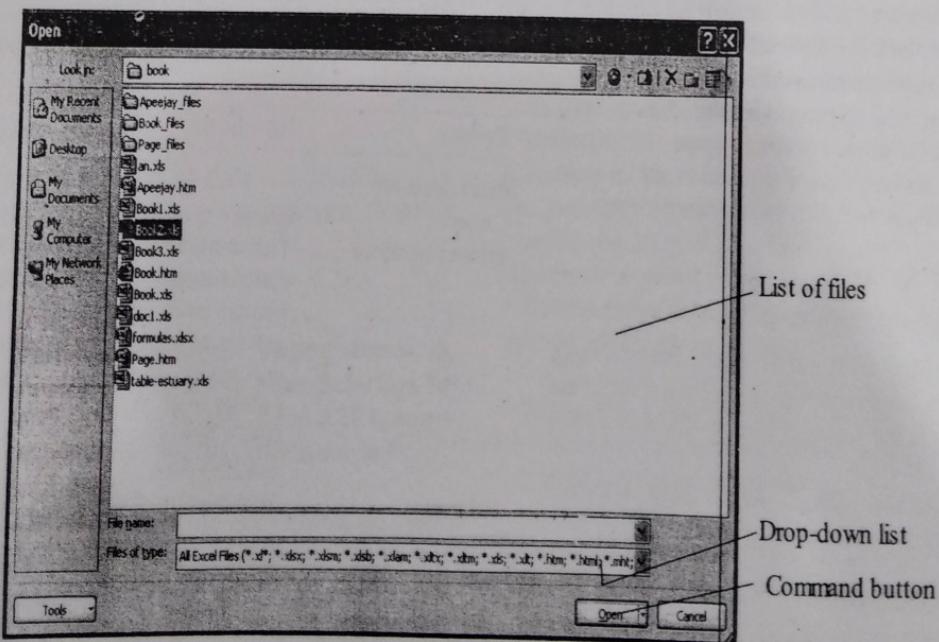


Figure 4.5 Open dialog box

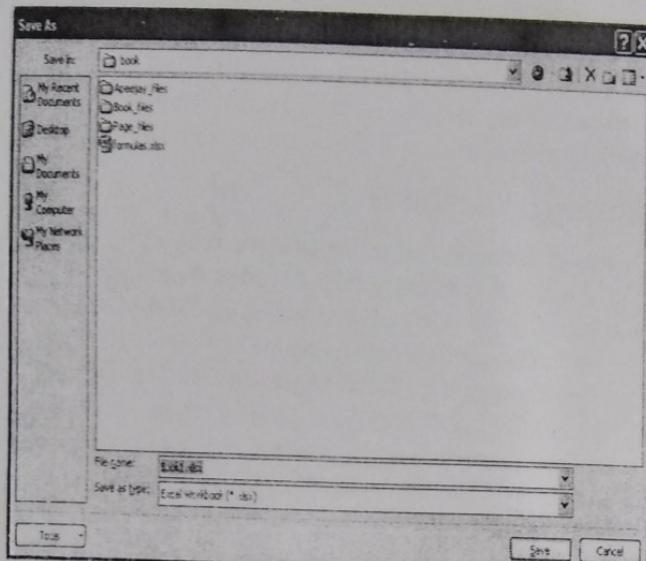


Figure 4.6 Save As dialog box

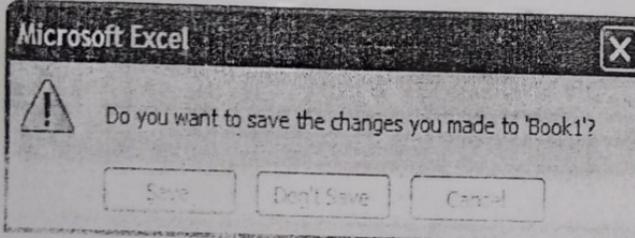


Figure 4.7 Alert dialog box

→ To close a file in a workbook, do this:

1. Click on the File Tab as seen in Figure 4.4. Here, choose Close. The window closes provided no change has been made to the workbook since it was saved last.
2. If you have made changes to the workbook since the last save, the Alert dialog box appears. In the dialog box, choose *Don't Save* if you do not want to save a changed version of the file, or choose *Save* if you do want to save changes. Type a new file name and choose *Save* button.

Quitting Excel 2010 Program

→ To quit Excel 2010, do this:

1. Click on the File Tab and then choose *Exit*. Alternatively, click the Close button (x) in the top-right corner or press **Alt+F4** or double-click the Control icon at the left of the title bar.
2. When all workbooks are closed, Excel 2010 window closes, and the application is terminated.

4.2.4 Printing a Spreadsheet

The simplest way to print any opened worksheet is to choose **Print** option from the Backstage view or alternatively, click the **Print Preview** and **Print** button from the Quick Access toolbar. In Excel 2010, you can print entire or partial worksheets and workbooks, one at a time, or several at once. And if the data that you want to print is in a Microsoft Excel table, you can also print just the Excel table by setting the print area.

You can also print a workbook to a file instead of to a printer. This is useful when you need to print the workbook on a different type of printer from the one that you originally used to print it.

→ To print a spreadsheet, do this:

1. Open the worksheet that you want to print.
2. Click the File tab and then choose Print command (See Figure 4.8) or alternatively, press **Ctrl+Shift+F12** keys together.

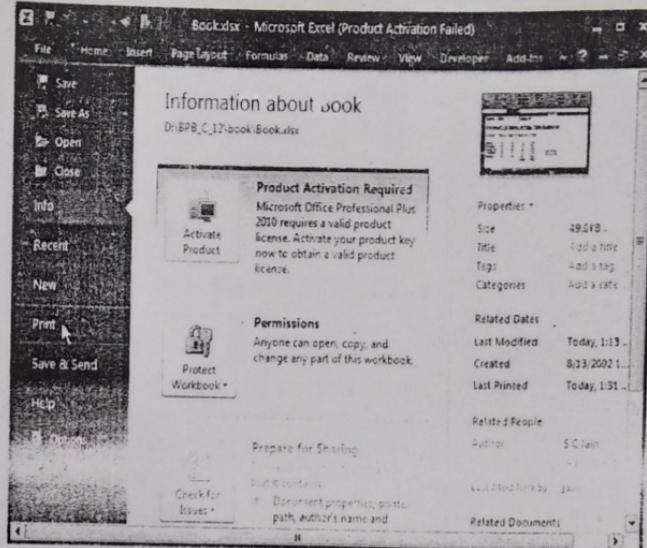


Figure 4.8 Print command in Backstage view

3. The Print backstage view appears. Here, click **Print** icon.
3. The Print backstage view closes and in the status bar displays the process of the print job.

Backstage Print Options shown in Figure 4.9, are described as follows:

Option	Function
Print Section:	
Copies	Specify the number of copies to be printed.
Printer Section:	This section shows selected printer from a drop-down list, print queue status, type, printer port being used, and whether the printer is busy or idle is also shown below the print selection. Select the desired printer from the Printer drop-down list.
Print to File	Select this option to create a disk file for the selected printer.
Settings:	This section shows the Page Setup options such as page orientation, paper size, and page margins. These options are described below:
Print what option:	
Print Active Sheets	Prints only selected worksheet.
Print Entire Work- book	Prints currently open workbook
Print Selection	Prints selected cells.

(Contd...)

Option	Function
Ignore Print Area	Select this option if you want to ignore the print area you have selected.
Page(s) From:/To:	Select this option to print pages you wish to print.
Collate	Select this option to collate multiple copies.
Page Orientation	Allows you to change the page orientation i.e. portrait (vertically) or landscape (horizontally).
Page Size	Allows you to select the paper size.
Margin	Allows you to set the margin of the pages.
Scaling	Allows you to adjust the size of the worksheet.

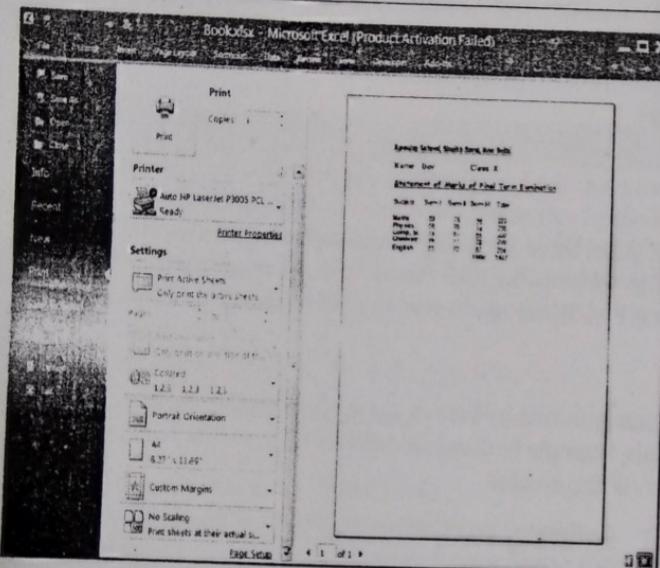


Figure 4.9 Print Options

Printing Sections of a Worksheet or Multiple Worksheets

Suppose you have a year's worth of data accumulated in a given worksheet, but you want to print just one month's worksheet data, then you use this method.

→ **To print a section of a worksheet, do this:**

1. Select the range of cells to print.
2. In the Print Backstage window, under Setting section, in the Print what drop-down list, select Print Selection to print the selected cells (See Figure 4.9). Excel 2010 ignores any Print Area that has been set and prints the selected range.

→ **To print several worksheets with one command, do this:**

1. Select all the sheets (the worksheets must be within the same workbook) you want to print.
2. In the Print Backstage window, under Setting section, in the Print what drop-down list, select Print Active Sheets.

4.2.5 Addressing of Cells

A spreadsheet consists of rows and columns which combine to form cells. A cell is a box where you can enter data. Columns form the vertical lines of cells while rows form the horizontal lines of cells. Cell is an intersection of rows and columns. To describe the location or address of a cell, we have to write the names of the column and the row whose intersection has created this cell. Figure 4.10, the intersection of the Column C and the Row 3 is C3. Here C3 is called as a cell and C3 is its address.

zontal lines of cells. Cell is an intersection of rows and columns. To describe the location or address of a cell, we have to write the names of the column and the row whose intersection has created this cell. Figure 4.10, the intersection of the Column C and the Row 3 is C3. Here C3 is called as a cell and C3 is its address.

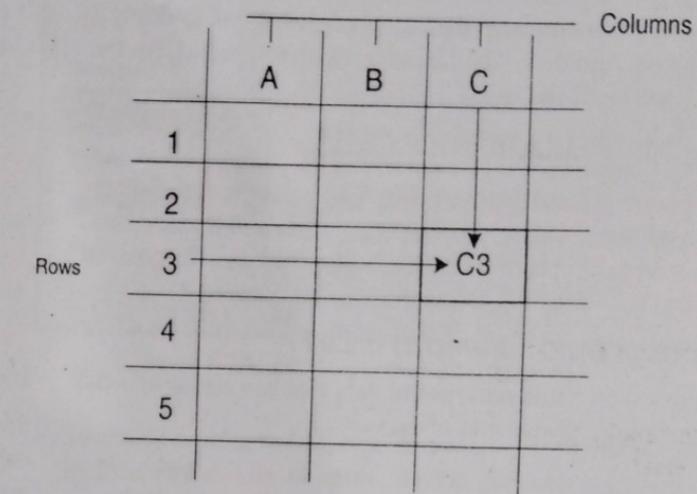


Figure 4.10 Addressing of cells

Cells can have two types of data in a worksheet.

Constant value: A constant value is data that you type directly into a cell. It can be a number, a date, time, currency, percentage, fraction or text. Constant values do not change unless we edit them.

Formula: A formula is a sequence of values, cell references, names, functions or operators that produce a new value from the existing values. Formulas always start with the equal sign (=). A value that is produced as the result of the formula changes automatically when other values involved in the formula in the worksheet change.

MS Excel helps you perform calculations on numerical data. For example, you need to find the sum of some data or calculate through a complex set of formulas and Excel can quickly provide the answer. By using formulas, you can efficiently keep track of your business or personal finances.

To find the sum of numbers from cell address A1 to A10 the formula would be as follows:

$$= +A1+A2+A3+A4+A5+A6+A7+A8+A9+A10$$

A function is a shortcut for a formula. For example, to calculate the sum of numbers from cell address A1 to A10, the function used would be as follows

$$= \text{Sum}(A1:A10)$$

Two dots(:) indicate a group of cell addresses. It is easier to write a function as compared to a formula.

Formulas using Cell Addresses

A formula can also contain cell addresses instead of values or numbers. In that case, the formula is applied on the contents of cell address included in it. Cell addresses could be included in a formula by typing or highlighting them. In a formula, the cell addresses can be used along with numbers, mathematical

operators and functions. For example, if the contents of cell address B20 have to be added to that of cell address D13, then type the following formula:

=B20+D13

If a formula contains various operators, Excel performs calculations in a preset order, i.e. multiplication is done before addition. For example, in the formula $2*3+4$, it will multiply 2 and 3 first. And then, 4 will be added to their product. So, the result will be 10 and not 14.

4.3 MANIPULATION OF CELLS

The power of Excel lies in storing, manipulating, and displaying data items. Before you can manipulate and display data, you must enter it correctly. This chapter discusses the types of data you can enter in a cell of the Excel worksheet.

Types of Data Entered in a Cell

There are four distinct types of data that can reside in a cell (Figure 4.11). These types of data are:

- text
- numerals
- logical values
- error

DIFFERENT TYPES OF DATA ENTERED IN A CELL			
TEXT:	RAHUL	SCIENTIFIC FORM:	3.44E+14
NUMERALS:	100	FORMATTED NUMBER:	#####
DATE:	11/4/2012	LOGICAL VALUE:	FALSE
ERROR:			#DIV/0!

Figure 4.11 Different types of data entered in Cells

Text

Text in a cell can include any combination of *letters*, *numbers* and *keyboard symbols*.

- A cell can contain up to 32,000 characters.
- If column width prevents a text string from fitting visually in a cell, the display extends over neighboring cells. However, if the neighboring cells are occupied, the display is truncated.

Numerals

Numerals contain all the decimal digits such as 0 to 9 on which you can do *addition*, *subtraction*, *multiplication*, and other mathematical or statistical operations. Numeric calculations is

the most common thing that is done with Excel 2010. Therefore, it is important to understand how Excel understands numerals.

- A number may be displayed using *commas*, *scientific notation*, or one of many built-in numeric formats. The number's in Excel have two aspects *displaying format* and the *underlying value*. The *display format* is what you see in the cell and the *underlying value* is the calculated value (which you can see in the formula bar).
- Date* and *time* are numbers, but with special formatting. If you try to enter 1-9 as a text string, Excel 2012 will interpret this as 9th January as a date and display it as 9-Jan.
- When an unformatted number does not fit in a cell, it is displayed in scientific notation (See Figure 4.11)
- When a formatted number does not fit in a cell, number signs like hash (####) are displayed.

Logical Values

You can enter the logical values namely, TRUE or FALSE into cells. Logical values are often used in writing conditional formulas. Also, there are many formulas that give the calculated result in terms of logical values. Thus, if you say $3 > 4$, the result is FALSE because 3 is not greater than 4.

Error

An error value is a distinct type of data. For example, if a formula attempts to divide a number by zero, the result is the # DIV/0! Error value.

4.3.1 Entering Text, Numbers and Dates in a Worksheet

When you see the message *Ready* (Figure 4.11) in the status bar then you can enter data items in a worksheet. Entering data in Excel 2010 worksheet actually consists of 3 steps:

- Activate the cell in which you want to enter data.
- Type the data you want to enter.
- Finalize the data entry by pressing **Enter** key, **Tab**, or any one of the arrow keys.

Example 1

How do you enter data item in a cell?

Solution

- Click on the desired cell where you want to enter data, just to make it active. The active cell appears with a dark border and its row and column headings appear to be raised to easily identify the cell address.
- Type your data in the active cell. Two buttons appear in the formula bar: **Enter** button and **Cancel** button. The status bar shows *Enter* to indicate that you are in the process of entering data. (See Figure 4.12)
- Click the **Enter** button to indicate that you have completed the data typing. You can also press **Enter** key, **Tab** key or any one of the arrow keys to complete the data entry.

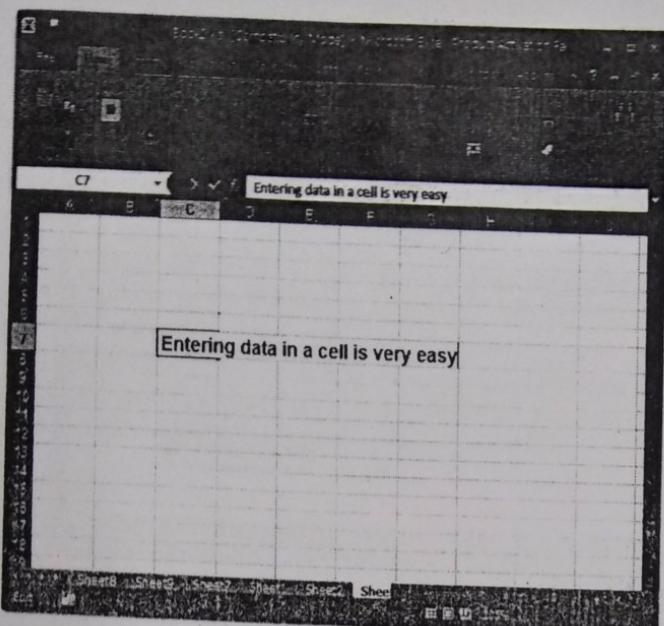


Figure 4.12 Entering data in a cell

- If you make a mistake before finalizing your data entry, press the **Backspace** key to delete the character to the left of the insertion point. To erase every thing that you have typed click the **cancel button** or press **[Esc]** key.
- Repeat the above steps to complete the data entry.

Excel provides you with the following two option to enter and edit data:

- You can enter data in the formula bar.
- You can also enter and edit data directly in the cell.

To enter and edit data directly in the cell you need to turn on the in-cell editing option, if not done already.

Tip If the **Edit directly in-cell feature** is turned off, the entry you type appears in the cell but the cursor appears in the formula bar.

→ **To turn on in-cell editing option, do this:**

- Click the **File Tab** and then click **Options**. **Excel Options** dialog box appears. In this dialog box, click on **Advanced** button on the left side. **Excel Options** dialog box appears with **Advanced properties** as seen in Figure 4.13.
- Click on the check box i.e. **Allow editing directly in cells** under the **Editing options** group as seen in Figure 4.13. The option is *on* when a check mark appears.
- Click **OK** to accept the settings you change.

Entering Text

Text entries can include *alphabetical characters, numbers and symbols*.

→ **To enter text in a cell, do this:**

- Select the cell, type the text entry, and then enter the text by clicking the **Enter** button in the formula bar or by pressing **[Enter]** key.

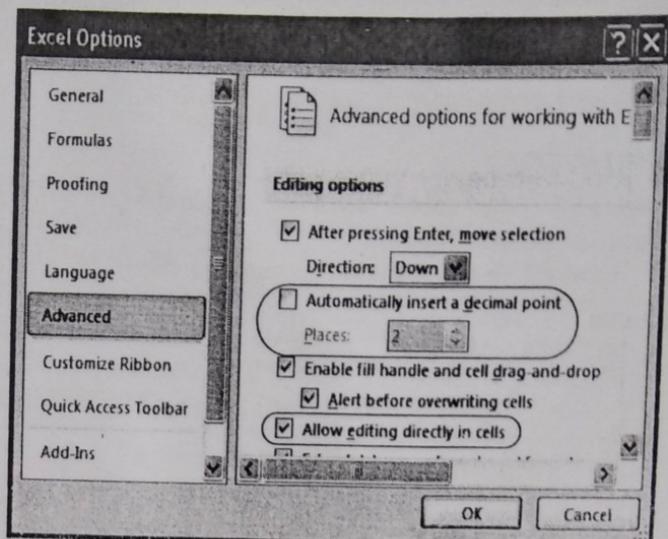


Figure 4.13 Excel Options with Advanced Properties

- To enter numbers as text, type an apostrophe (') followed by the number—for example, '45,000. Alternatively, place an equal sign in front of the numbers and enclose the number in quotation marks. For example, to enter the number 45,000 as text, type ="45,000".
- Notice that in a cell with the **General** format, numbers entered as text will align on the left like text. When you enter a number as text, you can still use the number if it is needed in a numeric formula.

Example 2

How do you quickly format a range of numbers as text in your worksheet by using the **Text** numeric format?

Solution

- Select the range of cells containing the numbers.
- Select the **Text** option from the drop down list of the **Number** group from the **Home Tab** (Figure 4.14). Alterna-

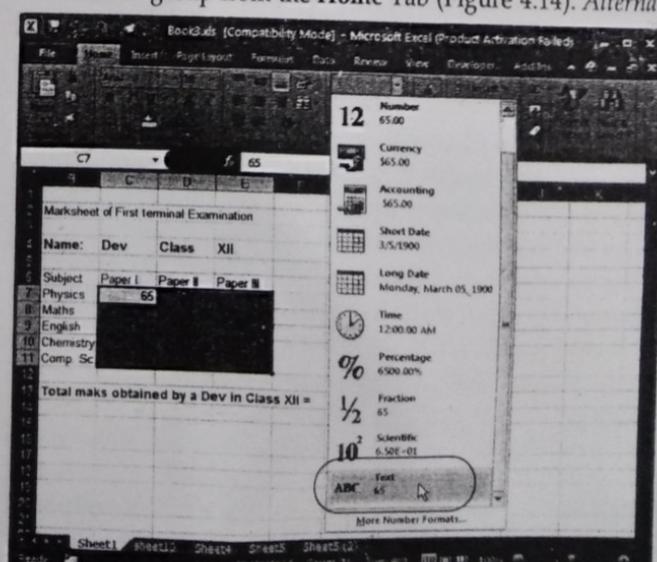


Figure 4.14 Drop-down List

tively, press **Ctrl + 1** keys or click on the Home tab and then in the Number group, click the Dialog Box Launcher. In this dialog box, click on the Number tab, and select the Text from the Category list: and click OK.

Entering Numbers

Numbers are having constant values and contain the following characters given in Table 4.2.

Table 4.2 Special characters for numeric entries

Character	Function
0 through 9	Any combination of numerals.
+	Indicates exponents when used in conjunction with E such as 3E+3 means 3×10^3 .
-	Indicates negative number.
()	Indicates negative number.
,	Thousands marker.
/	Fraction indicator (when fraction is preceded by a space) or date separator.
\$	Currency indicator.
%	Percentage indicator.
(period)	Decimal indicator.
E	Exponent indicator.
e	Exponent indicator.
:	Time separator.
(single space)	Separators of compound fractions (e.g. 4 1/2); and date time entries (e.g. 1/2/94 5:00).

► To enter a number, do this:

1. Select the cell, type the number, and then press **Enter** key or click the Enter button in the Formula bar.
2. You can enter integers, such as 145; decimal fractions, such as 145.437; integer fractions, such as 1 1/2; or scientific notation, such as 1.45437E+2.
3. Entering a number as text enables the number display to exceed the cell's width. If you enter a number in the normal way and the cell is not wide enough to display it, the cell fills with # signs or in some cases may display the number in scientific notation.

Excel 2010 stores the numbers typed into a cell as well as the format or appearance in which the numbers should be shown. When you enter a number into a cell, Excel tries to establish how the number should be formatted. For example, it accepts and displays the entries listed in Table 4.3 with the formats indicated. The entries of the Table 4.3 are displayed in Figure 4.15, as entry would appear in an Excel 2010 worksheet.

Table 4.3 Excel's Automatic Formats

Typed Entry	Chosen Format	Result
897	Number, General	897
7999 Mg Rd.	Text, left aligned	7999 Mg Rd
450.09	Number, dollar format	\$450.09

(Contd...)

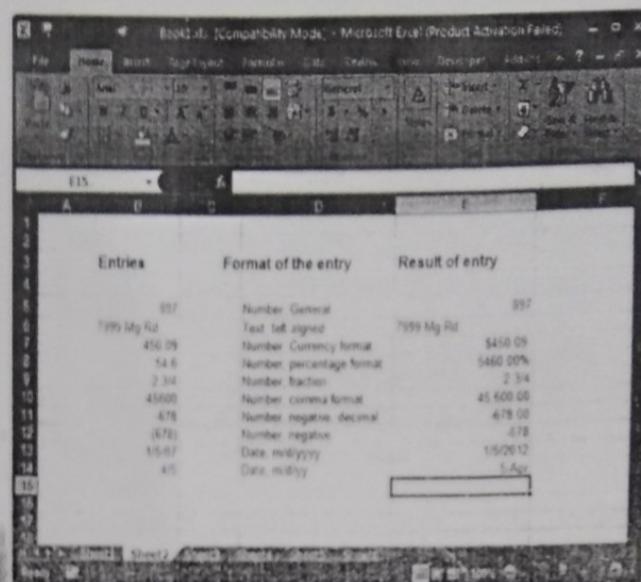


Figure 4.15 Automatic formats done for data given in Table 4.3

Typed Entry	Chosen Format	Result
54.6%	Number, percent format	5460.00%
(678)	Number, negative	-678
2 3/4	Number, fraction	2 3/4
45600	Number, comma format	45,600.00
-678	Number, negative, decimal	-678.00
1/5/07	Date, m/d/yyyy	01/05/2012
4/5	Date, m/d/yy (current year assumed)	05-Apr

► Entering a number as text enables the number display to exceed the cell's width. If you enter a number in the normal way and the cell is not wide enough to display it, the cell fills with # signs or in some cases may display the number in scientific notation.

► To control fixed decimal option, do this:

1. Click the File Tab and then click Options. Excel Options dialog box appears. In this dialog box, click on Advanced button on the left side. Excel Options dialog box appears with Advanced properties as seen in Figure 4.17.
2. Click the Automatically insert decimal point: check box under the Editing options group so that the check mark does not appear (See Figure 4.13).
3. Click OK.

► Using fixed decimal representation feature of Excel 2010, you can automatically add decimals to every value entered in a worksheet.

Entering Date and Time in a Worksheet

Excel 2010 automatically understands date and time typed in most of the common ways. When you type a date or time, Excel converts your entry to a serial number. The serial number

represents the number of days from the beginning of the century until the date you type. Time is recorded as a decimal fraction of a 24-hour day.

If your entry is recognized as a valid date or time format, you see the date or time on-screen. Correctly entered dates appear in the formula bar with the format **mm/dd/yyyy**, regardless of how the cell is formatted. Here, **mm** for month, **dd** for day and **yyyy** is for year.

For example, if you type **2 March 12** in a cell formatted to show numbers with a comma and two decimal places (#,##0.00), you will see that date as **40,970.00**.

If Excel 2010 does not recognize the entry as a valid date or time format and you type a text date, such as **Apr 5 12**, Excel treats the entry as text. It aligns it to the left in the cell.

Example 3

Explain the step to be followed to enter date in different formats.

Solution

1. Select the cell in which you want to enter the date.
2. Type the date into the cell with any of the following formats. For example to enter 7th March 2012 type:

3/7/12

7-Mar-12

7-Mar (The year from the system date is used)

Mar-12 (Only the month and year are shown)

3/7/12 0:00

You can also enter the dates as **3/7**, **03/07/12**, **Mar-12**, or **March 7, 2012** (Figure 4.16). In any of these date formats, you can use either /, -, or space to separate different elements.

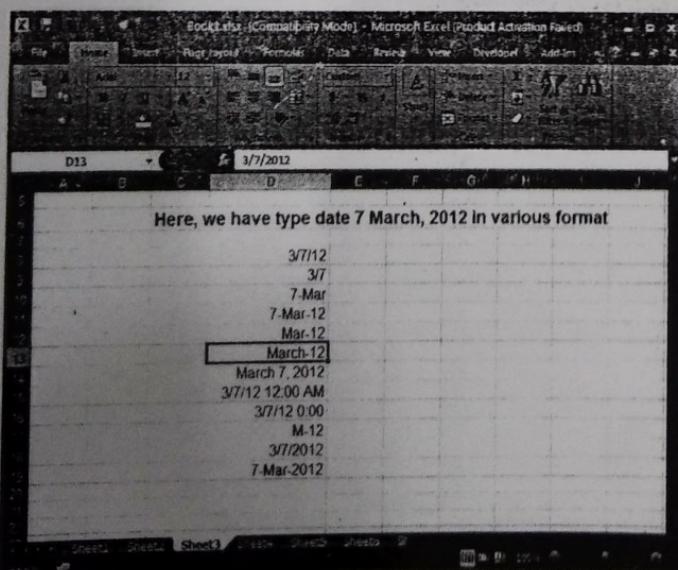


Figure 4.16 Various ways to enter date in a worksheet

Example 4

How do you enter time in an Excel 2010 worksheet?

Solution

1. Select the cell in which you want to enter the time.
2. Type the time in any of the following formats. For example to enter **1:32 PM**, type:

13:32

13:32:45

1:32 PM

1:32:45 PM

3/7/12 13:32

The first two examples are from a 24-hour clock. If you use a 12-hour clock, follow the time with a space and A, AM, P, or PM (in either upper or lowercase letters).

Leave a space before the AM or PM. Do not mix a 24-hour clock time with an AM or PM. As the last format shows, you can combine the date or time during entry.

- To enter the current date/time in a cell, do this:

1. To enter the current date select the cell and press **Ctrl+;** keys together.
2. To enter the current time select the cell and press **Ctrl+Shift+;** keys together.

To format a date in the default date format, press **Ctrl+Shift+; keys together. To format a time in the default time format, press **Ctrl+Shift+@** keys together.**

4.3.2 Creating Text, Number and Data Series

Creating Text

To create text in a cell, position the cell-pointer at the desired cell address and then type the entry from the keyboard. For example, to enter text **Entering text** in cell address A1, do the following steps:

1. Move the mouse-pointer to cell address **A1** and click the left mouse-button just once. Instantly, the cell pointer changes like rectangle shape at cell address **A1**. (See Figure 4.17)
2. Now type **Entering text** in a cell.
3. Then press the **Enter** key from the keyboard. Your workbook will look like as shown in Figure 4.17.
4. Text entries are normally used as row and column headings, for entering phone numbers, addresses etc. All texts are left aligned. And a formula cannot be applied over text entries.

Each cell has a default width of 9-10 characters, i.e., each cell can hold up to 9-10 characters. In case, the entry of cell address is more than its default width, its display gets extended to the next cell. This does not mean that it has occupied the space of the next cell. It has just got displayed over it.

For example, entering text in a cell at cell address **A1**. You will observe that the type text gets extended to the next cell **B1**. (See Figure 4.17).

Although the label occupying two cell addresses (A1 and B1) it is normally in cell address A1. To find out in which cell the text is actually displayed:

Click the left mouse button over the cell address B1. You will see that the Formula bar does not display the text entry.

Now, click the left mouse-button over the cell address A1. You will see that the Formula bar displays the text Entering text in a cell.

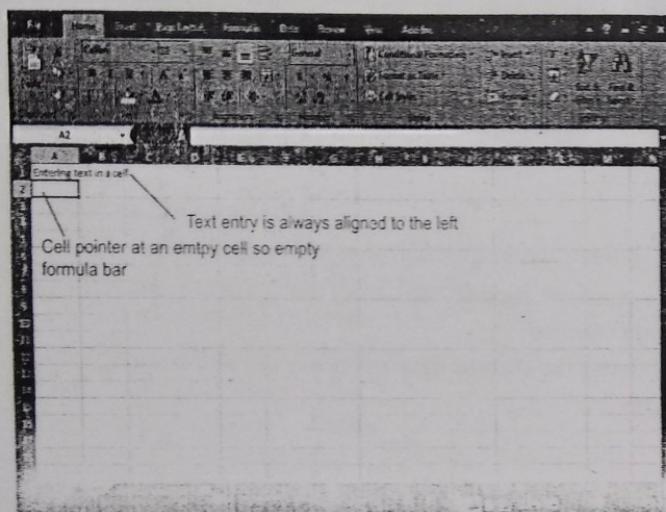


Figure 4.17 Creating text in a cell

Using Number and Date Series

Excel 2010 makes it very easy to enter a series of dates, number or text. For example, you can insert column heading like Jan, Feb, Mar, etc. or enter number at equal intervals such as 2, 4, 6, 8, etc. very easily.

You can enter the above type of series in two ways:

1. Using the mouse to drag the fill handle.
2. Using a command that gives you the capability to create many types of series.

Tip Dragging the fill handle to the right and down fills the series in increasing order; dragging the fill handle up or left fills the series in decreasing order.

Creating a Linear Series

To create a linear series, do this:

1. Enter the first two elements of data in the series in adjacent cells, namely 1 and 3 in cells B6 and C6 (Figure 4.18). Excel uses these two data items to determine the amount of increment in each step and the starting number for the series.
2. Select these two cells and then drag the fill handle *down* or *right* to fill in increasing and drag the fill handle *up* or *left* to fill in decreasing order. The fill handle is the small square located at the lower right corner of a selection (Figure 4.18).

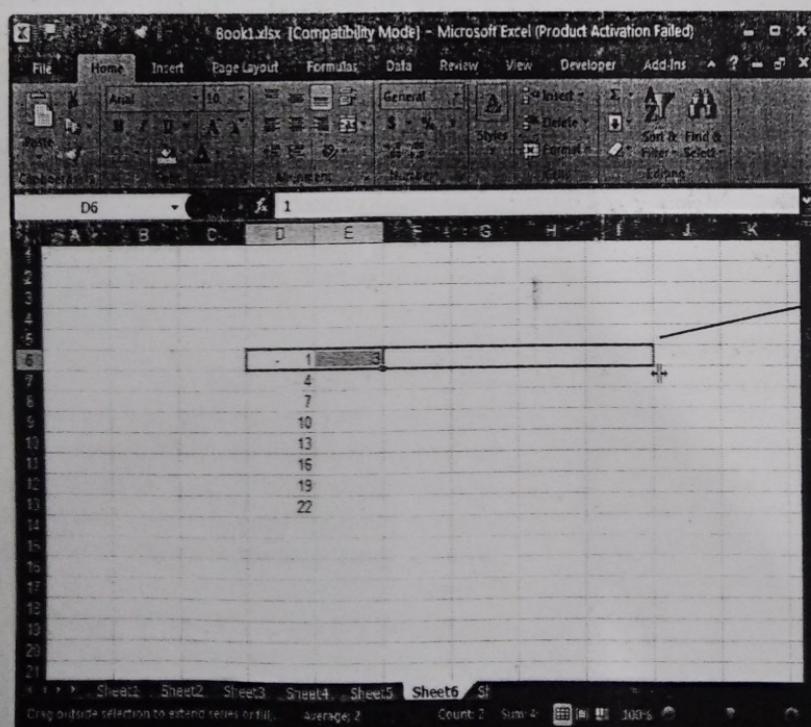


Figure 4.18 Creating a Linear series

3. Release the mouse button.

Note The area enclosed with the gray border fills with a series of numbers determined by the first two cells you selected.

Example 5

Create a series of linear data with the help of AutoFill command.

Solution

1. In the first cell, enter the starting *number*, if you want the range to be filled with values that increment by one. If you

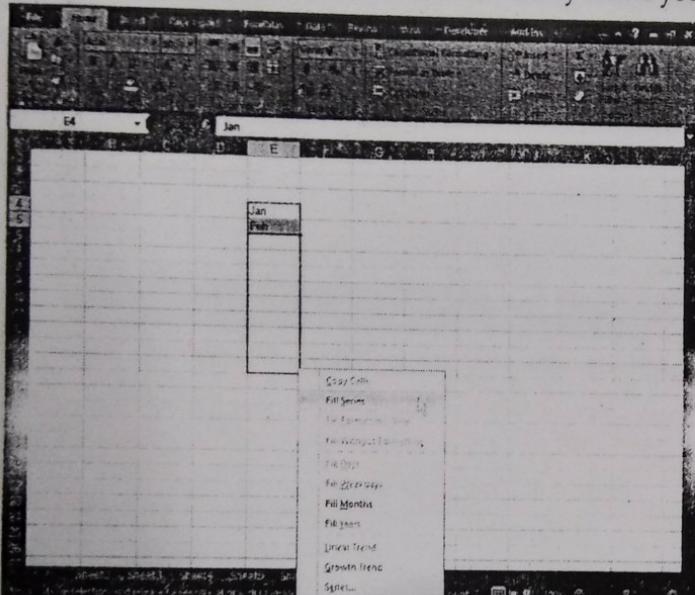


Figure 4.19 Shortcut Fill menu

want the range filled with values that increment differently, fill the first cell in the range with the initial value and the second cell in the range with the second value that increases or decreases as you want the series to increase or decrease.

2. Select the range of cells containing numbers used as starting values for the series. At the lower-right corner of the selection is the square fill handle.
3. Select the range to be filled by dragging the fill handle with the *right mouse button*. Release the right mouse button to display the shortcut fill menu as shown in Figure 4.19.

Some of the options of shortcut menu are as follows:

Command	Description
Fill Series	Fills the selection with values that increase by one from the value in the first cell.
Fill Days	Fills the selection with days that increase by one starting from the day in the first cell.
Fill Weekdays	Fills the selection with weekdays that increase by one beginning with the day in the first cell.
Fill Months	Fills the selection with months that increase by one beginning with the year in the first cell.
Linear Trend	Fills the blank cells in the selection with linear regression (best fit) values. Starting values are not overwritten. This command is only available when more than one cell is filled with a starting value.
Growth Trend	Fills the blank cells in the selection with values calculated from growth (exponential) regression. Starting values are not overwritten. This command is only available when more than one cell is filled with a starting value.
Series	Displays the Series dialog box.

4. Select the option as shown in the table given above that you want.

Example 6

Create a number series with the help of Fill Series dialog box.

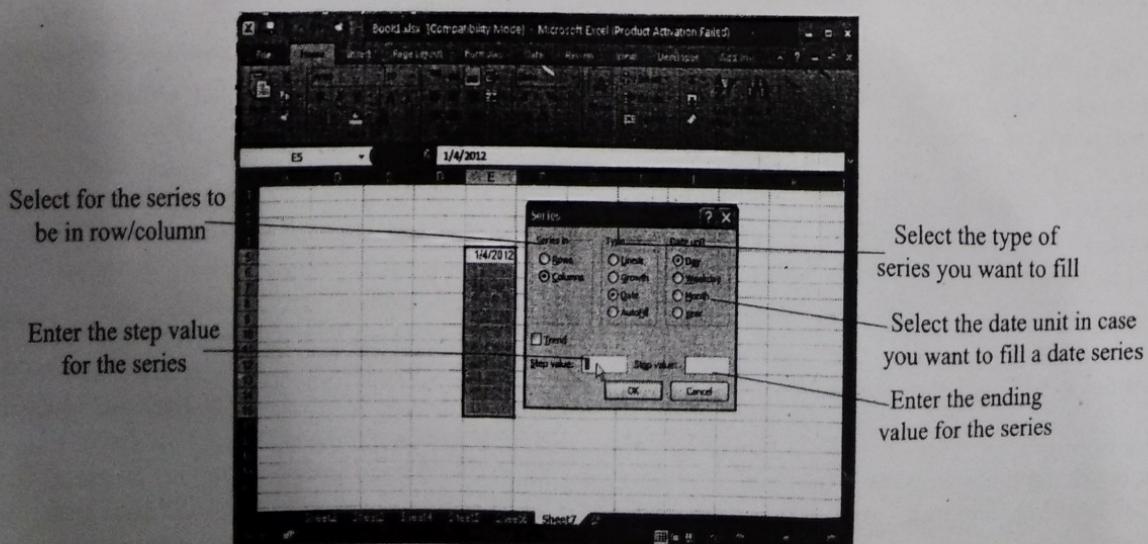


Figure 4.20 Series dialog box

Solution

1. In the first cell, enter the *first number or date*.
2. Select the range of cells you want filled.
3. Click on Home Tab and then in Editing group, click on the Fill drop down list and then choose Series... to display the Series dialog box (Figure 4.20).
4. Click the Rows or Columns option that matches the type of range you want filled. This is automatically selected to match the orientation of the cells you choose.
5. Select the Trend check box if you want selected values to be replaced by values for a linear or exponential best-fit. This selection limits step 6 to Linear or Growth options.
6. Select one of the following Type options:

Option	Description
Linear	Adds the Step Value to the preceding number in the series.
Growth	Multiplies the Step Value by the preceding number in the series.
Date	Enables the Date Unit group so that the increment applies to a Day, Weekday, Month, or Year.
AutoFill	Creates automatic series that may include text dates and labels.

Depending on the kind of series you want to create, use one of the following sets of steps.

► To create a Linear or Growth, do this:

1. In the Step value: box enter the step value. This number is the constant amount by which the series changes from cell to cell. The Step Value may be positive or negative.
2. In the Stop value: box enter a value at which you want to stop the fill. This is required only if you think that you highlighted too many cells when you selected the range to fill.
3. Click OK.

► To create a Date Series, do this:

1. Click the Date unit area of the Series dialog box (Figure 4.20). Select either Day, Weekday, Month, or Year to designate the date increment. Note that Weekday gives you dates without Saturdays and Sundays.
2. To specify the increment amount, enter the Step value in the Step value box. If the starting value is 12/1/2012, and you choose Month as the Date Unit and 2 as the Step Value, the second date in the series becomes 2/1/2013.

► When the series reaches either the end of the selected range or the Stop Value, Excel stops filling the cell. If you use a negative Step Value, the Stop value must be less than the starting value.

3. To stop the series enter the Stop value in the Stop value: box (e.g. 12/1/2013). The stop value indicates the last date in the series.
4. Click OK.

Creating Series of Text and Headings

Excel can extend series of headings which are not dates or numbers. For example, there may be a text headings that includes a number, such as *Trend*, *Quarter*, *Task*, etc. (See Figure 4.21).

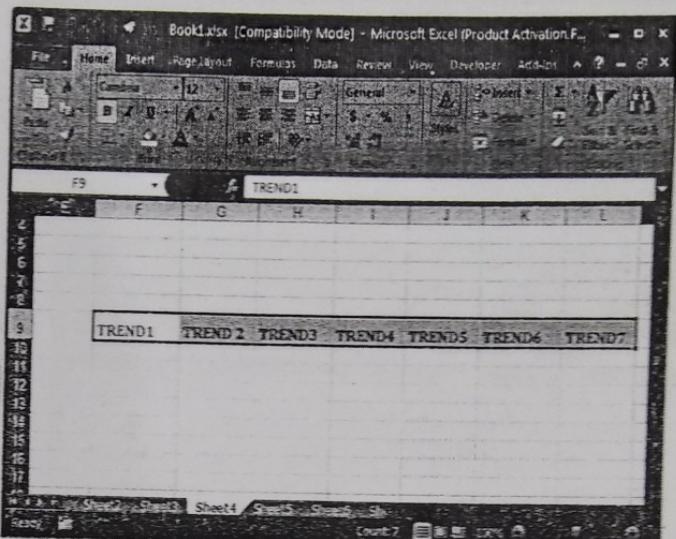


Figure 4.21 Headings that are not Dates or Numbers in a Series

The text series that Excel recognizes includes the text shown in Table 4.4.

Table 4.4 Text Series Recognized by Excel

Type	Example
Day	Tuesday, Wednesday, or Tue, Wed
Month	September, October, or Sep, Oct
Text	Project, Task
Text number	Task 1, Task 2, Paragraph 1.2, Paragraph 1.3
Quarterly	Quarter 1, Quarter 2, Qtr 2, Qtr 3, Q1, Q2

The AutoFill feature in Excel recognizes key words, such as days of the week, month names, and Quarterly abbreviations. Excel extends a series to repeat correctly, namely, Qtr1 follows Qtr4 and then the series continues.

► To type in a custom list for use with AutoFill, do this:

1. Click the File Tab and then click Options. Excel Options dialog box appears. In this dialog box, Click on Advanced button on the left side. Excel Options dialog box appears with Advanced properties. In this dialog box, under the General group, click on the Edit Custom Lists... Custom Lists dialog box appears as seen in Figure 4.22.
2. Select NEW LIST in the Custom lists: box.
3. Select the List entries: list box, and type each item you want in the list. Press Enter to separate items.
4. To add the list to the Custom lists: list box, click Add. Your list appears in the Custom lists: list box.
6. Click OK if you have no more lists to enter. If you have additional lists to enter, select NEW LIST from the Custom Lists list box, and then begin typing your list in the List entries: list box.

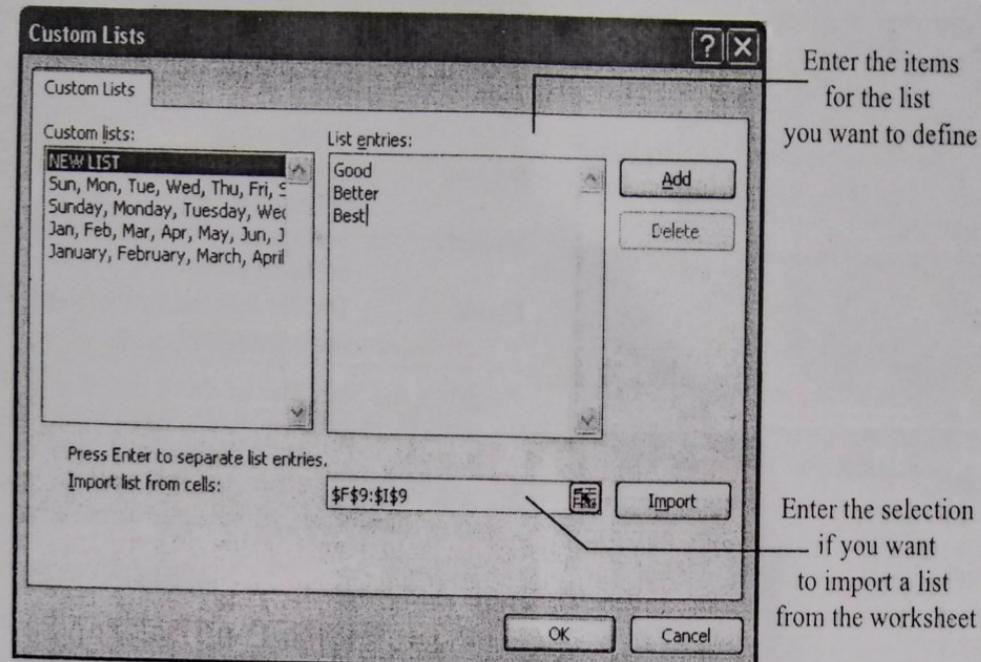


Figure 4.22 Custom Lists Dialog box

- To add a list that is in a range of cells on the worksheet, do this:
 1. Select the cells that contain the list you want to create. Now follow the step 1 as given above.
 2. The selection range appears in the Import list from cells: box you can reselect the list by clicking the arrow on the right.
 3. After the selection is final, click Import, and then click OK. The list you create is stored in Excel file. The list can then be used in any other worksheet also.

4.3.3 Editing Worksheet Data

While editing a cell entry, you can edit the text either in the formula bar or in the cell itself.

Editing Cell Entry in the Formula Bar

- To edit cell entry in the formula bar, do this:

1. Select the cell containing the data you want to edit.
2. Move the insertion point into the text in the formula bar. Position the pointer in the text you want to edit, and then click. A flashing insertion point indicates where typing and editing take place.
3. Edit the cell entry or type new text.

Editing Directly in a Cell

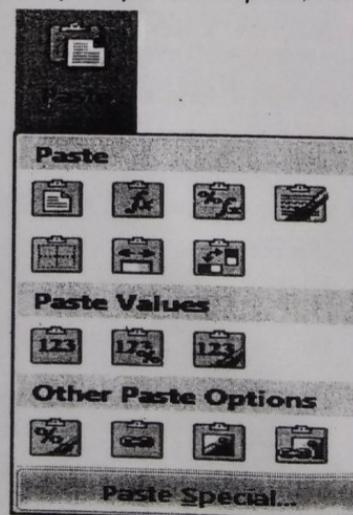
- To edit an entry directly in a cell, do this:

1. Double-click the selected cell or press **F2** key.
2. Press the arrow keys to move the I-beam that marks the insertion point to where you want to edit.
3. Make the desired changes to the cell entry.
4. Press **Enter** key to change the text. Alternatively, press **Esc** key to leave the contents unchanged.

Using Paste Special Feature

Paste Special feature is very useful to copy and paste part of a cell's attributes, such as the format or value, but not both. With this command, you can reorient database layouts into worksheet layouts and vice versa. This command also enables you to combine the attributes of cells by pasting them together.

- Paste button of the Clipboard group places the contents of the clipboard where the cursor is. The drop-down arrow of the Paste button called Paste Preview (shown below). It describes various ways to paste data. Point to an option for a description, click to select it.



- To use Paste Special Feature, do this:

1. Select the cell or range of cells.
2. Click on the Home Tab and then click Copy button under the Clipboard group, or press **Ctrl+C** keys together.

3. Select the upper-left corner of the worksheet where you want to paste. When transporting (flipping) rows and columns, be sure to consider which cells are covered when the pasted area is rotated 90 degrees.
4. Click the arrow next to Paste button under the Clipboard group and then select Paste Special... to display Paste Special dialog box (Figure 4.23).

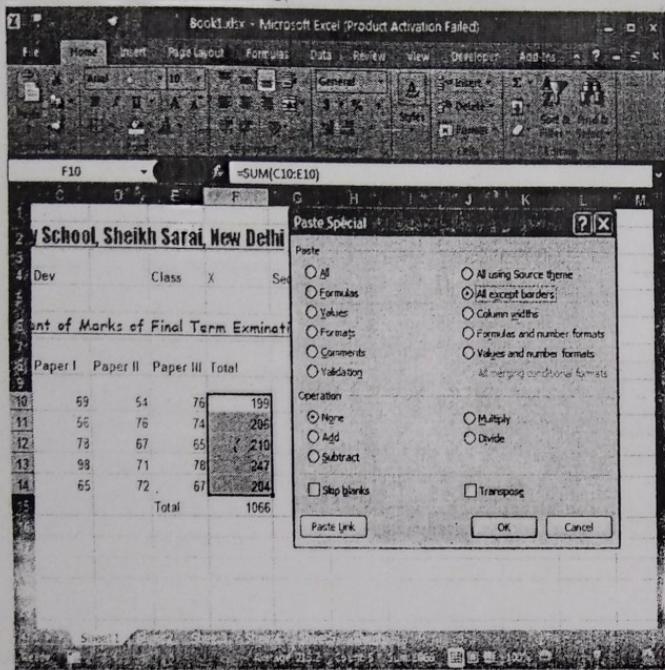


Figure 4.23 Paste Special dialog box

5. Select the characteristics you want transferred as explained in the following table:

Option	Function
All	Paste all the original contents and characteristics.
Formulas	Paste only the formulas.
Values	Paste only the values and formula results.
Formats	Paste only the cell formats.
Comments	Paste only note contents.
Validation	Paste data validation rules.
All using Source theme	Paste all cell contents and formatting using the theme.
All except border	Paste everything except any borders applied to the selected range.
Column widths	Paste the width of one column to another.
Formulas and number formats	Paste formulas but not values with their number format.
Values and number formats	Paste only values with their number format.

6. Select from the dialog box how you want the transferred characteristics or information combined with the cells being pasted into.
- Table below gives the different options and their functions.

Option	Function
None	Replaces the receiving cell.
Add	Adds to the receiving cell into which they are being pasted.
Subtract	Subtracts from the receiving cell into which they are being pasted.
Multiply	Multiplies by the receiving cell into which they are being pasted.
Divide	Divides into the receiving cell into which they are being pasted.

7. Select the Skip Blanks check box if you do not want to paste blank cells which you have selected when you copy a range.
8. Select the Transpose check box to change rows to columns or to change columns to rows.
9. Click OK.

4.3.4 Inserting and Deleting Rows, Columns

With Excel 2010, you can delete or insert entire *rows* or *columns*. You can also easily delete or insert cells, leaving the surrounding rows and columns unaffected. This technique enables you to add or remove cells without having to change entire rows or columns.

Inserting Cells, Rows, or Columns

Sometimes you may need to insert cells, rows, or columns to make room for new formulas or data. You can insert cells, rows, or columns as easily as you can delete them.

► To insert cells, do this:

1. Select a cell or range of cells where you need new cells inserted. Or, select cells in the rows or columns where you want to insert new rows or columns.
2. Select Insert Cells... option from Insert drop down list of the Cells group of the Home Tab. Alternatively, press **Ctrl**+**+** (plus) keys or click the right mouse button and select Insert.... The Insert dialog box appears as in Figure 4.24.

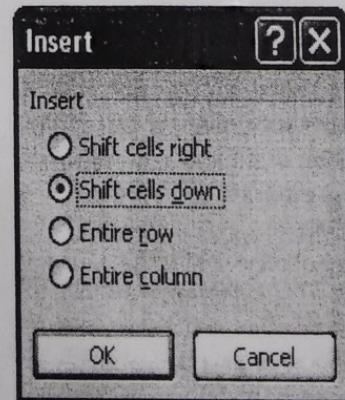


Figure 4.24 Insert dialog box

3. To insert cells, select the direction you want selected cells to be inserted.

The various options to insert cells are:

Option	Function
Shift cells right	Selected cells move right.
Shift cells down	Selected cells move down.
Entire row	Insert a row at each selected cell.
Entire column	Insert a column at each selected cell.

4. Click OK.

→ To insert rows or columns, do this:

- Select cells in the rows or columns where you want to insert new rows or columns.
- Select Insert Sheet Rows from Insert drop down list of the Cells group of the Home Tab to insert rows.
- Select Insert Sheet Columns from Insert drop down list of the Cells group of the Home Tab to insert columns.

Deleting Cells, Rows or Columns

The Delete command completely removes cells, rows, or columns from the worksheet. This is different from the Clear command in the Editing Group. The Clear command removes a cell's contents, format, or comments, but it leaves the cell intact.

→ To delete cells, rows or columns, do this:

- Select the cells or range of cells to be deleted, or select cells in the rows and columns to be deleted.
- Click on the Home Tab and then click arrow next to Delete button under the Cells group and then select Delete Cells... (Figure 4.25), or press **Ctrl+ -** (minus) keys together, or click the right mouse button and select Delete.... The Delete dialog box appears (Figure 4.26).

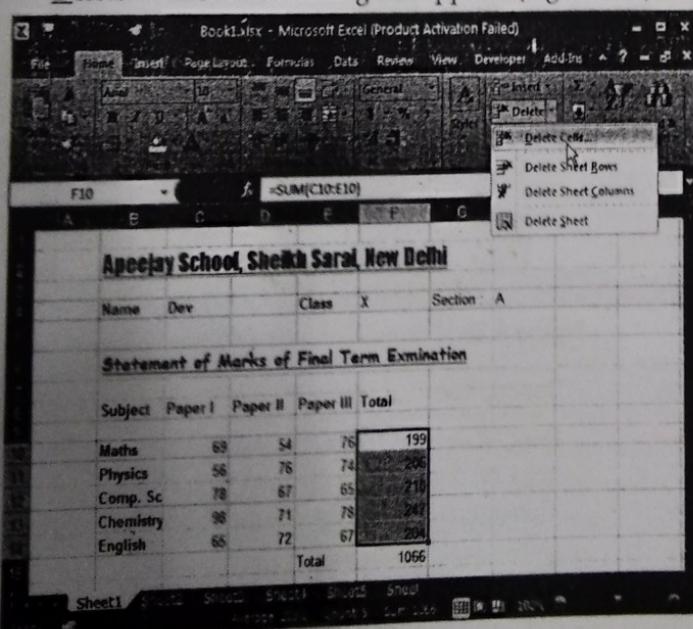


Figure 4.25 Selected group of cells

- To delete cells, select the direction in which you want remaining cells to move:
- Click OK.

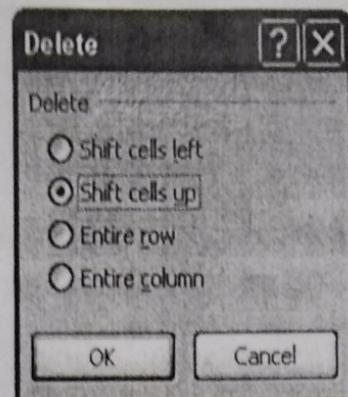


Figure 4.26 Delete dialog box

Option	Description
Shift cells left	Cells to right of the deleted cells move left.
Shift cells up	Cells below the deleted cells move up.
Entire row	Deletes entire row containing a selected cell.
Entire column	Deletes entire column containing a selected cell.

Clearing, Inserting or Deleting Cells in a Worksheet

After you have drafted and tested the worksheet, you may find that you need to reorganize or restructure the layout of the worksheet. When you restructure, you may need to insert or delete cells, rows or columns.

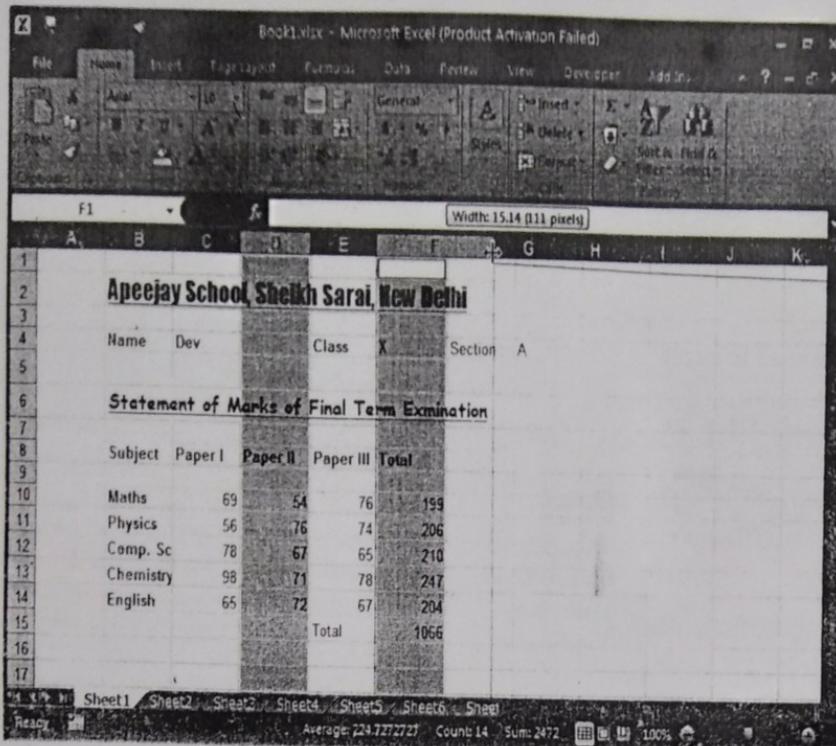
Shortcuts keys that are very helpful in reorganizing the worksheet layout are given in Table 4.5.

Table 4.5 Shortcut Keys for Changing the Worksheet Layout

key(s)	Action
Del	Clears selected formulas or contents; same as the Home, Tab, Editing Group and then Clear Contents.
Backspace	Clears the formulas bar; activates and clears the formula bar's contents.
Ctrl+C	Copies the selection so that it can be pasted; same as the the Home Tab, Clipboard Group and then Copy Command.
Ctrl+X	Cuts the selection so it can be pasted; same as the Home Tab, Clipboard Group and then Cut Command.
Ctrl+V	Paste at the selected cell; same as the Home Tab, Clipboard Group and then Paste Command.
Ctrl+Z	Undoes last command.
Ctrl+ + Backspace	Repositions the worksheet so that the active cell is in view.

4.3.5 Changing Cell Height and Width

In order to improve the appearance of a worksheet or table in it, you can adjust *columns width* and *row height*. Thus, you can fit more data on a page. If need be, you can even hide confidential data.



As you drag the mouse pointer, the width of the highlighted columns adjusts and the width box displays the new width

Figure 4.27 Changing Column Width with Mouse

How to adjust Column Width?

You can adjust the width of one or more columns to get better look in a worksheet. If a column is not wide enough to display a number, date, or time, Excel 2010 displays it using # characters in the cell. Therefore, you may need to adjust columns width to show complete information.

Example 7

Describe the ways by which you can adjust columns width.

Solution

Adjust column width with mouse:

1. Select the columns for which you need to change the width.
2. Move the pointer onto the column separator to the right of the column heading (Figure 4.27). Pointer changes to a two-headed, horizontal arrow.
3. Drag the column left or right until the column is of the required width. Then release the mouse button. The Width box that appears as you drag the column, displaying the numeric value for the column width.

Adjust column width using Ribbon

1. Select the columns that you want to change the width.
2. Under Home Tab, click Cells group and then click arrow next to Format. It pops up the menu (Figure 4.28).
3. Use one of the following options to adjust column width:
4. Click OK.

To copy a column width, do this:

1. Select cells in the columns that you want to copy the column width.

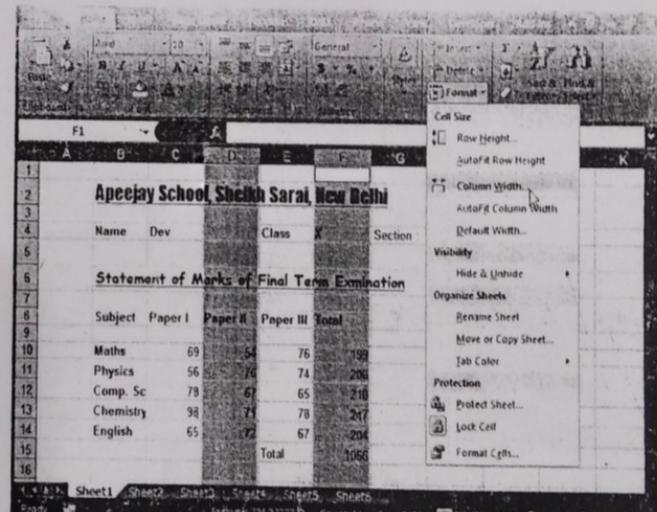


Figure 4.28 Format Column option

Option	Description
Column Width...	The Column Width dialog box appears (See Figure 4.29). Type the width, and then click OK.
AutoFit Selection	This option adjusts the column width automatically.
Default Width...	This option would adjust to the default column width for all the selected columns.
2. Click Copy button on Clipboard group of the Home Tab.	
3. Select the cells where you want to apply this width.	
4. Under the Home Tab, click the arrow next to the Paste button in the Clipboard group and then click Keep Source Column Widths button (Figure 4.30) or choose Paste Special... Paste Special dialog box appears .	

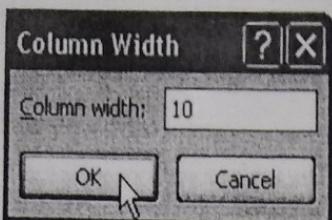


Figure 4.29 Column Width dialog box

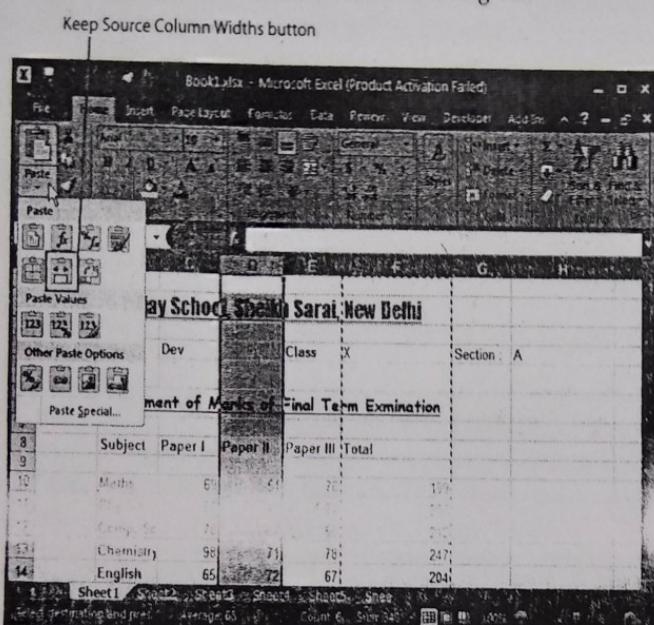


Figure 4.30 Copy column width using Paste options

5. In this dialog box, choose Column widths from Paste group.
6. Click OK.

How to adjust Row Height?

You can adjust row height in a worksheet to create enough space for *titles, subtotals, grand totals, etc.*

Example 8

How would you adjust row height?

- (a) using mouse
- (b) ribbon

Solution (a)

1. Select the rows for which you want to adjust the height.
2. Move the mouse pointer to the line directly under the header of the row you want to change. The mouse pointer changes to a two headed vertical arrow (Figure 4.31).
3. Drag the two-headed arrow pointer up or down until the row is of the required height. Then release the mouse button. The screen tip displays the numeric value for the row height.

Solution (b)

1. Select a cell in each row you want to change.

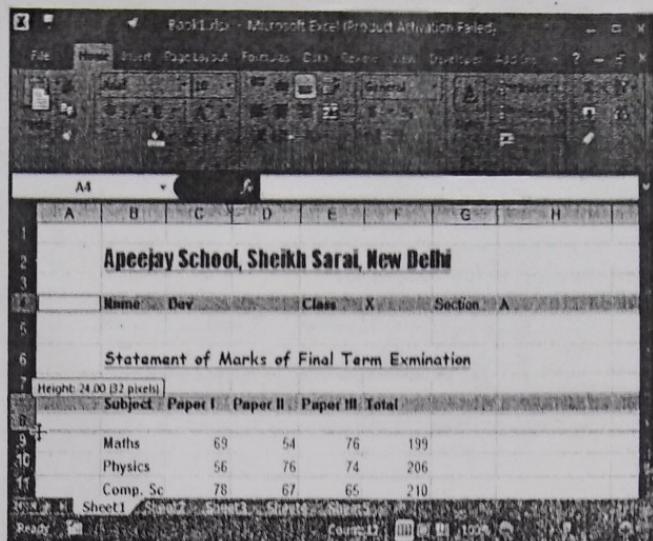


Figure 4.31 Changing row height with a mouse

2. Under Home Tab, click Cells group and then click arrow next to Format. It pops up menu (Figure 4.33).
3. Click from one of the following options.

Option	Description
Row Height	To display the Row Height dialog box. Here type the row height and click OK (Figure 4.32).
AutoFit	Row Excel 2010 adjusts rows height automatically.
Height	

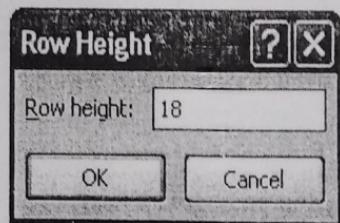


Figure 4.32 Row Height dialog box

4.4 FUNCTION AND CHARTS

4.4.1 Using Formulas

A formula is entered into a cell. It performs a calculation of some type and returns a result, which is displayed in the cell. Formulas in Excel always begin with an equal sign (=) and can include following types of data items:

- a. numeric and text values (constants)
- b. arithmetic operator, comparison operators, text operators, functions, parentheses
- c. cell references, and names

☞ By combining these components, you can calculate the result you want by using the information in the worksheet.

Excel also gives you the option to display formulas on a worksheet, or the results of the formulas.

→ To control the display of formula result, do this:

1. Click the File Tab and then click Options.

Excel Options dialog box appears. In this dialog box, click on **Advanced** button on the left side. Excel Options dialog box appears with **Advanced** properties as seen in Figure 4.33.

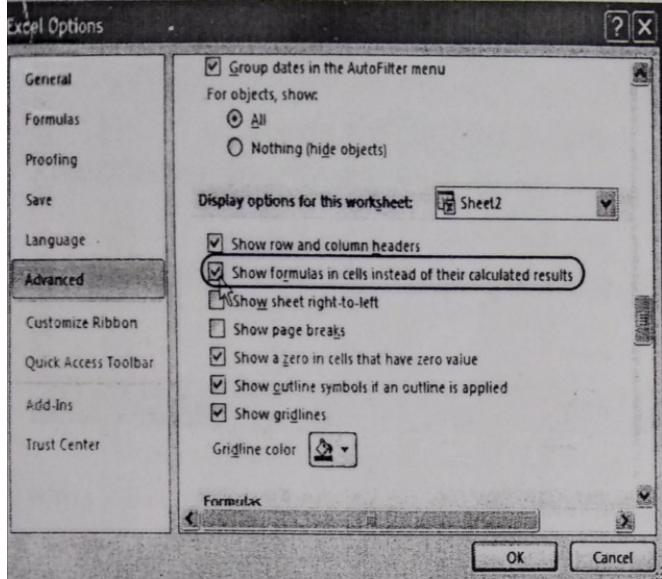


Figure 4.33 Excel options with Advanced Properties

Click on the Show formulas in cells instead of their calculated results check box so that it appears under the **Display options for this worksheet** group. Click OK.

To switch between viewing formulas and the results of formulas, click **Show Formulas** button from the **Formula Auditing** group of **Formulas Tab** or alternatively, click **Ctrl + F2** keys pressed together. (See Figure 4.34).

When you display formulas, Excel automatically doubles the width of all columns (Figure 4.34). The column widths will return to their original settings when you return to displaying the formula results. Formulas automatically recalculate and produce current results after you update data used by the formulas.

Apeejay School				
Name	Raj	Class	X	
<u>Statement of Marks of</u>				
Subject	Paper I	Paper II	Paper III	Total
Maths	68	54	76	=C10+D10+E10
Physics	56	76	74	=C11+D11+E11
Comp. Sc.	78	67	65	=C12+D12+E12
Chemistry	98	71	78	=C13+D13+E13
English	65	72	67	=C14+D14+E14
				=F10+F11+F12+F13+F14
				Total

Figure 4.34 Formula displayed in cells

- ⇒ Make sure that you start the formula with an equal sign (=). If you forget the equal sign, Excel 2010 does not interpret the entry as a formula. For example, if you enter $B12*D15$ (with no equal sign), the $B12*D15$ is actually entered into the cell as text.

How to Enter Formulas?

To enter a formula, start a formula with an equal sign (=) and then construct the formula using *values, operators, cell references, functions, and names* to calculate the required result.

You can enter formulas either in the formula bar or in the cell. You can enter a formula using the formula bar by simply typing in it and pressing **Enter**. You can also enter a formula directly in the cell and bypass the formula bar.

- ⇒ Make sure you remember to start the formula with an equal sign (=). If you forget the equal sign, Excel 2010 does not interpret the entry as a formula. If you enter $B12*D15$ (no equal sign), then $B12*D15$ is actually entered into the cell as text.

► To enter a formula in the formula bar, do this:

1. Select the cell in which you want to enter the formula.
2. Then click on the Formula bar and then type an equal sign (=).
3. Type a *value, cell reference, function, or name*.
4. If the formula is complete, press **Enter** or click the Enter box (a check mark) in the formula bar. If the formula is incomplete, go to step 5.

Book1.xlsx - Microsoft Excel (Product Activation Failed)				
Sheet1				
Apeejay School, Sheikh Sarai, New Delhi				
Name	Raj	Class	X	
<u>Statement of Marks of Final Term Examination</u>				
Subject	Paper I	Paper II	Paper III	Total
Maths	68	54	76	198
Physics	56	76	74	206
Comp. Sc.	78	67	65	210
Chemistry	98	71	78	247
English	65	72	67	204
				Total
				=F10+F11+F12+F13+F14

Figure 4.35 Entering a formula in Excel

5. Type an operator. There are many types of operators. The most common operators are math symbols, such as + (plus) and - (minus).
6. Return to step 3.

→ To enter a formula in a cell, do this:

1. Double-click the cell or select the cell and press **F2** key in which you want to enter the formula and type an equal sign (=) (Figure 4.35).
2. Type a value, cell reference, function, or name.
3. If the formula is complete, press **Enter** key. If the formula is incomplete, go to step 4.
4. Type an operator.
5. Return to step 2.

Always separate terms in a formula with operators or parentheses.

Use the SUM function to Sum Several Ranges

To sum several ranges, simply refer to each of them, separated by a comma, using the SUM function.

→ To sum several ranges, do this:

1. In cells A20:A26 enter prices from Rs. 1 to 100.
2. Select cells B20:B26 and type the formula =A20*8% to calculate the tax amount.
3. Press **Ctrl + Enter** keys together.
4. In Cells C20:C26 type some discount values from -1 to -3.
5. In Cell C28, sum all three columns with the following functions:
 $=SUM(A20:A26, B20:B26, C20:C26)$ (Figure 4.36).

The screenshot shows a Microsoft Excel spreadsheet. The formula bar at the top contains the formula $=SUM(A20:A26, B20:B26, C20:C26)$. Below the formula bar is a table with three columns: Price, Tax, and Discount. The table has 7 rows, labeled 20 through 26. The data entries are as follows:

	Price	Tax	Discount
20	56	4.48	-1
21	80	6.4	-1.5
22	82	6.56	-1.75
23	36	2.88	-2
24	57	4.56	-1.25
25	64	5.12	-1.75
26	2.08		-2
Total			$=SUM(A20:A26, B20:B26, C20:C26)$

Figure 4.36 Entering Sum function to several ranges

6. Press **Enter**.

Moving or Copying Formula

When you move a formula from one cell to other, the cell references within the formula do not change. But when you copy a formula, then

- absolute cell references do not change
 - relative cell references will change when you copy a formula.
- To move or copy a formula, do this:
1. Select the cell that contains the formula you want to move or copy.

2. Point to the border of the selection.
3. To move the cell, drag the selection to the upper-left cell of the paste area. Excel 2010 replaces any existing data in the pasted area.
4. To copy the cell, hold down **Ctrl** key as you drag the mouse.

☞ You can also copy formulas into adjacent cells by using the fill handle. Select the cell that contains the formula and then drag the fill handle over the range you want to fill.

Entering Cell References

Cell references allow you to use values from different parts of a worksheet and execute and enables you to do the desired calculation. You can use any cell or group of cells in a formula.

☞ The reference of the active cell is displayed in the name box at the left end of the formula bar.

Entering the Cell References by Pointing

The easiest method of entering cell references in a formula is by pointing to the cell you want to include in a formula. Although you can type an entire formula, you often can make a typing error or misread the row or column headings. Say for example, you may end up with D52 in a formula when it should be E52.

☞ When you point to a cell to include it in a formula, you actually move the pointer to the cell you want in the formula. It is found out only when you select the correct cells.

→ To enter a cell reference into a formula by pointing, do this:

1. Select the cell for the formula.
2. Type an equal sign (=).
3. Point to the cell you want it in the formula and click, or press the arrow keys to move the dashed marquee to the cell you want in the formula. The address of the cell you point to appears at the cursor location in the formula bar.
4. Enter an operator, such as the + symbol.
5. Point to the next cell.
6. Repeat the steps from step 4 to continue the formula, or enter the formula by clicking the Enter box or pressing **Enter** key.

☞ The cell reference in a formula changes after you copy the formula to a new location or after you fill a range with a formula. You would usually want formulas to use relative cell references, only.

Using Cell References in Formulas

You refer to a cell's location with a *relative* reference or an *absolute* reference. Let us understand the difference in the two types of cell references.

Suppose that you are in your office, and you want someone to take a letter to the post office. Using a relative reference, you tell the person. "Go out the front door; turn left cross the road

and move two building then turn right and go to the second building." These directions are relative to your office location at the time you give the instructions. If you move to a different location, these directions are no longer valid.

To make sure that the letter gets to the mailbox no matter where you are then you give different set of directions. You must say something like this "Take this letter to the I.P. Estate post office." No matter where you are when you speak, the post office is at one absolute location: I.P. ESTATE.

Tip Thus, the difference between relative and absolute reference is that in absolute reference, the cell is fixed once for all. In the relative reference it depends on the location where your pointer is.

Using Relative References

A relative cell reference in a formula, is based on the relative position of the cell that contains the formula and the cell the reference refers to. If the position of the cell that contains the formula changes, the reference is changed. If you copy or fill the formula across rows or down columns, the reference automatically adjusts.

Excel uses relative referencing for cell addresses when you enter a formula.

In Figure 4.37, the formula in cell F10 is =C10+D10+E10. All these references are relative. The formula, translated into English, would read as follows:

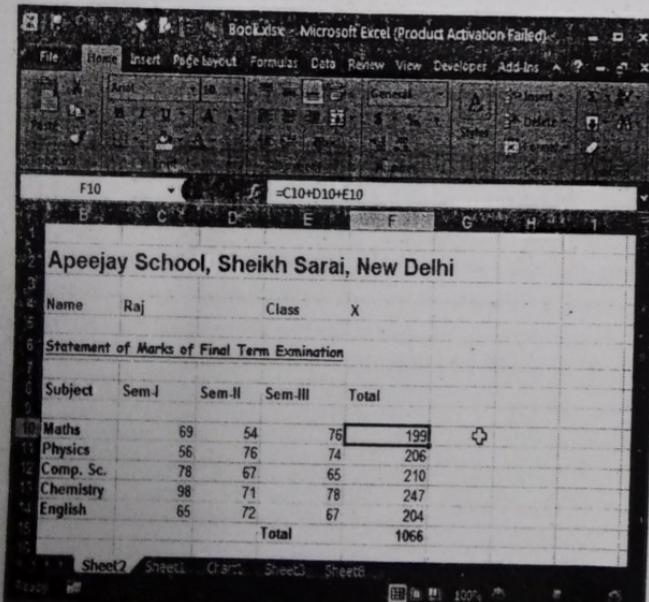


Figure 4.37 Formula entered with relative reference

"In cell F10, add the number in the 10th column to the left (C10), second column to the left (D10) and the adjacent column on the left (E10)" in the same row.

Suppose you copy formula across Column G, the formulas adjust their cell references to their new positions. The copied formulas are as follows:

Cell Containing Formula	A1 Format
G10	= D10+E10+F10
G11	= D11+E11+F11
G12	= D12+E12+F12

You will notice that the formulas change to give the cell references with relative position from the cell that contains the formula.

Using Absolute References

You use absolute references only to keep the cell reference values from changing as and when you copy a formula to a new location in a worksheet.

► To enter an absolute reference by using the F4 key, do this:

1. Type an equal sign (=) and the cell reference you want to be absolute.
2. Press F4, the absolute reference key, until the correct combination of dollar signs appears.

Tip Indicate absolute references by putting a dollar sign (\$) in front of the column letter or row number that you want to freeze or both. (See Figure 4.38)

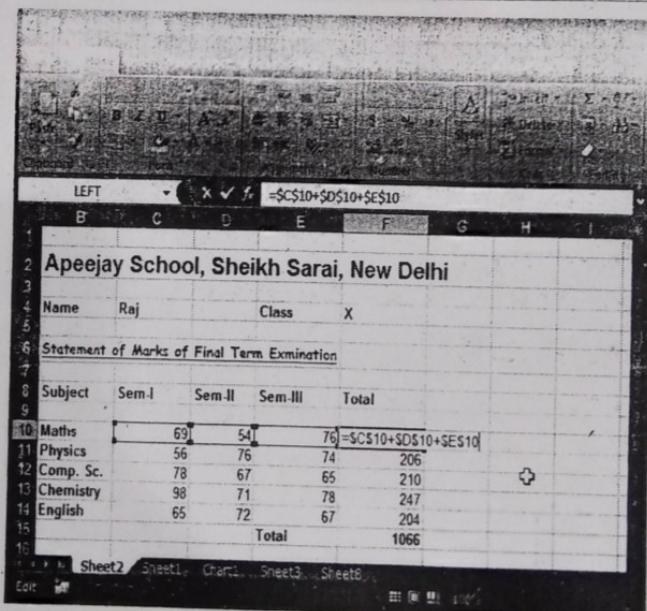


Figure 4.38 Formula with absolute reference

3. Type the next operator and continue to enter the formula, also.

You can use the F4 key when editing an existing formula.

Using Mixed References

In some cases, you may want either the row to stay fixed or the column to stay fixed when copying the cells from one place to other in a worksheet. In such cases, use a mixed reference. Such references contain both absolute and relative reference. For example, the reference \$B5 prevents the column from changing, but the row changes relative to a new copied location. The dollar sign prevents the column from changing.

In B\$5, just the opposite occurs. The column adjusts to a new location but the row always stays fixed at 5 because the dollar sign prevents the row from changing.

You can create mixed references the same way as you can create absolute references. Type the dollar signs or specific row and column numbers without brackets or press **F4** key. Each press of **F4** cycles the cell reference to a new combination.

- ☞ Each time you press **F4**, Excel 2010 cycles through all combinations of relative and absolute references. Press **F4** four times, for example, and you cycle from B22 through \$B\$22, B\$22, \$B22, and B22.

Referring to Other Sheets in a Workbook

You can also refer to other sheets in a workbook by including a sheet reference as well as a cell reference in a formula. For example, to refer to cell A1 on Sheet6, you would enter Sheet6!A1 in the formula.

You can use the mouse to enter a reference to a cell or range of cells on another worksheet in a workbook.

- ☞ To refer to cell or range in a different worksheet, do this:
 1. Start entering the formula in the cell where you want the result to appear.
 2. Click the sheet tab for the worksheet you want to refer to.
 3. Select the cell or range that you want to refer to. The complete reference, including the sheet reference, appears in the formula bar (Figure 4.39).

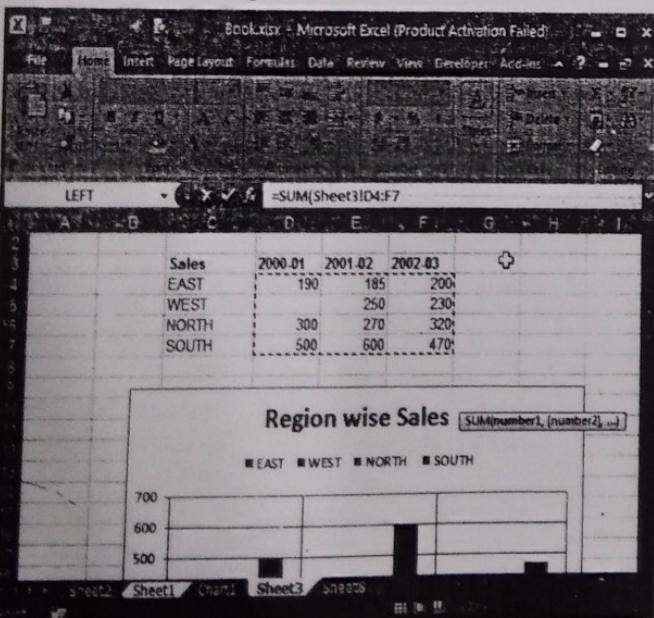


Figure 4.39 Referring a cell or range of cells in another worksheet

Entering 3-D References

You can use 3-D references to refer to a cell range that includes two or more sheets in a workbook. A 3-D reference consists of a sheet range specifying the beginning and ending sheets, and a cell range specifying the cells being referred to. Let us see an example of a 3-D reference:

=SUM(Sheet1:Sheet6!\$E\$1:\$E\$6)

This reference sums up the values in the range of cells \$E\$1:\$E\$6 in each of the sheets from Sheet1 to Sheet6, and adds the sums together resulting in a grand total.

- ☞ To use the mouse to enter the reference, do this:

1. Click for entering the formula in the cell where you want the result to appear.
2. Click the sheet tab for the first worksheet you want to include in the reference. Hold down the **Shift** key and click the last worksheet you want to include in the reference and then select the cells you want to refer to.
3. Finish the formula and press **Enter** key.

- ☞ Notice the exclamation mark (!) that separates the sheet reference from the cell reference. If you have named the sheet, simply use the sheet name and then cell reference. If the sheet name included spaces, then surround the sheet reference with single quotation marks.

4.4.2 Using Operators in Formulas

Operators are used in formulas to execute operations on the values taken by formulas. Excel uses four types of operations. These are given below:

Operators	Signs
Arithmetic	+,-,*,/,%, [^]
Text	&
Comparative	=,<,<=,>,>=,<>
Reference	Colon (:), comma(,), space ()

Arithmetic Operator

How to use each of the arithmetic operators in formulas explained in the following example.

Example 9

Figure 4.40 shows the result of the use of arithmetic operator used in the following table:

Operator	Formula	Result	Type of Operation
+	=5+2	7	Addition of 5 with 2
-	=5-2	3	Subtraction of 2 from 5
-	-5	-5	Negation (negative of the number)
*	=5*2	10	Multiplication of 5 with 2
/	=5/2	2.5	Division of 5 by 2
%	5%	.05	Percentage
[^]	=5 ²	25	Exponentiation (to the power of)

4. If the sheet name includes spaces, Excel surrounds the sheet reference with single quotation marks.
5. Finish the formula and press **Enter** key.

	Formula	Result
	=5+2	7
	=5-2	3
	=5	-5
	=5*2	10
	=5/2	2.50
Gibbs	=%5	0.05
	=5^2	25
	=A12&C15	Ms Gibbs

Figure 4.40 Arithmetic and Text Operators

Text Concatenation Operator

The ampersand (&) operator, joins text within quotation marks or text contained in referenced cells. Joining text is known as *concatenation*, as explained in the following example.

Example 10

Figure 4.41 shows the result of the concatenation operator used in the following table.

Operator	Formula	Result	Type of Operation
&	=A12&" "&C15	Ms.Gibbs	Text in A12 and C15 is joined

Comparison Operator	Formula	Result
= (equal sign)	=5=5	TRUE
< (less than sign)	=6<5	FALSE
<= (less than or equal to sign)	=6<=5	FALSE
> (greater than sign)	=6>5	TRUE
>= (greater than or equal to sign)	=6>=5	TRUE
<> (not equal to sign)	=5<>5	FALSE

Figure 4.41 Comparison Operators

Comparison Operators

To compare values, you can create formulas using comparison operators. These operators return a TRUE or FALSE result, depending on how the formula evaluate the condition. Subsequent table formulates some Comparison operators and Figure 4.41 shows the use of such comparison operators.

Operator	Type
=	Equal to
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
<>	Not equal to

The following are examples of comparative operators in formulas:

Formula	Result
=A12<15	TRUE if the contents of cell A12 is less than 15; FALSE if the contents of cell A12 is 15 or more.
=B36>=15	TRUE if the contents of cell B36 is 15 or more; FALSE if the contents of cell B36 is less than 15.

Reference Operator

Reference operators make no changes to constants or cell contents (See Table 4.6). Instead, they control how a formula groups the cells and ranges of cells when the formula is made to calculate. The examples of Reference operators are shown in Figure 4.42.

Table 4.6 Reference Operators

Operator	Example	Type	Result
:	SUM(A7:A11)	Range	Evaluates as a single reference the cells in the rectangular area between the two corners.
	SUM(A7:A11,B11)	Union	Evaluates two references as a single reference.
space	SUM(A9:A11 A7:A11)	Intersect	Evaluates the cells common to both references (if no cells are common to both, then #NULL results).
space	=Yr99 Sales	Intersect	Cell contents at the intersect of the column named Yr99 and the row named Sales.

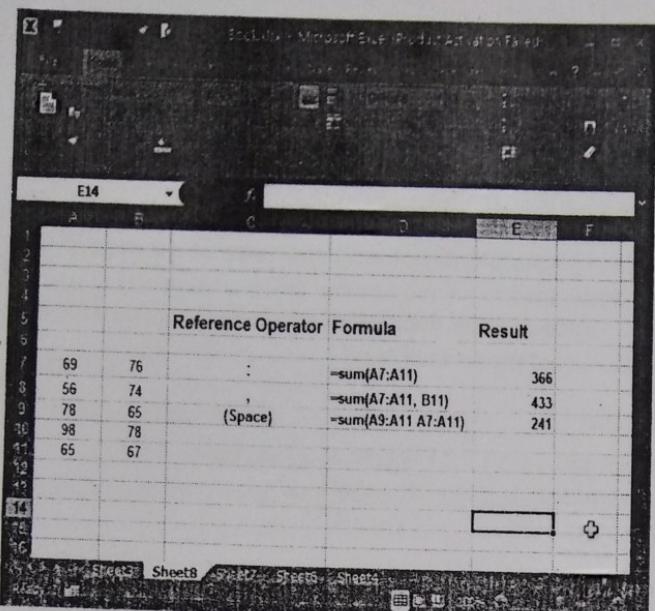


Figure 4.42 Reference Operators

Reference operators enable you to combine absolute and relative references and named ranges. Reference operators are valuable for joining cells (union) or referring to a common area shared between different ranges (intersect).

Range Operator

Use the range operator (:) to reduce your work in formulas. If you want a formula to refer to all cells in column B, type B:B. Similarly, the range that includes all cells in rows 5 through 12 is entered as 5:12.

Evaluation (Precedence) of Formulas

Excel 2010 follows a set of rules when applying operators in a formula. Working from the first calculation to the last, Excel 2010 evaluates operators in the order shown in Table 4.7.

Table 4.7 The Order in which Excel 2010 Evaluates Operators

Operator	Definition
()	Parentheses
:	Range
space	Intersect
,	Union
-	Negation
%	Percentage
^	Exponentiation
* and /	Multiplication and division
+ and -	Addition and subtraction
&	Text joining
=, <, and <= >, >=, and <>	Comparisons

If you want to change the order in which calculations are performed then enclose in parentheses the terms you want Excel 2010 to calculate first.

For example, you will notice the difference between the results of the following formulas:

Formula	Result
=6+21/3	13
=(6+21)/3	9

Entering Text, Date and Time in Formulas

You can use *text*, *dates*, and *times* in formulas by including the data in quotation marks. For example,

=“The Total Budget is” &TOTAL_BUDGET

shows the Total Budget and the value in the cell named TOTAL_BUDGET.

If you want to perform date math on explicit dates, which are the dates that are not in cells, then:

=“4/14/2012” – “4/14/2011”

or

=“14April12” – “14April11”

These formulas produce the number of days between the two dates.

4.4.3 Other Basic Functions

Functions are the predefined formulas that perform calculations on specific values, called arguments. Each function takes specific types of arguments, such as *numbers*, *references*, *text*, or *logical values*. You can enter the arguments, enclosing them in parentheses i.e. (), after the function name. Functions take these arguments in the same way that algebraic equations use variables. For example, the SUM function adds values or range of values, and the PMT function calculates the loan payments based on an interest rate, the period of loan, and the principal amount of loan. Excel includes many functions that can be divided into the following categories:

Mathematical Functions

Excel 2010 includes many math and trigonometry functions. Mathematical functions are used to perform wide variety of simple or complex calculations such as totaling the value for a range of cells, rounding of a number.

SUM()

Adds all the numbers in a range of cells. (See Figure 4.43)

Syntax

SUM(number1, number2, ...)

Where **number1**, **number2**, ... are upto 255 arguments for which you want the total value or the sum of numbers.

- Numbers, logical values, and text representations of numbers that you type directly into the list of arguments are counted.
- If an argument is an array or reference, only numbers in that array or reference are counted. Empty cells, logical values, text, or error values in the array or reference are ignored.
- Arguments that are error values or text that cannot be translated into numbers would cause errors.

Example 11

SUM (3, 2) equals 5

SUM ("3", 2, TRUE) equals 6 because the text values are translated into numbers, and the logical value TRUE is translated into the number 1. (See Figure 4.43)

Unlike the previous example, if A8 contains "text" and A9 contains "text1", then:

SUM(A8,A9,2) equals 2 because references to nonnumeric values in references are not translated. (See Figure 4.43)

If cells A2:E2 contain, 5, 15, 30, 40 and 50, then

SUM (A2:C2) equals 50

SUM (B2:E2, 15) equals 150 (See Figure 4.43)

The screenshot shows a Microsoft Excel spreadsheet titled 'formulas13'. The table has columns for Examples and Results. The examples include formulas like =SUM(3,2), =SUM("3",2,TRUE), =SUM(A8,A9,2), etc. The results show the output of these formulas: 5, 6, 2, 150, 3.3, -1, 30, 3.2, -1, 30, 3.3, -2, -1, 5, 4, -8, 8.96, and 7000.

Examples	Results
=SUM(3,2)	5
=SUM("3",2,TRUE)	6
=SUM(A8,A9,2)	2
=SUM(B1:E15)	150
=ROUND(3.27,1)	3.3
=ROUND(-1.475,0)	-1
=ROUND(31.5,-1)	30
=ROUNDDOWN(3.27,1)	3.2
=ROUNDDOWN(-1.475,0)	-1
=ROUNDDOWN(31.5,-1)	30
=ROUNDUP(3.27,1)	3.3
=ROUNDUP(-1.475,0)	-2
=ROUNDUP(31.5,-1)	-1
=TRUNC(3.27)	3
=TRUNC(-1.475)	-1
=TRUNC(31.5,-1)	-1
=TRUNC(3.27)	3
=TRUNC(-1.475)	-2
=TRUNC(31.5,-1)	-1
=TRUNC(3.27)	3
=TRUNC(-1.475)	-2
=TRUNC(31.5,-1)	-1
=TRUNC(3.27)	3
=TRUNC(-1.475)	-2
=TRUNC(31.5,-1)	-1
=TRUNC(3.27)	3
=TRUNC(-1.475)	-2
=TRUNC(31.5,-1)	-1
=SUMIF(A14:A17,>12000",B14:B17)	8.96
=SUMIF(A14:A17,>12000",B14:B17)	7000

Figure 4.43 Mathematical functions and their results

Round()

Round () function rounds a number to a specified number of digits. (See Figure 4.43)

Syntax

ROUND (number, num_digits)

Where **number**— is the number you want to round.

Num_digits specifies the number of digits to which you want to round off a number.

- If num_digits is greater than 0 (zero), then number is rounded to the specified number of decimal places.
- If num_digits is 0, then number is rounded to the nearest integer.
- If num_digits is less than 0, then number is rounded to the left of the decimal point.

Example 12

ROUND (3.27, 1) equals 3.3 (See Figure 4.43)

ROUND (-1.475, 0) equals -1

ROUND (31.5, -1) equals 30

Rounddown()

Rounddown () function rounds a number down towards zero. (See Figure 4.43)

Syntax

ROUNDDOWN(number, num_digits)

Where **number**— is the number you want to round.

Num_digits specifies the number of digits to which you want to round a number.

- If num_digits is greater than 0 (zero), then number is rounded down to the specified number of decimal places.
- If num_digits is 0, then number is rounded down to the nearest integer.
- If num_digits is less than 0, then number is rounded down to the left of the decimal point.

Example 13

ROUNDDOWN (3.27, 1) equals 3.2 (See Figure 4.43)

ROUNDDOWN (-1.475, 0) equals -1

ROUNDDOWN (31.5, -1) equals 30

Roundup()

Roundup () function rounds a number up away from 0 (zero). (See Figure 4.43)

Syntax

ROUNDUP(number,num_digits)

Where **number**— is the number you want to round.

Num_digits specifies the number of digits to which you want to round a number.

- If num_digits is greater than 0 (zero), then number is rounded up to the specified number of decimal places.
- If num_digits is 0, then number is rounded up to the nearest integer.
- If num_digits is less than 0, then number is rounded up to the left of the decimal point.

Example 14

ROUNDUP (3.27, 1) equals 3.3 (See Figure 4.43)

ROUNDUP (-1.475, 0) equals -2

ROUNDUP (31.5, -1) equals 40

Example 15

ABS()

ABS () function returns the absolute value of a number. The absolute value of a number is the number without any + or - sign.

Syntax

ABS (num)

Where **num** is the real number of which you want the absolute value.

Example 16

ABS (5) equals 5

ABS (-5) equals 5 (See Figure 4.43)

SQRT()

SQRT() returns a positive square root of a number. (See Figure 4.43)

Syntax

SQRT(num)

Where **num** is the number for which you want the square root. If number is negative, SQRT returns the #NUM! Error value because square root of a negative number is not defined.

Example 17

SQRT(16) equals ±4

SQRT(-16) equals #NUM! i.e. error.

But if you want to find the square root of negative number then you have to give function like this:

SQRT(ABS(-16)) equals 4 (See Figure 4.43)

TRUNC()

TRUNC() function truncates a number to an integer value by removing the fractional part of the number. (See Figure 4.43)

Syntax

TRUNC(num, num_digits)

Where **num** is the number you want to truncate.

Num_digits is a number specifying the precision of the truncation. The default value for **num_digits** is 0 (zero).

Example 18

TRUNC(8.9) equals 8

TRUNC(-8.9) equals -8

TRUNC(8.9654, 2) equals 8.96

Logical Functions

Logical functions are used when we want to check whether a given condition is true or false.

IF()

IF() function used to determine whether a condition specified with in braces is true or false. It returns one value if a specified condition evaluates to TRUE and another value if it evaluates to FALSE. (See Figure 4.44)

Syntax

IF(logical_test,value_if_true,value_if_false)

Where

Logical_test is a value or expression that can be evaluated to TRUE or FALSE. For example, A10 = 100 is a logical expression.

Value_if_true is the value that is returned if **logical_test** is TRUE. For example, if the value in cell A10 is equal to 100, the expression evaluates to TRUE.

Value_if_false is the value that is returned if **logical_test** is FALSE. For example, if the value in cell A10 is not equal to 100, the expression evaluates to FALSE.

In Excel 2010, up to 64 IF() functions can be nested to construct more elaborate tests.

Example 19

On a Marksheets, cell A10 contains a formula to calculate the result. If the result of the formula in A10 is greater than 50, then the following function displays "Pass". Otherwise, the function displays "Fail". (See Figure 4.44)

IF(A10>=50, "Pass", "Fail")

The screenshot shows a Microsoft Excel window titled 'formulas.xlsx - Microsoft Excel (Product Activation Failed)'. The spreadsheet has two tabs: 'Marks' and 'Sheet2'. The 'Marks' tab contains data for three months: Jan, Feb, and March, with columns for Actual Expenses and Predicted Expenses. The 'Sheet2' tab is a table with columns for LOGICAL FUNCTION, EXAMPLES, and RESULT. It includes examples for IF(), AND(), OR(), and nested IF() functions.

LOGICAL FUNCTION	EXAMPLES	RESULT
IF()	=IF(A10>50, "PASS", "FAIL")	PASS
AND()	=IF(AND(B1>E1, C1>F1), "OK", "FAIL")	FAIL
OR()	=IF(OR(Marks>=89, Marks>=79, Marks>=69, Marks>=59), "A", "B", "C", "D", "F"))	B
Nested IF()	=IF(Marks>=89, "A", IF(Marks>79, "B", IF(Marks>69, "C", IF(Marks>59, "D", "F"))))	B

Figure 4.44 Logical functions

Suppose an expense worksheet in D2:D4 contains the following data for "Actual Expenses" for January, February, and March: 1000, 500, 500. E2:E4 contains the following data for "Predicted Expenses" for the same periods: 800, 800, 975.

You can write a formula to check whether you are over budget for a particular month, generating text for a message with the following formulas:

IF(D2>E2, "Over Budget", "OK") equals "Over Budget"

IF(D3>E3, "Over Budget", "OK") equals "OK"

We can also use nested IF function:

```
IF(Marks>89, "A", IF(Marks>79, "B",
IF(Marks>69, "C", IF(Marks>59, "D", "F"))))
```

In the above example, **Marks** is the name of the cell A7 (See Figure 4.44), if the first logical_test (**Marks**>=89) is TRUE, "A" is returned. If the first logical_test is FALSE, the second IF statement is evaluated, and so on.

When averaging cells, keep in mind the difference between empty cells and those containing the value zero, especially if you have cleared the Zero values check box from the Advanced properties of the Excel Options. Empty cells are not counted, but zero values are counted and evaluated.

TRUE()

TRUE() returns the logical value TRUE and it takes no arguments.

Syntax

TRUE()

FALSE()

FALSE() function is same as **TRUE()** but it returns the logical value FALSE.

Syntax

FALSE()

Statistical Function

Statistical functions are used to perform statistical analysis on ranges of data. Excel 2010 includes simple as well as complex statistical functions such as *average*, *min*, *max*, *standard deviation*, *slopes* etc. Apart from this, it also includes a set of more accurate statistical and other functions. Certain existing functions have also been renamed to better describe what they do.

MAX()

Max function returns the largest value in a set of values stored in a cells.

Syntax

MAX(number1, number2, ...)

Where **number1, number2, ...** are upto 255 numbers for which you want to find the maximum value.

- You can specify arguments that are *numbers*, *empty cells*, *logical values*, or *text representations of numbers*. Arguments that are error values or text that cannot be translated into numbers cause errors.
- If the arguments contain no numbers, MAX returns 0 (zero).

Example 20

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

MAX (A1:A5) equals 27 (See Figure 4.45)

MAX (A1:A5, 30) equals 30

MIN()

Min function returns the smallest number in a set of values.

Syntax

MIN(number1, number2, ...)

Where **number1, number2, ...** are upto 255 numbers for which you want to find the minimum value.

- You can specify arguments that are *numbers*, *empty cells*, *logical values*, or *text representations of numbers*. Arguments that are error values or text that cannot be translated into numbers cause errors.

- If the arguments contain no numbers, MIN returns 0 i.e. zero.

Example 21

If A1:A5 contains the numbers 10, 7, 9, 27 and 2 then:

MIN (A1:A5) equals 2 (See Figure 4.45)

MIN (A1:A5, 0) equals 0

Average()

The Average function returns the average (arithmetic mean) of the arguments which are passed in function as an argument. (See Figure 4.45)

The screenshot shows a Microsoft Excel spreadsheet titled 'Score'. It contains a table with the following data:

FUNCTION	EXAMPLE	RESULT	SALARY	COMMISSION
MAX() FUNCTION	=MAX(A1:A5)	45	19	TRUE
MIN() FUNCTION	=MIN(A1:A5)	6	#DIV/0!	
AVERAGE() FUNCTION	=AVERAGE(A1:A5)	22.6		
COUNT() FUNCTION	=COUNT(I1:I7)	3	30000	2500
COUNTIF() FUNCTION	=COUNTIF(H9:H12,">1200")	3	40000	3000

Below the table, there is a section labeled 'MOTHER' with entries: SON, DAUGHTER, SON.

Figure 4.45 Statistical functions

Syntax

AVERAGE (number1, number2, ...)

Where **number1, number2, ...** are upto 255 numeric arguments for which you want the average.

Notes

- The arguments must be either numbers or names, or references that contain numbers.
- If an array or reference argument containing text, logical values, or empty cells, such values are ignored; however, cells with the value zero are included.

Example 22

If A1:A5 is named Scores and contains the numbers, 10, 7, 9, 27 and 2 then:

AVERAGE (A1:A5) equals 11 (See Figure 4.45)

AVERAGE (Scores) equals 11 Here **Scores** is the name of range. (See Figure 4.45)

AVERAGE (A1:A5, 5) equals 10

AVERAGE (A1: A5) equals SUM (A1:A5)/COUNT (A1:A5) equals 11

If C1:C3 is named OtherScores and contain the numbers 4, 18, and 7, then:

AVERAGE (Scores, OtherScores) equals 10.5

Count()

Count function counts the number of cells that contain numbers and numbers within the list of arguments. Use COUNT to get the number of entries in a number field in a range or array of numbers. (See Figure 4.45)

Syntax

COUNT(value1, value2, ...)

Where **value1, value2, ...** are upto 255 arguments that can contain or refer to a variety of different types of data, but only numbers are counted.

- Arguments that are *numbers, dates, or text* representations of numbers are counted. Arguments that are error values or text that cannot be translated into numbers are ignored.
- If an argument is an array or reference, only numbers in that array or reference are counted. Empty cells, logical values, text, or error values in the array or reference are ignored. If you need to count logical values, text, or error values, use the COUNT function.

Example 23

In the following example, the column I1 to I6 contain the following values. (See Figure 4.45)

I1	Sales
I2	1/5/2007
I3	19
I4	62.24
I5	TRUE
I6	#DIV/0!
I7	Blank

COUNT (I1:I7) equals 3 (See Figure 4.45)

COUNT (I4:I7) equals 1

COUNT (I1:I7, 2) equals 4

Date and Time Function

With date and time functions, you can analyze and work with date and time values in formulas. For example, if you need to use the current date in a formula, you can use the TODAY() function, which returns the current date.

Today()

It returns the current date of the system. (See Figure 4.46)

Syntax

TODAY()

Now()

Returns the current date and time. (See Figure 4.46)

Syntax

NOW()

Day()

It returns the day of a date passed as an argument. The day is given as an integer ranging from 1 to 31. (See Figure 4.46)

Syntax

DAY(serial_number)

Where **serial_number** is the date of the day you are trying to find. Dates may be entered as text strings within quotation marks.

The screenshot shows a Microsoft Excel spreadsheet titled "formulas.xlsx". A table is displayed with three columns: DATE AND TIME FUNCTION, EXAMPLES, and RESULT. The table contains the following data:

DATE AND TIME FUNCTION	EXAMPLES	RESULT
TODAY() FUNCTION	=TODAY()	3/27/2012
NOW() FUNCTION	=NOW()	3/27/2012 11:15
DAY() FUNCTION	=DAY("4-JAN") =DAY("15-APR-2007") =DAY("4/15/2011")	4 15 15
MONTH() FUNCTION	=MONTH("6-SEPT")	9
YEAR() FUNCTION	=YEAR(TODAY()) =YEAR("2012/5/1")	2012 2012

Figure 4.41 Date and Time Functions

Example 24

DAY("4-Jan") equals 4

DAY("15-Apr-2007") equals 15

DAY("4/15/2011") equals 15

DAY("2009/10/10") equals 10

Month()

It returns the month of a date which is passed as argument. The month is given as an integer, ranging from 1 (January) to 12 (December). (See Figure 4.46)

Syntax

MONTH(serial_number)

Where **serial_number** is the date of the month you are trying to find.

Example 25

MONTH("6-Sept") equals 9

MONTH("2012/04/01") equals 4

Year()

Returns the year corresponding year to a date. (See Figure 4.46)

Syntax

YEAR(serial_number)

Where **serial_number** is the date of the year you want to find.

Example 26

`YEAR("5/7/2011")` equals 2011

`YEAR("2012/05/01")` equals 2012 (See Figure 4.46)

Text Function

With text functions, you can use text strings in formulas. You can also change the case of the string, find out the length of a text string or you can join two strings etc.

Concatenate()

Joins two or more text strings into one text string. (See Figure 4.47)

TEXT AND DATA FUNCTION		
CONCATENATE() FUNCTION	EXAMPLES <code>=CONCATENATE("TOTAL", " VALUE")</code> <code>="Total"&"&"Value"</code>	RESULT TOTAL VALUE Total Value
LEFT() FUNCTION	<code>=LEFT("PROJECT",4)</code> <code>=LEFT("PROJECT")</code>	PROJ P
RIGHT() FUNCTION	<code>=RIGHT("PROJECT",5)</code> <code>=RIGHT("PROJECT")</code>	OBJECT T
SLN() FUNCTION	<code>=SLN(100000,7500,10)</code>	\$9,250.00

Figure 4.47 Text and Financial functions

Syntax

`CONCATENATE (text1, text2, ...)`

Where `text1, text2, ...` are 2 to 255 text items to be joined into a single text item.

The `"&"` operator can also be used to join text items.

Example 27

`CONCATENATE("Total", " Value")` equals "Total Value".

If you use `'&'` operator to join strings then

`"Total"&"&"Value"`

LEFT()

`LEFT` returns the first character or characters in a text string, based on the number of characters specified as arguments. (See Figure 4.47)

Syntax

`LEFT(text, num_chars)`

Where `text` is the text string.

`num_chars` specifies the number of characters to be extracted. By default, it is assumed to be 1.

Example 28

`LEFT("PROJECT", 4)` equals "PROJ" (See Figure 4.48)

If A1 contains "SUBJECT", then:

`LEFT(A1)` equals "S"

Because S is the left most character and by default it will be left most character value.

RIGHT()

It is same as LEFT but it returns the last character or characters in a text string, based on the number of characters specified as arguments. (See Figure 4.47)

Syntax

`RIGHT(text, num_chars)`

Where `text` is the text string.

`num_chars` specifies the number of characters to be extracted.

Example 29

`RIGHT("PROJECT", 5)` equals "OBJECT" (See Figure 4.47)

`RIGHT("PROJECT")` equals "T"

Financial Function

Financial functions perform common business calculations. For example, determination of the payment for a loan.

SLN()

Returns the straight-line depreciation of an asset for one period. (See Figure 4.47)

Syntax

`SLN(cost, Last_value, life)`

Where `Cost` is the initial cost of the asset.

`Last_value` is the value at the end of the depreciation.

`Life` is the number of year in which the asset is being depreciated (the useful life of the asset).

Example 30

Suppose you purchased a Car for 1,00,000 that has a useful life of 10 years and a salvage value of 7,500. The depreciation allowance for each year is:

`SLN(100000, 7500, 10)` equals 9,250 (See Figure 4.47).

PMT()

Suppose you want to buy a car and you want to calculate your monthly installment you can use the `PMT()` function built in Excel 2010.

Example 31

1. Activate a cell.

2. Under the Formulas tab, click on the Insert Function. Alternatively, click on the Insert Function button on the center of the formula bar i.e. f_x or press $Shift+F3$ keys together. It will display the Insert Function Dialog box as seen in Figure 4.48.

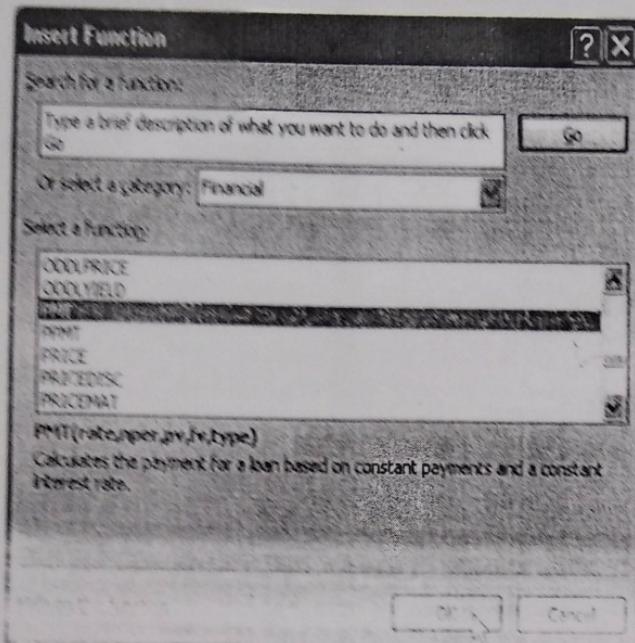


Figure 4.48 Insert Function dialog box

3. Select a Financial category from the select a category: drop-down list.
4. Click on PMT Function from the Select a function: list box.
5. Click OK. It will display a Function Arguments dialog box as seen in Figure 4.49.

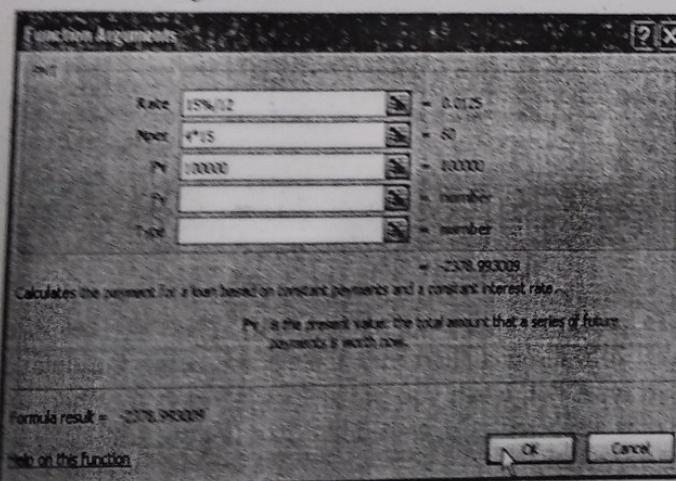


Figure 4.49 Function Arguments dialog box

The arguments required by the function are as follows:

Argument	Description
Rate	is the interest-rate for the loan.
Nper	is the total number of payments for the loan.

(Contd...)

Argument	Description
Pv	is the present value, or the total amount that a series of future payments is worth now; also known as the principal amount which is 100000 in our case.
Fv	is the future value, or a cash balance you want to attain after the last payment is made. If Fv is omitted, it is assumed to be 0 (zero), that is, the future value of a loan is 0.
Type	is the number 0 (zero) or 1 and indicated when payments are due.

Set type equal to	If payments are due
0 or omitted	At the end of the period
1	At the beginning of the period

Notes

- a. The payment returned by PMT includes principal amount and interest.
- b. Make sure that you use specific units for *rate* and *Nper*. If you make monthly payments on a four-year loan at an annual interest rate of 15 percent, use $15\%/12$ for *rate* and $4*15$ for *Nper*. If you make annual payments on the same loan, use 15 percent for *rate* and 4 for *Nper*.

The following formula returns the monthly payment on a 1,00,000 loan at an annual rate of 15 percent that you must pay off in 60 months:

$\text{PMT } (15\%/12, 60, 1,00,000)$ equals 2378.99

For the same loan, if payments are due at the beginning of the period, the payment is:

$\text{PMT } (15\%/12, 60, 1,00,000, 0, 1)$ equals 2349.62

The following formula returns the amount someone must pay to you each month if you loan that person 5,000 at 12 percent and want to be paid back in five months:

$\text{PMT } (12\%/12, 5, -5000)$ equals 1,030.20

You can use PMT for in your PPF account to determine payments to annuities other than loans. For example, if you want to save Rs. 5,00,000 in 18 years by saving a constant amount each month, you can use PMT to determine how much you must save. If you assume you will be able to earn 12 percent interest on your savings, you can use PMT to determine how much to save each month.

$\text{PMT } (12\%/12, 18*12, 0, 5,00,000)$ equals
Rs 659.75

that is if you pay Rs 659.75 per month in 18 years you will get Rs 5,00,000 after 18 years.

The above examples illustrate the use of financial functions. There are many more complex functions which are very useful for accountants, engineers and other professionals.

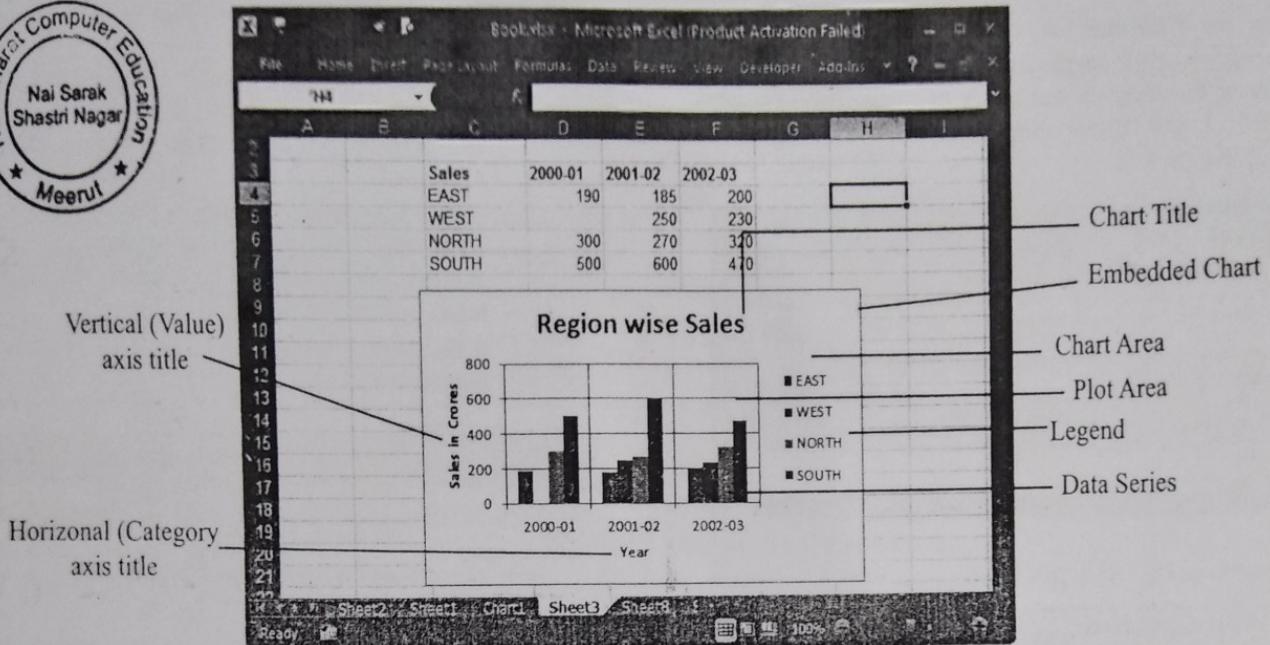
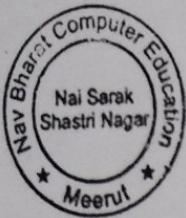


Figure 4.50 Embedded Chart with data Elements in the same worksheet

4.4.4 Charts in Excel

You can create different types of charts using Excel 2010 that will help you to analyze data in a worksheet and give you a visual presentation of results. You can even customize the chart by adding *text, arrows, titles, and legends* etc. If you print a chart on a laser printer or plotter, the quality of charts is as good as that of a chart created by a professional artist.

- With Excel 2010, you can instantly access formatting options by double-clicking a chart element.

How to Create a Chart?

You can create two types of charts namely, *embedded charts* and charts that appear in a *chart sheet*.

Embedded Chart

An *embedded chart* appears in a worksheet next to tables or text. Figure 4.50 shows an embedded chart.

- Embedded charts are required when you want a chart side-by-side with the data for the chart, such as in a report.

Chart in a Chart Sheet

A chart can be created by itself in its own chart sheet within a workbook (Figure 4.51). Thus, you are able to work with the chart sheet separately from the worksheet containing data. If you insert a chart in a sheet, you add the chart to the active workbook and save it along with the workbook.

- If you need to print a chart on its own, creating the chart on a chart sheet is the best approach.

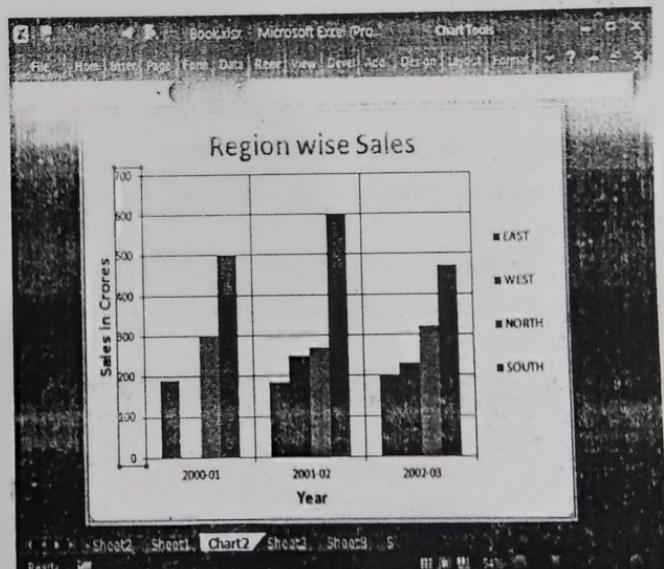


Figure 4.51 Chart in a Chart Sheet

To quickly create a chart, select data and press **F11** key then Excel 2010 insert a chart in a chart sheet, using the default chart type. But, when you press **Alt + F1** keys together, the chart is displayed as an embedded chart (Figure 4.50).

Chart Terminology

An Excel 2010 chart may contain objects that you may like to modify individually. Figure 4.50 showed some of these objects. Table 4.7 describes each object. Note that if you move mouse pointer over an object in a chart, a tip appears to give the description of the chart object.

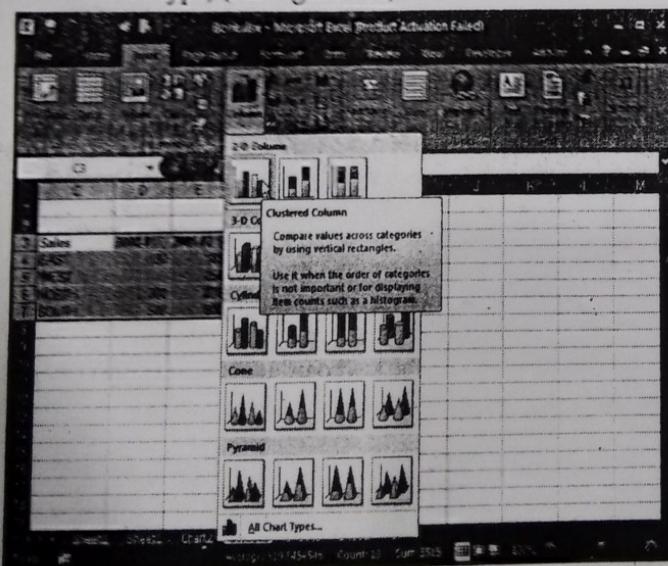
Table 4.7 Parts of an Excel Chart

Object	Description
Axis (<i>x-axis</i> and <i>y-axis</i>)	The horizontal or <i>x-axis</i> along the bottom of most charts is also referred to as <i>category axis</i> . The vertical or <i>y-axis</i> against which data points are measured is also referred to as <i>value axis</i> . This axis contains the scale against which data is plotted.
Data point	A single piece of data.
Data series	A collection of data points.
Legend	The name of each data series is used as a legend title.
Marker	An object that represents a data point in a chart such as bars, pie and symbols. Markers that belong to the same data series appear as the same shape, symbol and colour.
Plot area	The Rectangular area bounded by the two axes.
Text	Text associated with data points or free-floating text that can be moved easily. The box containing the text can be resized.

Creating a Chart

To create a chart, do this:

1. Select the data items you want to appear as chart.
2. Under the Insert tab, in Charts group, click arrow next to that chart which you want to insert and then select the chart from the chart subtype (Here, we select Column chart subtype) (See Figure 4.52).

**Figure 4.52** Creating Chart

Changing the Type of Chart

Excel 2010 offers you eleven different chart types and within each of these general types, you can select any sub-types. The easiest way to create chart is to select a chart type and sub-type you want. Thereafter, you may customize this chart according to your requirement.

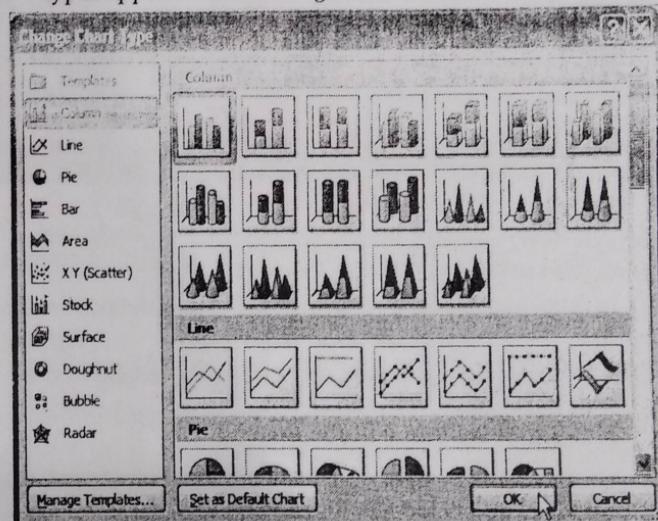
In Excel 2010, you can use the macro recorder to record formatting changes to charts and other objects.

Example 32

How will you change to a different type of chart?

Solution

1. Activate the chart you want to change by positioning the mouse pointer on the tab and clicking the tab for the *chart sheet*. In case, the *chart is embedded*, then click the chart itself.
2. Under the Design tab, in Type group, click Change Chart Type. A Change Chart dialog box showing different chart types appear as seen in Figure 4.53.

**Figure 4.53** Change Chart Type dialog box

3. Select a chart type from the left side's list.
4. Select a sub-type from the right side's list.
5. Click OK to close the Change Chart Type dialog box.

Changing Data Source

You can add data to an existing chart. You can even add new data series or data points to existing series or change the range of data used by a chart.

Example 33

How will you change the data source of a chart?

Solution

1. Activate the embedded chart or activate the chart sheet for the chart to which you want to add data.

3. Chart will appear as seen in Figure 4.50.

- Under the Design tab, in Data group, click Select Data. Select Data Source dialog box appears as seen in Figure 4.54.

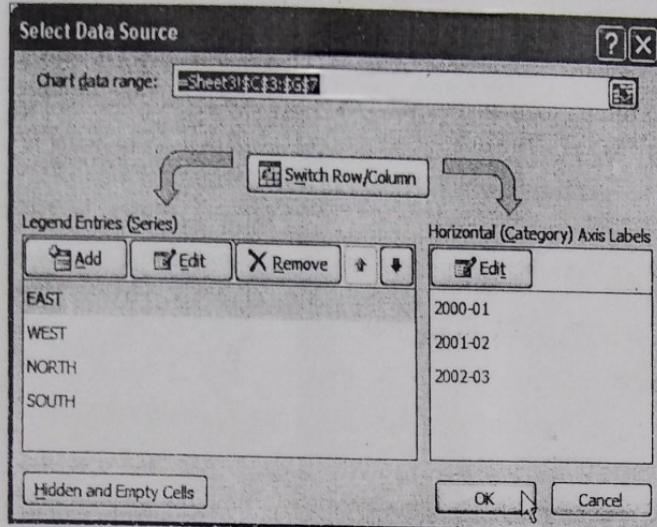


Figure 4.54 Select Data Source dialog box

- In this dialog box, make the following changes according to your need.

Chart data range: This box displays the range of data that is plotted in the chart. If you want to change the range, click on the collapse Dialog button at the right end of this box. It will temporarily minimizes. Now select the new range and click this button again after you select the range.

Switch Row/Column: It switches the rows of worksheet from rows to the columns and vice versa.

Legend Entries (Series): It displays existing data series names.

Add: Click to add a new data series to the chart.

Edit: If you want to edit the existing range, click in this button to make changes to the data series

Remove: Click to remove the data series that you select in the Legend Entries (Series) box from the chart.

Horizontal (Categories) Axis Labels: Lists existing horizontal (category) axis labels.

Edit: Click to modify the horizontal (category) labels.

4. After making changes, click OK.

Inserting Text

When you create a chart, Excel 2010 automatically includes labels along the category and value axes. This happens only if you had selected data and included cells containing labels.

There are two types of text you can add. These are as follows:

1. Text associated with specific objects in a chart, such as the title, axes, or data points. After you insert this type of text, you can select it and revise it whenever you want. You can also reposition it.
2. Text not associated with objects in the chart are known as floating text. Such unattached text appears in a box which can be resized and repositioned anywhere on the chart.

Example 34

Write down the procedure to

- (a) insert the title in a chart.
- (b) edit a title.

Solution (a)

1. Activate the Chart to which you want to add a title..
2. Under the Layout tab, in Labels group, click arrow next to Chart Title. Select the option whichever you want as seen in Figure 4.55.

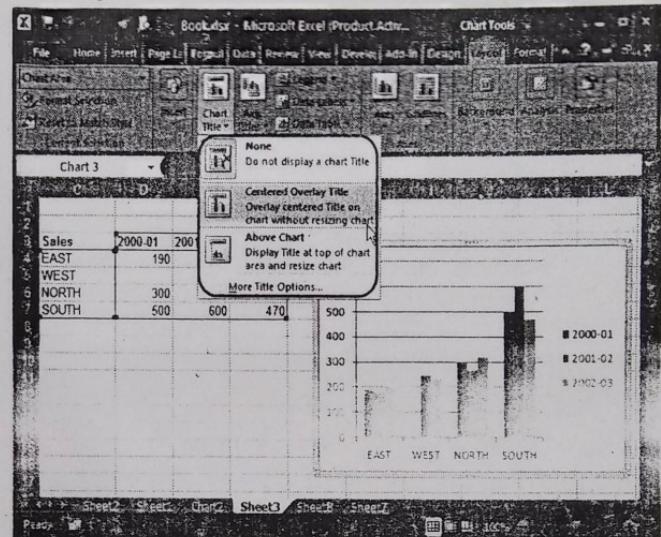


Figure 4.55 Insert Chart Title

3. In the Chart Title text box that appears in the chart, type the text that you want.

Solution (b)

1. Click the *title* to select it and then click inside the box that contains the text.
2. The insertion point appears where you click. You can then use the arrow keys to move around the text or the **Backspace** and **Delete** keys to delete characters. You can press letter keys on the keyboard to enter the new text.

Modifying the Axes

Excel 2010 creates a Category (X) axis and Value (Y) axis at the time of creating a chart. But you can modify any one of the axes using the Axes group of Layout tab.

Example 35

How will you remove an axis from the chart?

Solution

1. Activate the chart where you want to remove an axis.
2. Under the Layout tab, in the Axes group, click arrow next to Axes and then click Primary Vertical Axis or Primary Horizontal Axis and then click None (Figure 4.56).

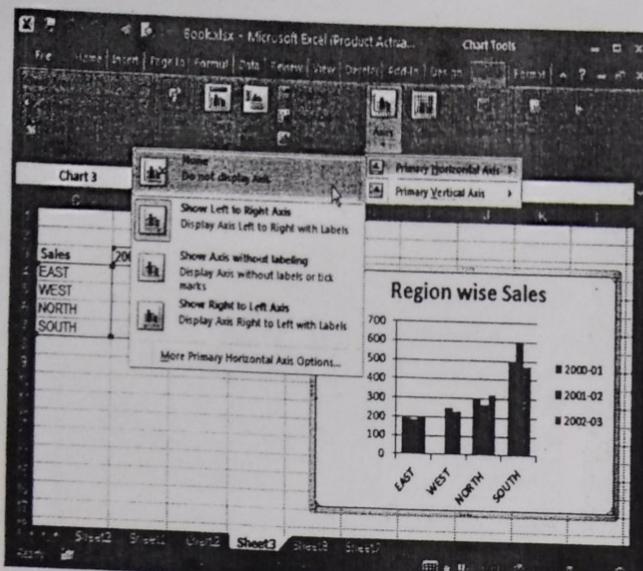


Figure 4.56 Modifying the Axes

Inserting Data Labels

You can insert a label that can either be the value for that data point, or the category axis label associated with the data point. You can also attach labels to many data points. This would help a viewer to interpret data in a chart easily.

Example 36

Write down the steps to insert data labels in a chart?

Solution

1. Activate the chart to which you want to add data labels.
2. Under the **Layout** tab, in the **Labels** group, click arrow next to **Data Labels** and then select the display option where you want to insert the data labels (Figure 4.57).

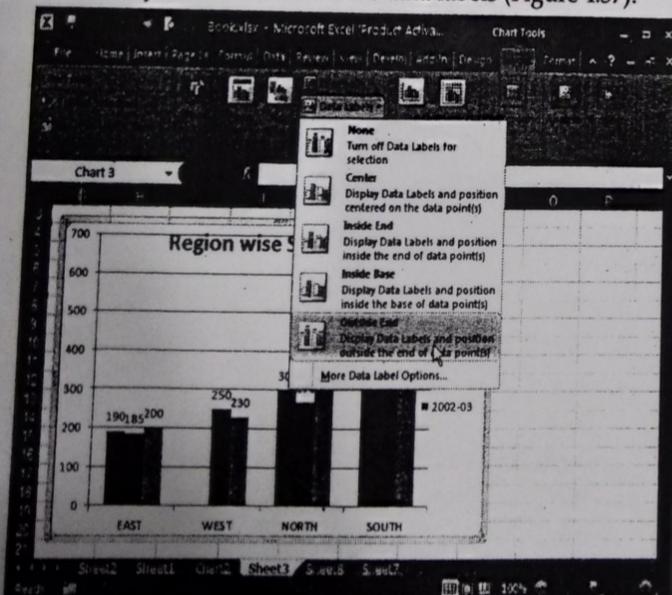


Figure 5.57 Add Data Labels

- To add data label to an individual data series, right-click the data series and choose Add Data Labels.

Inserting Legends

Legend describes the symbols used in a chart. Excel 2010 creates legends from the labels on the shorter side of the worksheet data series.

→ To insert a legend, do this:

1. Activate the chart.
2. Under the **Layout** tab, in the **Labels** group, click arrow next to **Legend** and select the display option where you want to insert the legends (Figure 4.58)

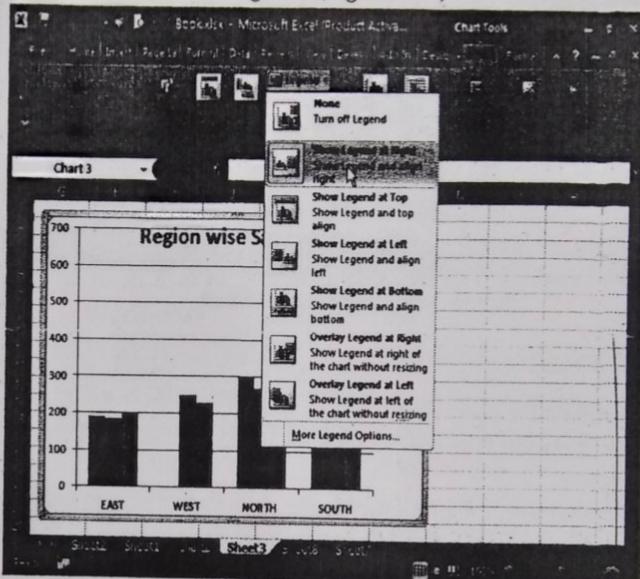


Figure 4.58 Add Legends in chart

Inserting Gridlines

Gridlines help you to compare markers and in reading values accurately.

→ To add gridlines to a chart, do this:

1. Activate the chart you want to add gridlines to.
2. Under the **Layout** tab, in the **Axes** group, click arrow next to **Axes** and then click **Primary Vertical Gridlines** or **Primary Horizontal Gridlines** and then click the option according to your requirement (Figure 4.59).

→ Drawing gridlines in a chart helps you to compare values more easily.

4.4.5 Previewing Charts

After creating a chart and before printing, it is a good practice to see the full page view (preview) of the chart.

→ In Excel 2010, you can preview and print your Excel files in one location—on the **Print** tab in the Microsoft Office Backstage view. To go back to your workbook and make changes before you print it, click the **File** tab.

Example 37

How will you preview a chart if

- (a) Chart is in a Chart sheet?
- (b) Chart is Embedded on a worksheet?

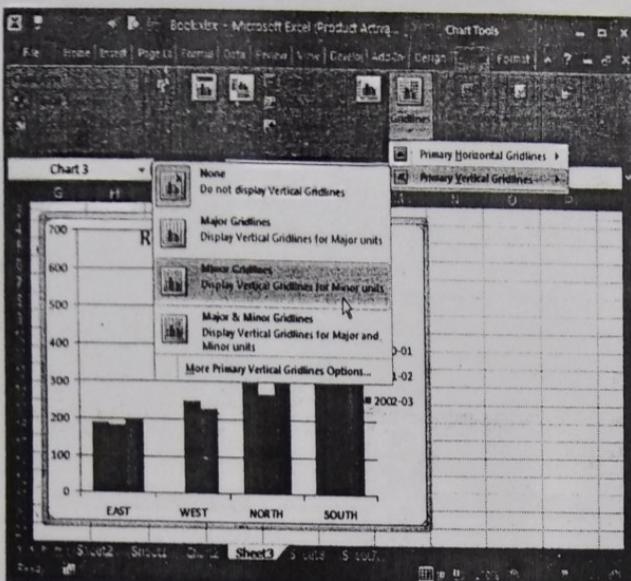


Figure 4.59 Inserting Gridlines

Solution (a)

1. Activate the chart sheet.
2. Click on the File Tab. Menu appears. Here, click on Print Option.
3. In this view, the properties of the default printer automatically appears in the left section and the preview of the chart sheet automatically appears in the right section (See Figure 4.60).

Solution (b)

1. Activate the sheet containing the chart.

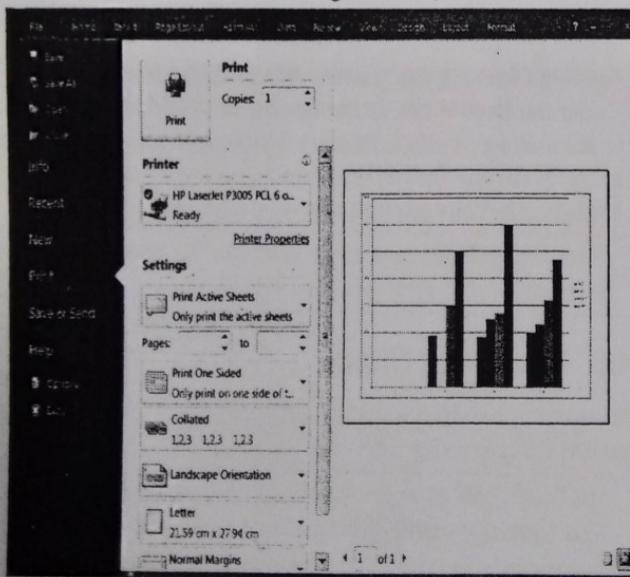


Figure 4.60 Preview of Chart sheet

2. Click on the File Tab. Menu appears. Here, click on Print Option or click on the Print Preview and Print button from the Quick Launch Toolbar.
3. A window containing the preview of the chart along with data appears as seen in Figure 4.61.

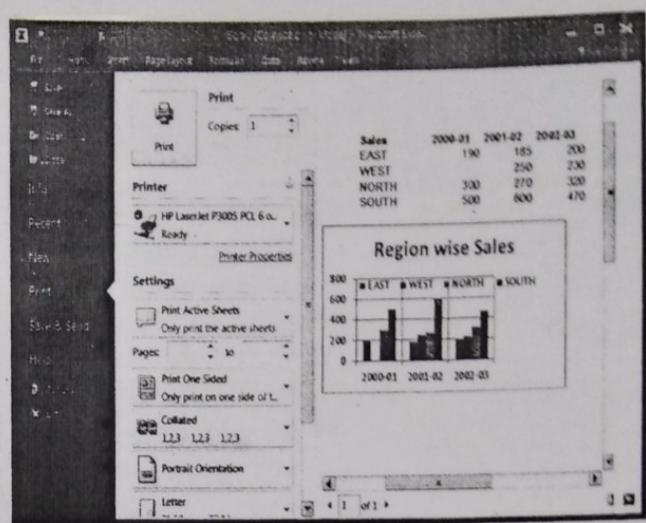


Figure 4.61 Preview of the Embedded chart

Positioning a chart along with data items helps you to analyse data easily. By making changes in the data items, you can immediately preview the effects in the chart.

4.5 SUMMARY

This chapter presents concepts of a very popular *Spreadsheet Package* namely, MS-Excel. It is one of the most versatile spreadsheet program. First, we discussed elements of an electronic spreadsheet. We also discussed how to create, edit, save and print documents. Entering text, numbers and dates are also discussed. The chapter further discusses editing cell in the worksheet data. Inserting and deleting rows and columns and changing its height and width of the cell are explained. Formulas that make the calculations much easier are also explained. Finally, for better understanding and representation of data, you can make use of Charts in Excel which are explained in detail.

MODEL QUESTIONS AND ANSWERS**A. Multiple Choice**

- In Excel the intersection of a row and column is called
 - square
 - cell
 - cubicle
 - worksheet
- By default, Excel sheet displays the following font style
 - Strikethrough
 - Italic
 - Bold
 - None of the above
- Extension of Excel file is
 - .TMT
 - .XXL
 - .xls
 - None of the above
- The first electronic worksheet was known as
 - VisiCalc
 - Microsoft Excel
 - Lotus 1-2-3
 - None of the above
- A worksheet can be opened by clicking on the
 - Start button
 - Both a and b

- b. Open button d. None of the above
- 1.6** The Formatting toolbar
 a. is placed just below the Standard toolbar
 b. is used to apply common formats to the worksheet text selection, like making it bold, italics, underlined or changing the font style and size
 c. both a and b above
 d. none of the above
- 1.7** To change the cell reference B2:B9 to an absolute row and column reference, you would enter it as
 a. B2:B9 b. \$B\$2:\$B\$9
 c. B\$2:B\$9 d. none of the above
- 1.8** A function in Excel
 a. is a ready made formula
 b. is a shortcut formula
 c. can be built using Function Wizard
 d. all of the above
- 1.9** Which of the following is not a financial function?
 a. FV0 c. SUM0
 b. NPV0 d. PMT0
- 1.10** Which of the following is not a text function
 a. CHAR0 c. VAR0
 b. LEN0 d. ABS0
- 1.11** The number of rows in a worksheet is
 a. 36500 c. 64536
 b. 1,048,576 d. 256
- 1.12** When a formatted number does not fit within a cell, it displays
 a. ##### c. #DIV@
 b. #DIV/0 d. None of these
- 1.13** What symbol is used to enter number as text?
 a. = c.
 b. " d. +
- 1.14** Which of the following is concatenating operator?
 a. Apostrophe (') c. Exclamation (!)
 b. Ampersand (&) d. Hash (#)
- 1.15** To select multiple non-adjacent cells in a worksheet you will click and then holding
 a. ALT key c. Ctrl+Shift key
 b. Shift Key d. CTRL key
- 1.16** What does the Now() function return?
 a. It returns the serial number of the current date and time
 b. It returns the serial number of the current date
 c. It returns the serial number of the current time
 d. None of the above
- 1.17** What is shortcut key to insert current date in a cell?
 a. Ctrl + D c. Ctrl + T
 b. Ctrl + ; d. Ctrl + /
- 1.18** Which Chart can be created in Excel?
 a. Area c. Line
 b. Pie d. All of the above
- 1.19** What will be the output if you format the cell containing 5436.8 as '#,##0.00'?
 a. 5,430.00 c. 5,436.8
 b. 5,436.80 d. 6.8
- 1.20** In the formula, which symbol specifies the fixed columns or rows?
 a. \$ c. %
 b. * d. @
- 1.21** What is the correct way to refer the cell A10 on sheet3 from sheet1?
 a. sheet1!A10 c. sheet3!A10
 b. sheet3.A10 d. A10
- 1.22** An Excel 2010 Workbook is a collection _____.
 a. Workbooks c. Charts
 b. Worksheets d. Worksheets and Charts
- 1.23** In Excel 2010, you can sum a large range of data by simply selecting a tool button called _____.
 a. AutoFill c. Auto Format
 b. AutoCorrect d. Auto sum
- 1.24** Which function is used to calculate depreciation, rates of return, future values and loan payment amounts?
 a. Logical c. Statistical
 b. Math & Trigonometry d. Financial
- 1.25** To keep specific rows and columns from scrolling off the screen you first must
 a. to the right of the column you want to remain on the screen
 b. below the row you want to remain on the screen
 c. on the row you want to remain on the screen
 d. both below and right of the row and column you want to remain on the screen
- 1.26** Which command will you choose to convert a column of data into row?
 a. Cut and Paste in the clipboard group.
 b. Paste Special of Clipboard group.
 c. Paste Special in the Font group
 d. None of the above
- B. State whether the following are True or False**
- 2.1** To create a new worksheet, select worksheet from the file menu.
- 2.2** Cells are named by their positions either by rows or columns.
- 2.3** If the Bold and Underline buttons are appearing lighter than before, it means that they are currently in use.
- 2.4** Standard width of a column is 18.43.

- 2.5 To open a file quickly from the open dialog box, double click the file's icon.
- 2.6 You cannot move the active cell within a selected range.
- 2.7 You can simultaneously select an entire row and an entire column.
- 2.8 Sheet tab is displayed when you split a sheet.
- 2.9 Last column of the worksheet window is XFD.
- 2.10 Using the undo command you can undo multiple actions.
- 2.11 Receives the data the user enters is known as active cell.
- 2.12 A Workbook is a grid with labeled columns and rows.
- 2.13 Tabs that appear at the bottom of each workbook is called sheet tabs.
- 2.14 The first cell in Excel 2010 worksheet is labeled as A0.
- 2.15 Excel 2010 is a powerful communication S/W package.
- 2.16 B7:B9 it indicates cells B7 through B9.
- 2.17 The Cancel and Enter buttons appear in the Formula bar.
- 2.18 A21 is an example of a cell address.
- 2.19 The box on the chart that contains the name of each individual record is called the axis.
- 2.20 Character type is not a valid data type in Excel.

Answers

1. 1.1 b 1.2 d 1.3 c 1.4 a 1.5 b
1.6 c 1.7 c 1.8 d 1.9 c 1.10 d
1.11 b 1.12 a 1.13 c 1.14 b 1.15 d
1.16 a 1.17 b 1.18 d 1.19 b 1.20 a
1.21 c 1.22 b 1.23 d 1.24 d 1.25 d
1.26 b
2. 2.1 F 2.2 F 2.3 F 2.4 F 2.5 T
2.6 F 2.7 F 2.8 T 2.9 T 2.10 T
2.11 T 2.12 F 2.13 T 2.14 F 2.15 F
2.16 T 2.17 T 2.18 T 2.19 F 2.20 T