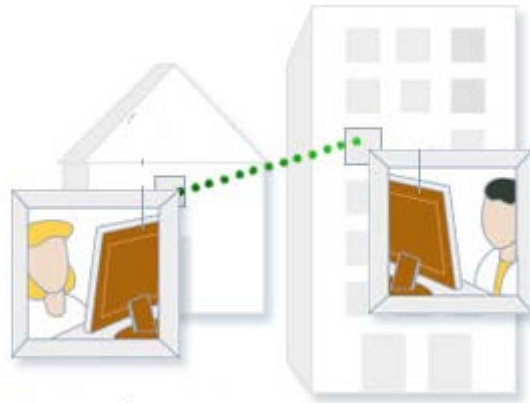


Technology University
Building and Constructions Engineering Department
Computers Principles-First Class

MICROSOFT EXCEL 2007




By:Lubna Zaghlul

2012

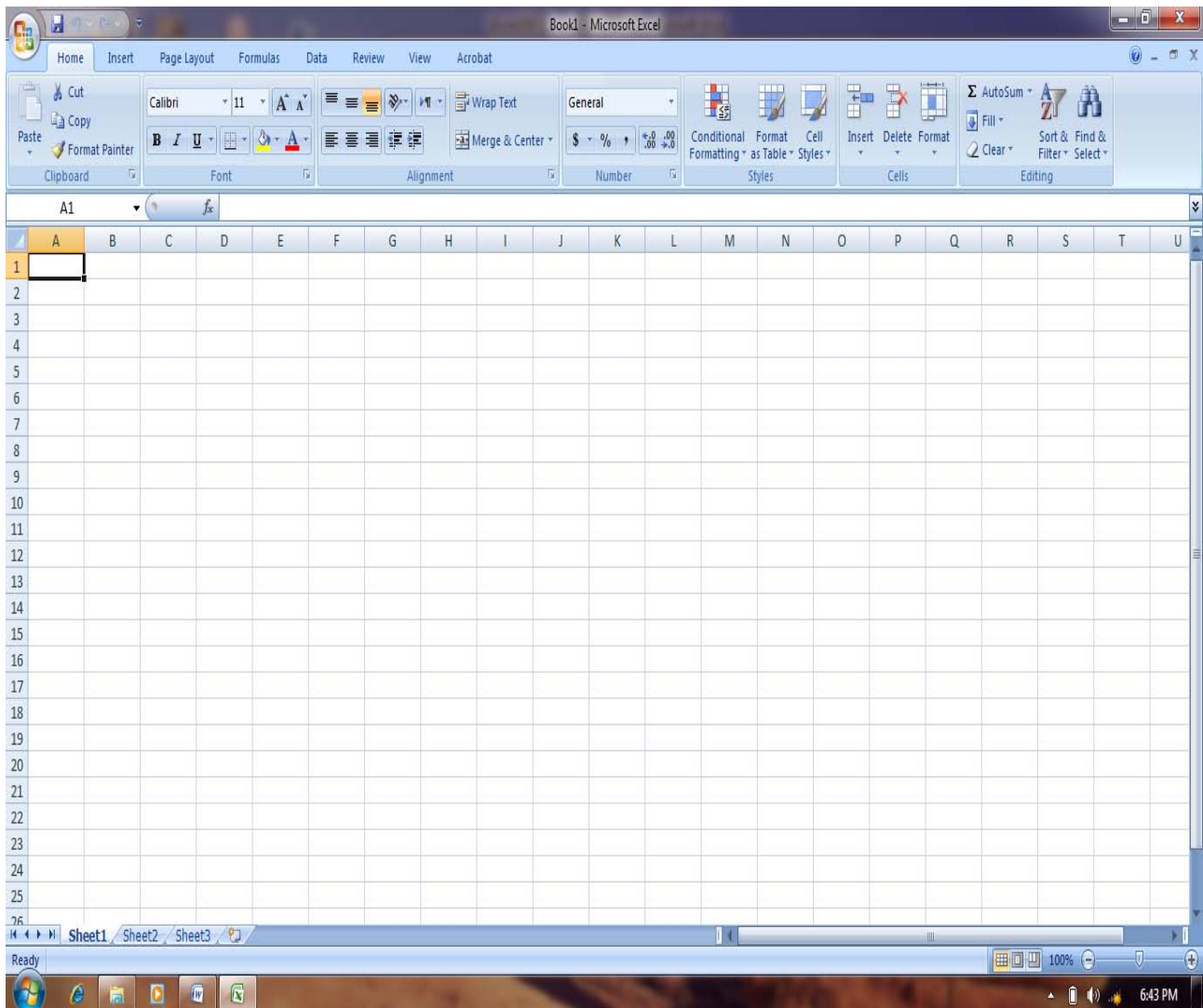
Microsoft Excel 2007

Microsoft Excel is an electronic Spreadsheet program that enables you to store, manipulate, and chart numeric data. Researchers, statisticians, and businesspeople use spreadsheets to analyze and summarize mathematical, statistical, and financial data. Excel enables you to create and modify worksheets, and chart sheets. A worksheet is divided into vertical columns and horizontal rows. The rows are numbered and the columns are labeled from A to Z, then AA to AZ and so on to column IV. The intersection of a column and a row is called a cell. Each cell is given a cell address, like a post office box number, consisting of its column letter followed by its row number, for example, B4, F7, C9.

Starting Microsoft Excel

- Start ⇒ all programs ⇒ Microsoft Excel
- Desktop ⇒ icon  Microsoft Excel
- My computer ⇒ C: ⇒ Program files ⇒ Microsoft Office ⇒ office 10 ⇒ Microsoft Excel

The extension of worksheet files are (*.xls) and chart sheet files are (*.cls)





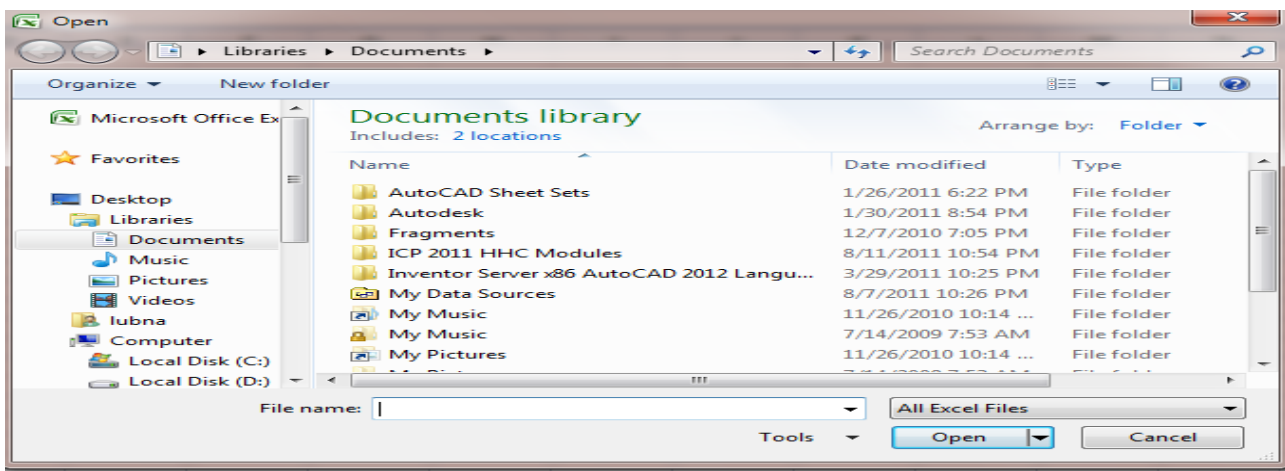
Office button

New: it is used to create new workbook.

Open: if you have a workbook you previously saved that you would like to work on, you must open the file first, before you can make any changes.



Opening an Existing Workbook

- Open the **Office Button** , and select **Open**, or click the open button . The open dialog box appears.
- If the file is not located in the current folder, open the **Look In** drop-down list box and select the correct drive and folder.
- Select the file you want to open in the files and folders list.
- Click **Open** to open the currently selected workbook.




Save: the first time you save a workbook, you must name it and specify a location where it should be saved.

Saving workbook

- Open the **Office Button**  and select **Save**, or click the save button  on the title bar. The save as dialog box appears.
- Type the name you want to give the workbook in the **File Name** text box.
- To save the file to a folder or drive, select a location using the **Save in** list.
- Click **Save** to save your workbook.


Save as: it is used when you want to save a copy of workbook under a different name or different location.



Saving a Workbook under a new Name or Location

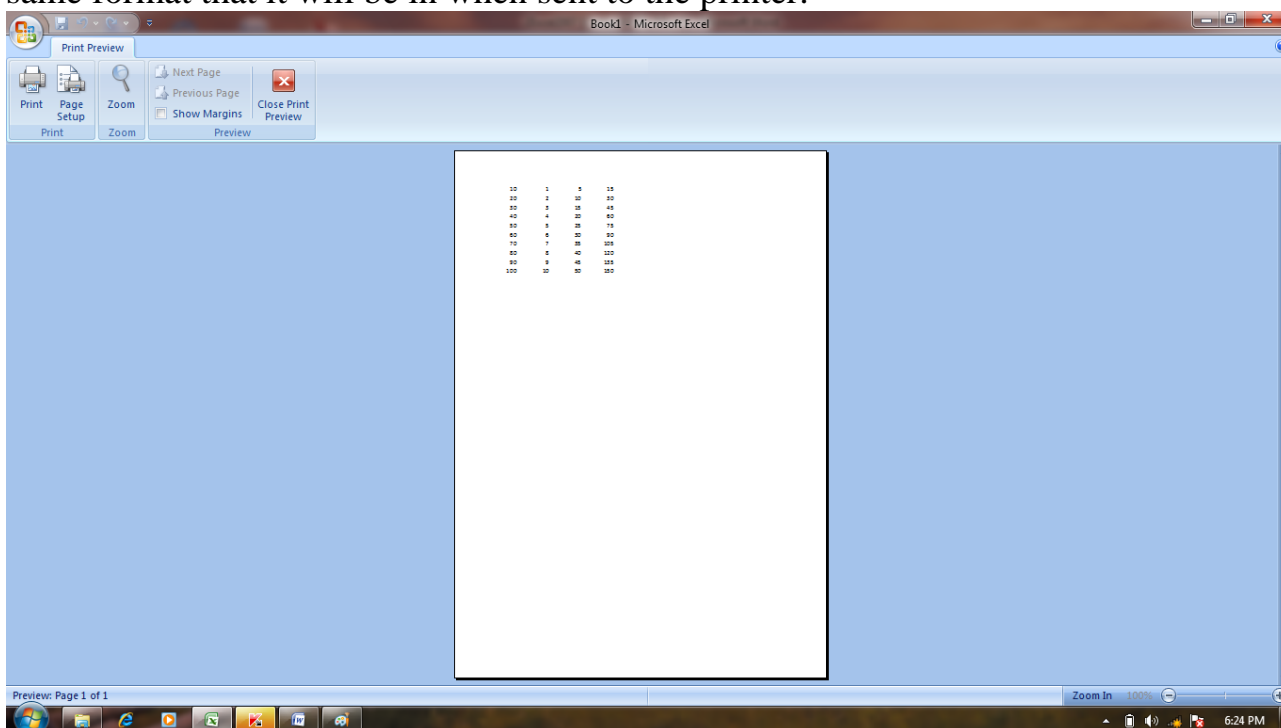
- Select the **Office Button**  and select **Save as**. The save as dialog box opens, just as if you were saving the workbook or the first time.
- To save the workbook under a new name, type the new filename over the existing name in the **File Name** text box.
- To save the new file on a different drive or in a different folder, select the drive letter or the folder from the **Save In** list.
- Click the **Save** button or press **Enter**.

Print : to print the workbook, follow these steps:


Print Workbook

- To print a portion of the worksheet, select the range of cells you want to print, to print only a chart, click it.
- Select the **Office Button**  and then select **Print** (or press Ctrl+P) .the print dialog box appears.
- Select the options you would like to use:
 1. **Print range**- enables to print one or more pages.
 2. **Print what**- enables you to print the currently selected cell, the selected worksheet, or the entire workbook.
 3. **Copies** – enables you to print more than one copy of the selection, worksheet or workbook.
 4. **Collate**- enables you to print a complete copy of the selection, worksheet, or workbook before the first page of the next copy is printed.
- Click **ok**

Print preview: to preview a print job, select the **Office Button**  and then select **Print** overview, then click the print preview button . The workbook appears in the same format that it will be in when sent to the printer.

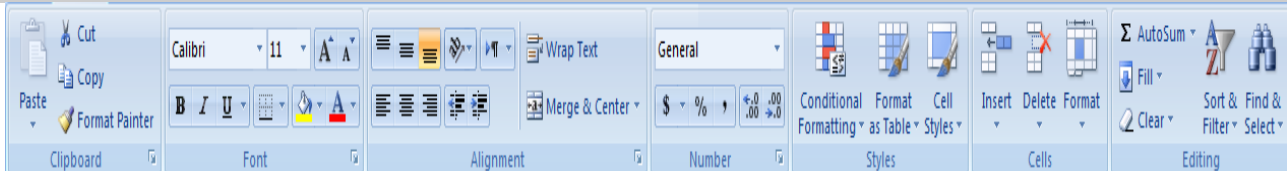


Close: you can easily close the current workbook. click Office button then select close or Click the close (X) button in the upper right corner of the workbook.

Undo: You can undo just about any action while working in Excel, including any changes you make to a cell's data. To undo a change, click the **Undo**  button on the title bar. (Or press Ctrl+Z).

Redo :You can also undo an undo. just click the **Redo**  button on the title bar .(or press Ctrl+Y).



Home Commands



Clipboard: include



Cut: moving data is similar to copying except that the data is removed from its original place and placed into the new application.

Move Data

- Select the cell(s) you want to move.
- Click the Cut  button, or (Ctrl +X) or (select **Home, Clipboard, Cut**).
- Select the first cell in the area where you want to place the data, to move the data to another worksheet, change to that worksheet.
- Click Paste , or (Ctrl +V) or (select **Home, clipboard, Paste**).

Copy :when you copy data, you create a duplicate of data in a cell or range of cells.

Copy Data

- Select the cell(s) that you want to copy, you can select any range or several ranges if you want.
- Click the **Copy**  button or (Ctrl +C) or (select **Home, Clipboard, Copy**). The contents of the selected cell(s) are copied to the clipboard.
- Select the first cell in the area where you would like to place the copy.
- Click the **Paste**  button or (Ctrl +V) or (select **Home , Clipboard, Paste**). Excel inserts the contents of the clipboard at the location of the insertion point.

Clipboard: you can use office clipboard to store multiple items that you cut or copy from an excel worksheet. You can then paste or move these items within Excel or to other office application.

Using the Clipboard

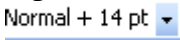








- Select the **Home**, and then select **Clipboard**. The Clipboard task pane appears. Any items that you have cut or copied appear on the clipboard.
- To paste an item that appears on the clipboard, click in a cell on the worksheet, and then click the item on the clipboard. It is then pasted into the selected cell.

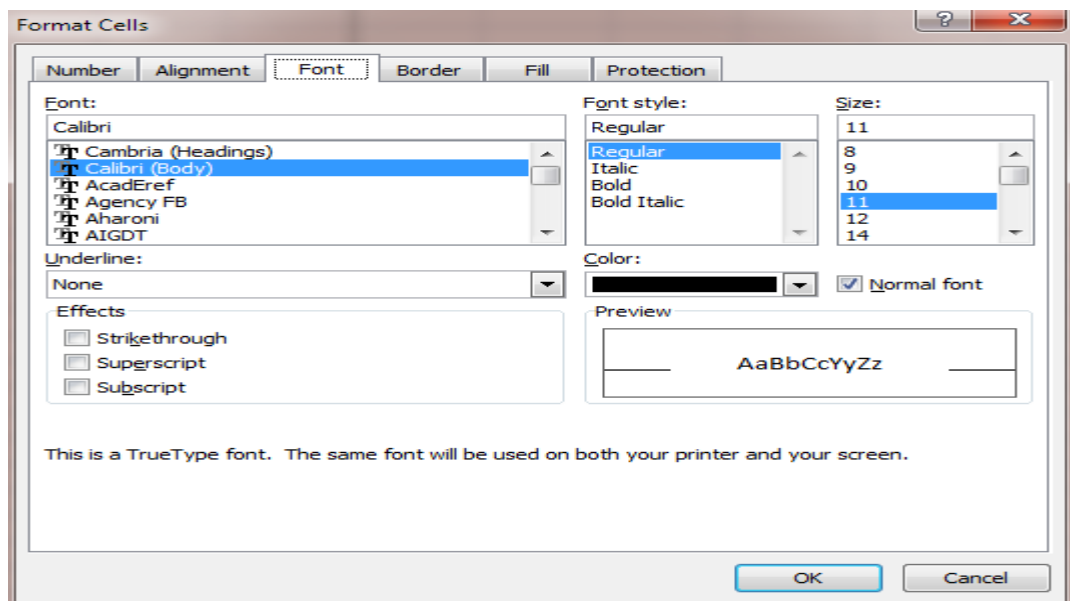
Format Painter: copy formatting from one place and apply it to another. Double – click this button to apply the same formatting to multiple places in document.

Font: include

Font : font enables you to choose from several font attributes, you can control the font, the font style, and other character attributes such as strikethrough, superscript, and shadow.

Working in the Font

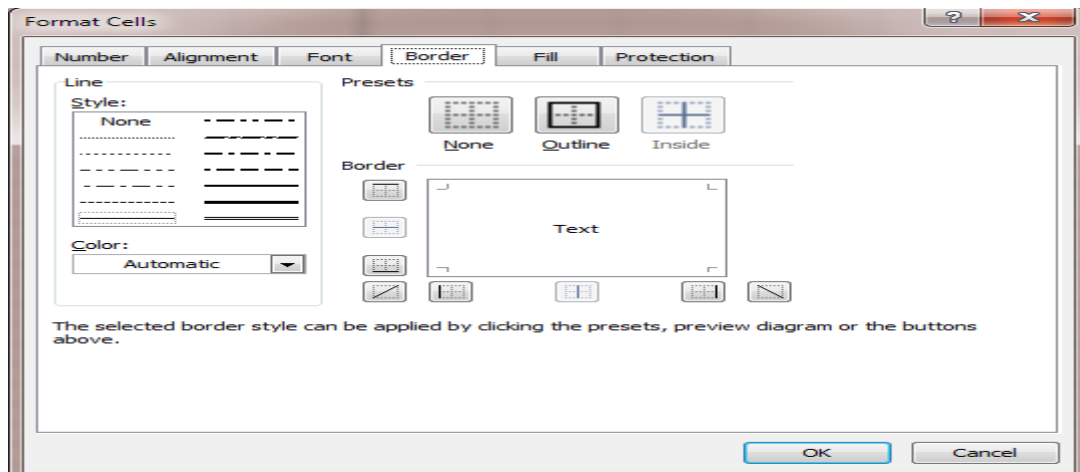
- To change the font, click the **Font** drop-down box and select the new font by name. 
- To change the **Font Style** to italic, or bold italic, make the appropriate selection in the font style box. 
- To change the size of the font, select the appropriate size in the **size** scroll box. .use  to increase the font size, and  to decrease the font size.
- For underlining, click the **Underline Style** drop-down box and select an underlining style. 
- To change the color of the font, click the **Font Color**  drop-down box and select a new color, and select  to change background of selection text.
- To add borders to the cells use  button.
- As you make the various selections in the font dialog box, a sample of what the text will look like appears in the preview box at the bottom of the dialog box. After you have made all your selections in the font dialog box click **ok**.



Border : you can add borders to selected cells or entire cell ranges.

Adding borders to Cells

- Select the cells around which want a border to appear.
- Select the **Home**, Font and chose **Borders**. The format cells dialog box appears.
- Click the **Border** tab to see the boarder options.
- Select the desired position, style (thickness) and color for the border.
- Click **ok** or press **enter**.

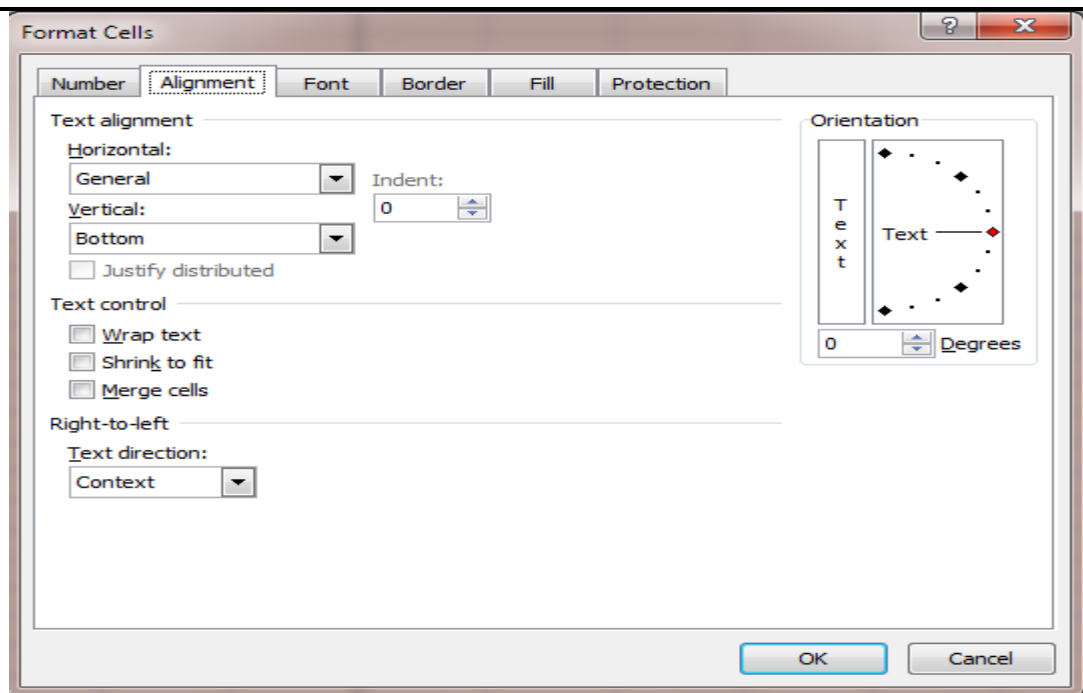


Alignment: include

Alignment: you can change both the vertical and the horizontal alignment of data in the cells.

Alignment text in Cells

- Select the cells or range you want to align.
- Select the **Home** and then select **Alignments**. The format cells dialog box appears.
- Click the **Alignment** tab.
- Choose one of the options (horizontal, vertical, orientation, wrap text, shrink to fit, merge cells) to set the alignment.
- Click *ok*.



Wrap text: make all content visible within a cell by displaying it on multiple lines.

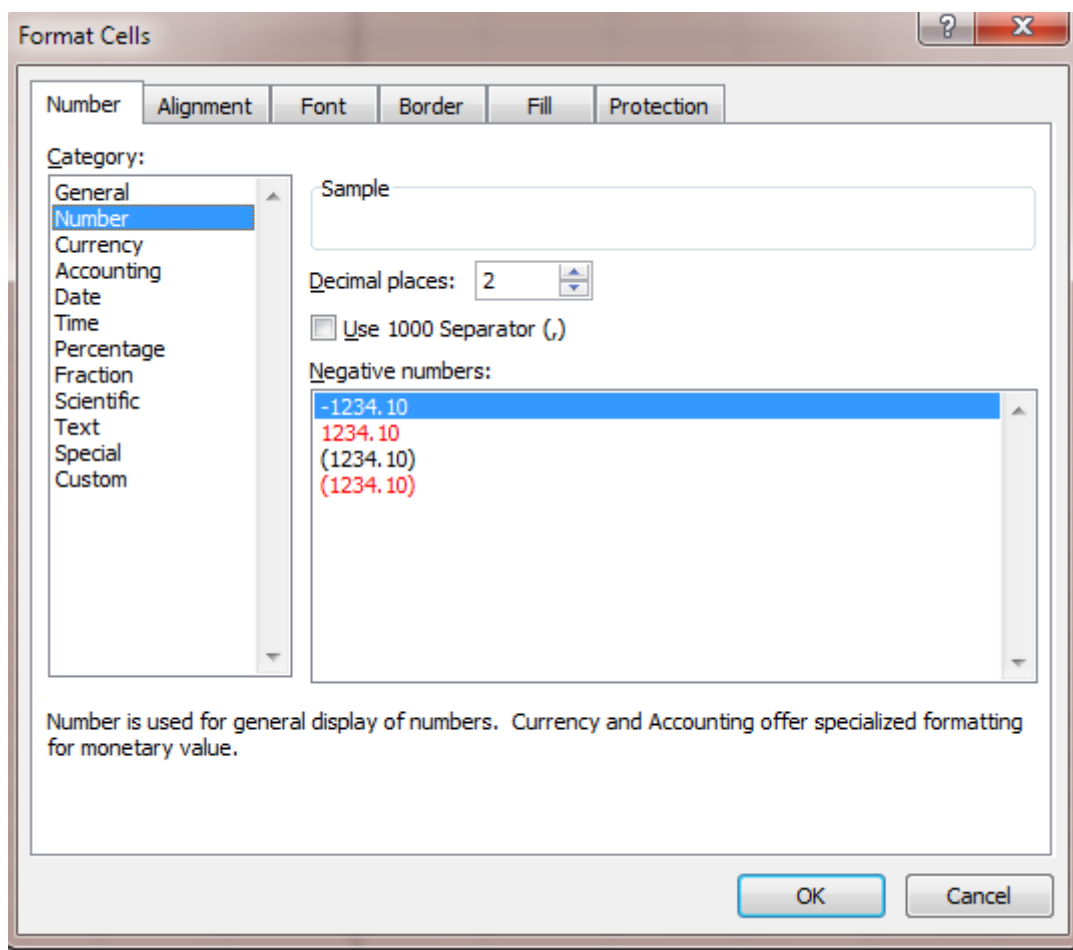
Merge & Center: Joins the selected cells into one larger cell and center the contents in the new cell.

Number: include

Number: the numeric values that you place in your Excel cells are more than just numbers. They often represent dollar amounts, a data, or a percentage. Excel format cells dialog ox offers a wide range of number formats and even allows you to create custom formats.

Numeric Formatting Options

- Select the cell or range that contains the values you want to format.
- Select the **Home** and select **Number**. The format Cells dialog box appears.
- Click the **Number** tab. the different categories of numeric formats are displayed in a category list.
- In the Category list, select the numeric format category you want to use.
- Click **ok** to assign the numeric format to the elected cells





General: choose how the value in the cell are displayed: as percentage, as a currency, as a date and time, etc.

Accounting number format (\$): choose an alternate currency format for the selected cell.

Percent Style (%): display the value of the cell as percentage.

Comma Style (,): display the value of the cell with a thousands separators.

Increase decimal : show more precise values by show more decimal places.

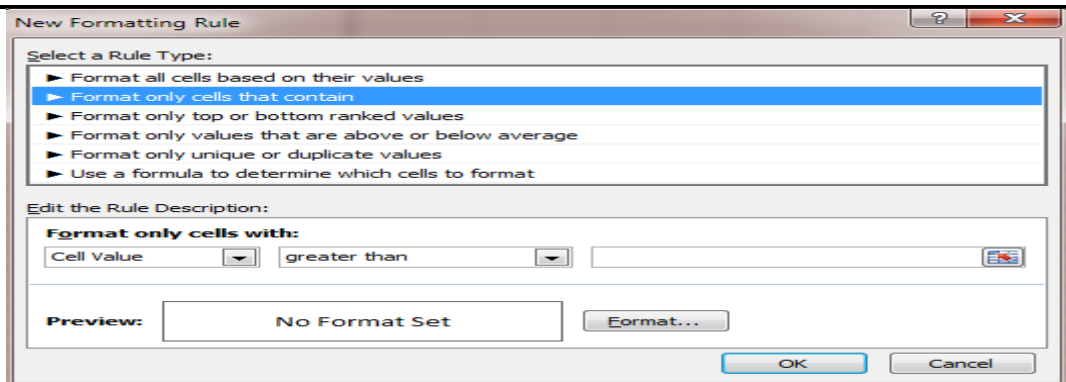
Decrease decimal : show less precise values by show fewer decimal places.

Styles: include:

Conditional formatting: its allows to specify that certain results in the worksheet be formatted so that they stand out from the other enters in the worksheet.

Apply Conditional formatting

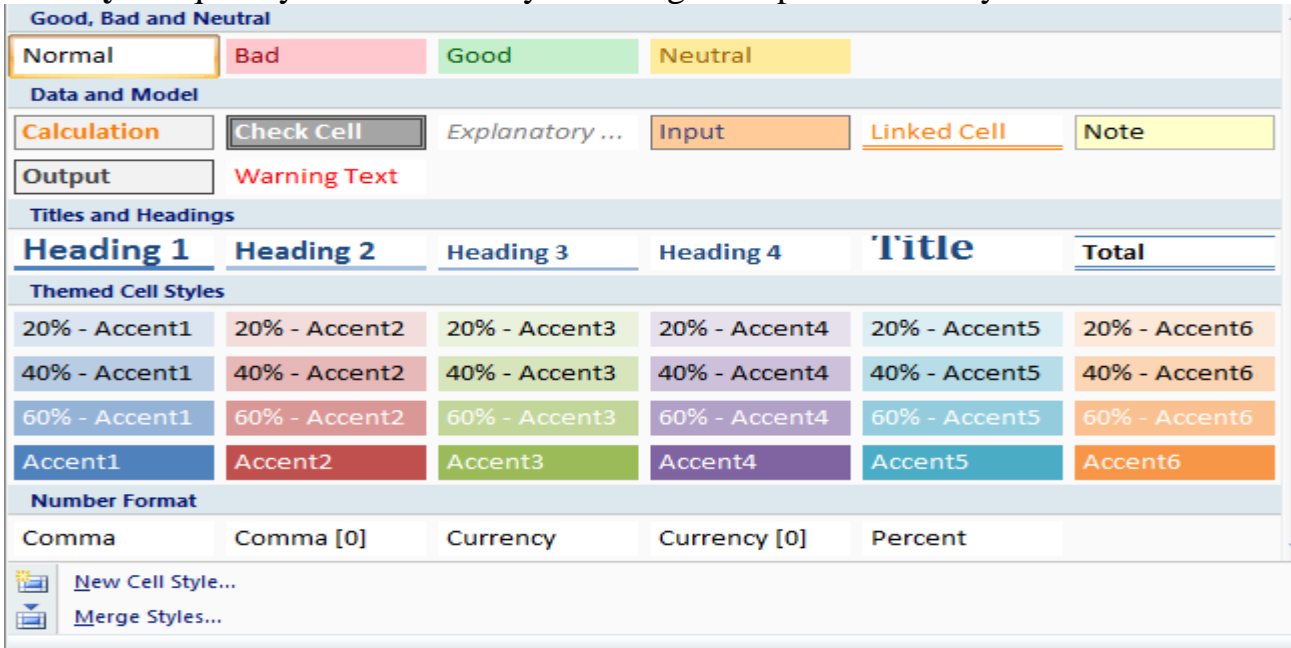
- Select the cells to which you want to apply the conditional formatting.
- Select the **Home**, **style** and select **Conditional Formatting**; the conditional formatting dialog box appears.
- Be sure that **Cell Value is** selected in the condition 1 drop – down box on the left of the dialog box.
- In the next drop down box to the right, you select the condition. The default is **between**. Other conditions include **equal to**, **greater than**, **less than**, and other possibilities. Use the drop – down box to select the appropriate condition.
- After selecting the condition, you must specify a cell or cells in the worksheet that excel can use as a reference for the conditional formatting. for example if you select less than as the condition, you must a cell in the worksheet that contains a value that can be used for comparison with the cells that you applying the conditional formatting to, click **the shrink** button on the conditional formatting dialog box, you are returned to the worksheet, select the reference cell for the condition.
- Click **the expand** button on the conditional formatting dialog box.
- Now you can set the formatting that will e applied to cells that meet your condition. Click the **Format** button in the conditional formatting dialog box and select the formatting options for your condition in the format cells dialog box then click **ok**.



Format as table: quickly format a range of cells and convert it to table by choose pre defined table style.



Cell Styles: quickly format a cell by choosing from pre defined styles.



Cells: include

Insert: it is use to insert a single cell or a group of cells.

Inserting Cells

- Select the area where you want the new cells inserted. Excel inserts the same number of cells as you select.
- Select the **Home** and then select **Cells**, choose **insert**. The insert dialog box appears.
- Select **Shift Cells Right** or **Shift Cells Down**.
- Click **OK**. Excel inserts the cells and shifts the adjacent cells in the direction you specify.

Rows and Columns :you might need to add rows or columns within the worksheet.

Inserting Rows and Columns

- To insert a single row or column, select a cell to the right where you want to insert a column or below where you want to inset a row.
- To insert multiple columns or rows, select the number of columns or row you want to insert. To insert columns, drag over the column letters at the top of the worksheet. To insert rows, drag over the row numbers. For example, select three column letters or row numbers to insert three rows or columns.
- Select the **Home, Cells**, and then select **Insert Rows or Columns**. Excel inserts rows above your selection and columns to the left of your selection. the inserted rows or columns contain the same formatting as the cells

Sheet: when you create a new workbook, it contains three work sheets. You an easily add additional sheets to a workbook.

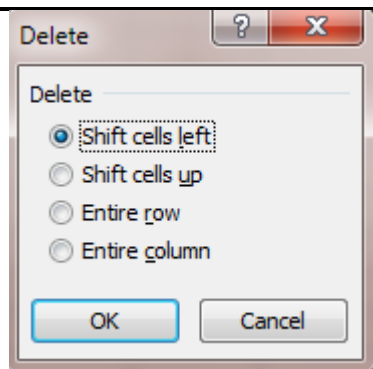
Insert sheet

- Select the worksheet that you want to be to the right of the inserted worksheet.
- Select the **Home, Cells**, then choose **insert**.
- Select **sheet**. Excel inserts the new sheet to the right of the previously selected sheet.

Delete: you can remove cells and then shift surrounding cells over to take their place.

Delete data

- Select the cell or range of cells you want to remove.
- Select the **Home, cells** and choose **Delete**. The delete dialog box appears.
- Select **shift cells left** or **shift cells up** to specify how the remaining cells in the worksheet should move to fill the gap left by the deleted cells.
- Click **ok**. Surrounding cells are shifted to fill the gap left by the deleted cells.



Format: change Row height or column width or protected sheet or hide sheet.

Row heights: adjusting row heights as follow: select the row or rows and then select the **Home, Cells, Format** point at **Row Height** .in the row height dialog box appears type in the row height and the click **OK**.

Column width: adjusting column width as follow: select the column or columns and then select the **Home, Cells, Format** point at **Column width** .in the column width dialog box appears type in the column width and the click **OK**.


Protection: it used to locking cells in a worksheet.

Hiding workbooks, worksheets, columns, and rows:


Hide Data

- To hide a row or column in a worksheet, click a row or column heading to select it ,the right click within the row or column and select **hide**, from the shortcut menu that appears. The row or column will be hidden. To unhide row or column, right click the border between the hidden item and rows or column that are visible, and then select **unhide** from the shortcut menu.
- To hide a worksheet, click its tab to select it. Then open the **Home, cells, format** menu, and select **hide sheet**. To unhide the worksheet, select **Home, cells, format, sheet**, and then **unhide**. Select the worksheet, to unhide n the unhide dialog box that appears and then click **ok**.

Editing: include

AutoSum: adding a group of cells is probably one of the most often used calculations in an Excel worksheet. Because of this fact, Excel makes it very easy to place the SUM function into a cell. Excel provides the Auto sum button  on the standard tool bar.

Using Auto Sum

- Select the cell where you want to place the SUM function.
- Select **Home, Editing**, Click the **Auto sum** button  .
- If the range of cell address that Auto sum selected is incorrect, use the mouse to drag and select the appropriate group of cells.
- Press the enter key. Auto sum calculate the total for the selected range of cells.

Fill: to create a custom series using fill.

Entering a Custom Series

- Enter the first value in the series into a cell.
- Enter the second value in the series into the next cell. For example, you might enter 10 into the first cell and then 20 into the second cell. This lets excel know that the increment for the series is 10.
- Select both cells by clicking the first cell and dragging over the second cell.
- Drag the fill handle of the second cell to the other cells that will be part of the series. excel analyzes the two cells, sees the incremental pattern, and recreates it in subsequent cells.

Clear: you can delete only the formatting of a cell without deleting its contents. The formatting of a cell includes the cell's color, border style, numeric format, font size, and so on.

Clear Data

- Select the cells you want to clear.
- Open the **Home, Editing**, and point at **Clear**. The clear submenu appears.
- Select the desired Clear option:

All: Removes the cell contents and other attributes.



Formats: Removes the cell formatting only.

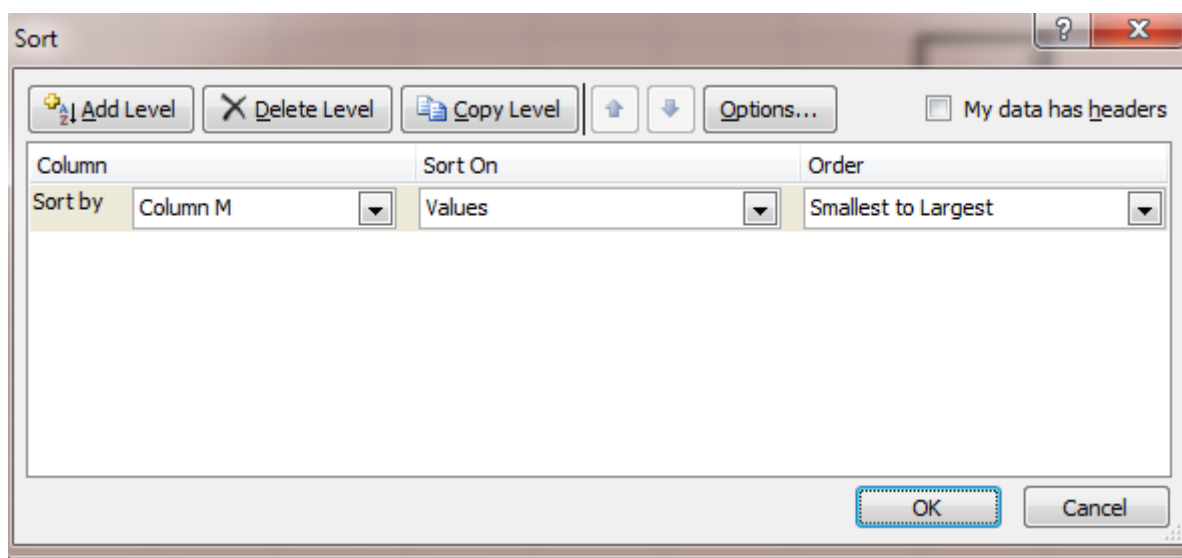
Contents: Removes the cell contents only

Comments: Removes the cell comments only.

Sort: you can sort a list ascending (0 to 9, A to Z), or descending (Z to A, 9 to 0) orders.

Sorting a list

- Select a cell in the field you want sorted.
- Click sort ascending  or sort descending  buttons from **home, Editing, sort**.



Filter: filtering is an excellent way to find a subset of records to work with that match a particular range of values.

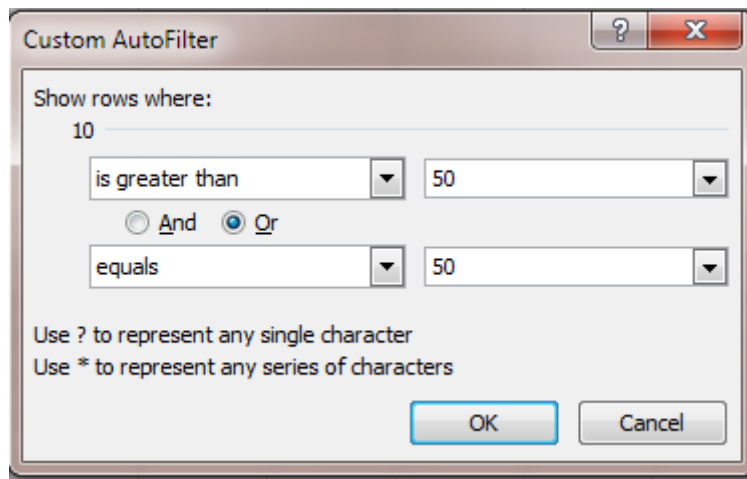
Filtering a list

- Select a cell within the active worksheet list.
- Choose **Home, Editing, Filter**.
- Click down arrow beside the desired field name.
- Select a value or a custom filtering option.
- Choose, **Home , Editing, Filter, show all** to remove the filter.

Example: work sheet below includes student name and degree, to display only successful students execute the following:

	A	B
1	student	grade
2	iklas	74
3	zina	94
4	huda	73
5	maha	95
6	iemam	75
7	lyla	27
8	saba	33
9	nahla	51
10	swsan	20
11	asma	97

1. select the cells which we want to filtering it
2. Select **Home, Editing, Filter**, combo box appears beside the field.
3. click arrow beside degree ,subtotal appears, select customize from it , dialog box appears ,select appropriate conditions from it, in our example, the degree is greater than 50 then click or equal 50 ,then click ok.
4. Only records contain successful students is appears.

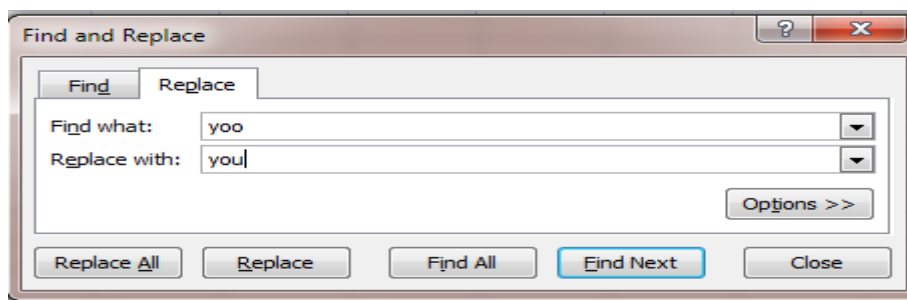


	A	B
1	student	grade
2	iklas	74
3	zina	94
4	huda	73
5	maha	95
6	ieman	75
9	nahla	51
11	asma	97

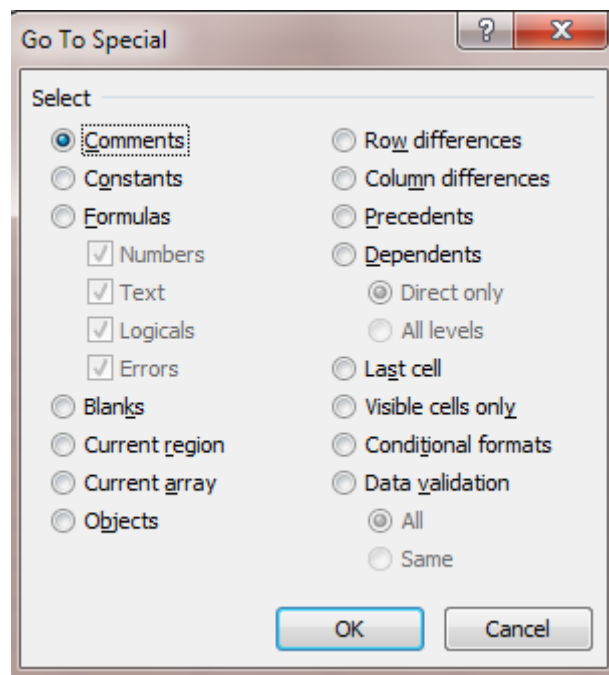
Find and Select: Suppose you've entered particular label or value into the worksheet and find that you have consistently entered it incorrectly. Great way to change multiple occurrences of a label or value is using Excel's Replace feature, you can locate data in the worksheet and replace it with new data.

Using the Find and Replace Feature

- Select the **Home, Editing**, and then select **Find**. The **Find and Replace** dialog box appears.
- Type the text or value that you want to find into **Find What** text box.
- Click in the **Replace With** text box and type the text you want to use as replacement text.
- Click **Find Next** to find the first occurrence of your specified entry.
- When an occurrence is found, it is highlighted. Click **Replace** to replace only this occurrence and then click **Find next** to find the next occurrence.
- If you want to find all the occurrences, click **Find All**, you can also replace all the occurrences of the entry with **Replace All**.
- Click OK.



Go to: you can also quickly go to a specific cell address in a worksheet using the go to feature. Press ctrl+G or select *Home, Editing, Go To*. Type the cell address you want to go to into the reference box, and then click ok button.



Tables: create a table to manage and analyze related data

Illustrations: it is used to insert picture or clipart or shapes or smart art into the worksheet.

Charts: charts enable you to create a graphical representation of data in a worksheet .you can use charts to make data more understandable to people who view your printed worksheets. The following are the major chart types and their purposes:

Column – similar to the bar chart, use this chart type to emphasizes the difference between items.

Line – use this chart type to emphasize tends and the change of values over time.

Pie –use this chart type to show the relationship among parts of a whole.

Bar - use this chart type to compare values at a given point in time.

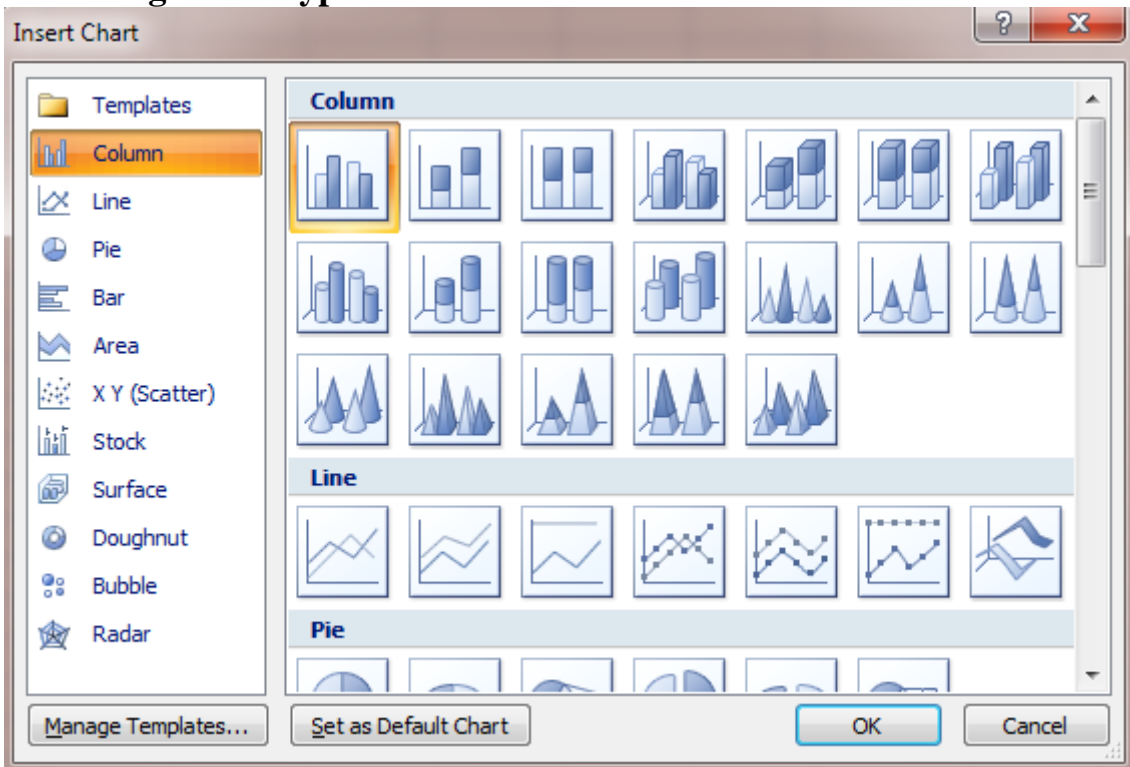
Area – similar to the line chart, use this chart type to emphasize the amount of change in values over time.

Scatter – similar to a line chart, use this chart type to emphasize the difference between two sets of values.

Chart-Design Commands



Type: to change chart type:



Data: include:

Switch row/column: By default Excel assumes that your different data series are stored in rows. You can change this to columns if necessary by clicking the **Switch row/column** option.

Select Data: next, Excel asks whether the selected range is correct (you can select the data you want to chart before click chart wizard). You can correct the range by typing a new range or by clicking the **shrink** button and selecting the range you want to use.

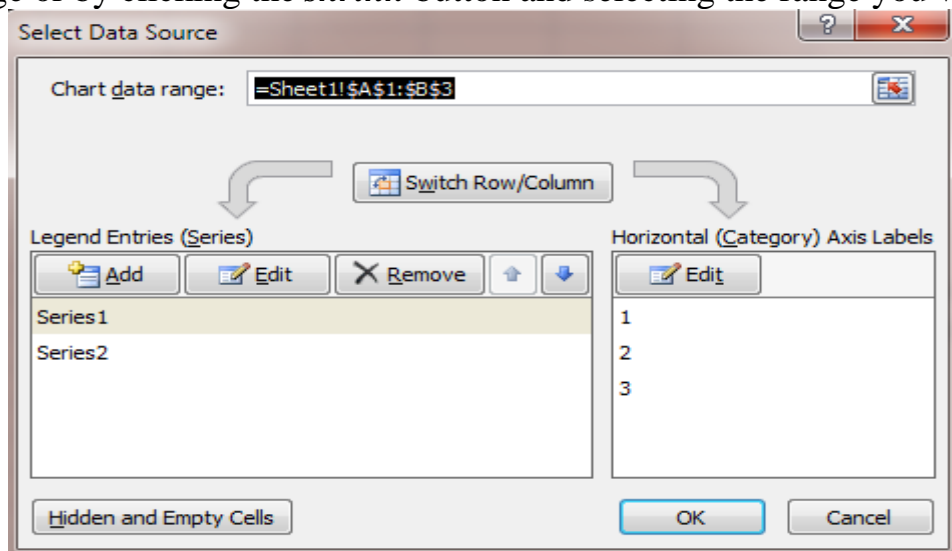


Chart layouts: to change options for the chart.

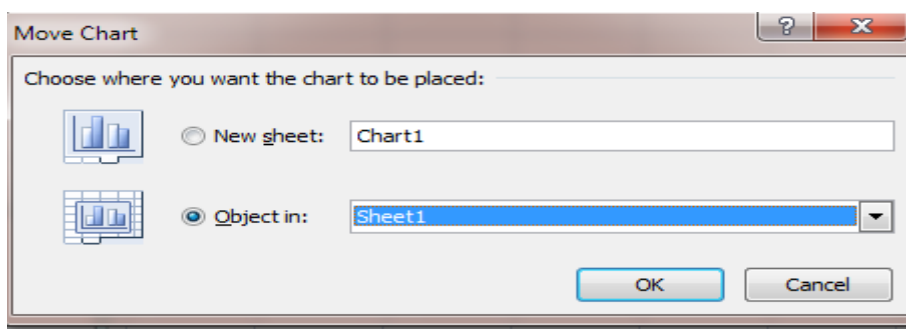
- **Titles:** you can add a chart title on the titles tab.
- **Axis:** display major and minor tick in x-axis and y- axis.
- **Gridline:** display horizontal and vertical lines on the chart.
- **Legend:** you can delete the legend by clicking the legend tab and deselecting show legend.
- **Data Label:** add data labels (labels that display the actual value being represented by each bar, line, and so on) by clicking the data labels tab.
- **Data Table:** to add data table to the chart.

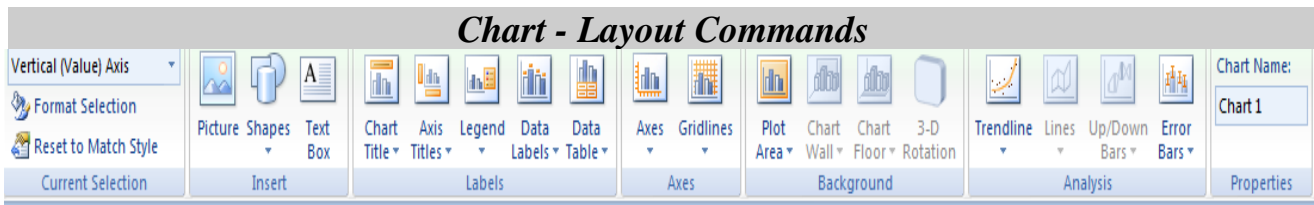


Chart styles: to choose chart style.



Chart location: finally, Excel asks whether you want to embed the chart (as an object) in the current worksheet (or any other existing worksheet in the workbook) or if you want to create a new worksheet for it. Make your selection and click the finish button. Your completed chart appears.





Current selection: include

Chart elements: select chart element so that you can formatted.

Format selection: lunch the format dialog box to fine tune formatting for the selected chart element.

Reset to match style: clear the custom formatting of the selected chart elements back to the overall visual style applied to the chart.

Insert: include:

Picture: insert a picture from file.

Shape: insert readymade shapes such as rectangles, circles, arrows, lines, flowchart symbols and callouts.

Text box: A text box is a movable, resizable container for text or graphics. You can use text boxes position several blocks of text on a page or to give text a different orientation from other text in the document.

Labels: include:

- **Chart Titles:** add, remove or position the chart title.
- **Axis title:** Add, remove or position the text use to label axis.
- **Legend:** Add, remove or position the chart legend.
- **Data Label:** Add, remove or position the data label.
- **Data Table:** add data table to the chart.

Axes: include:

Axes: change the formatting and layout of each axis.

Gridlines: turn gridlines on or off.

Background: include

Plot area: turn the plot area on or off.

Chart wall: format the chart wall.

Chart floor: format the chart floor.

3-D rotation: change the 3-D viewpoint of the chart.

Analysis: include:

Trend line: add a trend line to the chart.

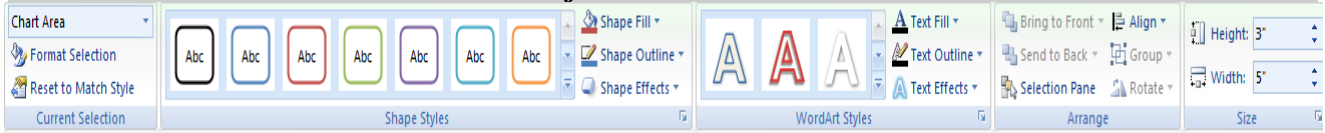
Lines: add other lines to the chart, such as drop lines or high –low lines.

Up/down bars: add up /down bars to the chart.

Error bars: add errors bars to the chart.

Properties: give the chart friendly name to help you to refer to it when ordering objects on the sheet or writing VBA code.

Chart-format Commands



Current selection: include

Chart elements: select chart element so that you can formatted.

Format selection: lunch the format dialog box to fine tune formatting for the selected chart element.

Reset to match style: clear the custom formatting of the selected chart elements back to the overall visual style applied to the chart.

Shape styles: include:

Shape Fill: fill the selected shape with solid color, gradient, picture, or texture.

Shape Outline: specify the color, width, and line style, for the outline of the selected shape.

Shape Effects: apply visual effects to the selected shape. Such as shadow, glow, reflection, or 3-D rotation.

Word art styles: include:

Text Fill: fill the text with solid color, gradient, picture, or texture.

Text Outline: specify the color, width, and line style, for the outline of the text.

Text Effects: apply visual effects to the text. Such as shadow, glow, reflection, or 3-D rotation.

Arrange: include:

Bring to front: bring the selected object in front of all other objects so that no part of it is hidden behind another object.

Send to back: send the selected object behind all other objects.

Selection pane: show the selection pane to help select individual object and to change their orders and visibility.

Align: align the edges of multiple selected objects.

Group: group objects together so that they can be treated as a single object.

Rotate: rotate or flip the selected object.

Size: include:

Shape height: change the height of the shape or picture.

Shape width: change the width of the shape or picture.

Example: Enter the following data

	A	B	C	D
1	Food Supplies			
2	Code	Product	Quantity	Price
3	A1	Apples	200	170
4	M2	Milk	400	280
5	B3	Butter	650	910
6	F4	Flour	780	250
7	S5	Suger	1000	230

- Draw the relation between Product and Quantity.
- Draw the relation between Product and Price.
- Draw the relation between Price and Quantity.
- Draw the relation between Product and Quantity and Price.

Example: Enter the following data, and then draw the expenses over three months.

	A	B	C	D
1	Expenses or overThree Months			
2		Jan	Feb	Mar
3	Hard Disk	60	40	20
4	Ram	15	20	40
5	Speakrs	30	55	45
6	Modem	55	25	60

Example: Enter the following data Powers=(50,100,.....1000) and Cubes Side =(10,12.....48) then calculate Reaction=Power/Cube Area and draw the relation between Power and Reaction.

	A	B	C	D
1	Power	Cube Side	Cube Area	Reaction
2	50	10		
3	100	12		
4	150	14		
5	200	16		
6	250	18		
7	300	20		
8	350	22		
9	400	24		
10	450	26		
11	500	28		
12	550	30		
13	600	32		
14	650	34		
15	700	36		
16	750	38		
17	800	40		
18	850	42		
19	900	44		
20	950	46		
21	1000	48		

Example: enter the following data : X=(0,45,90,135,180,225,270,315,360) then calculate Sin(X),Cos(X),Tan(X).then draw Chart illustrate the relation between all variables.

	A	B	C	D
1	X	Sin(X)	Cos(X)	Tan(X)
2	0	=sin(a2*3.141592/180)		
3	45			
4	90			
5	135			
6	180			
7	225			
8	270			
9	315			
10	360			

Example: enter the following data: X= (5, 1050) and calculate X², X³ then draw the relation between variables.

	A	B	C
1	x	x ²	x ³
2	5	=a2^2	
3	10		
4	15		
5	20		
6	25		
7	30		
8	35		
9	40		
10	45		
11	50		

Links: create a link to a web page, a picture, e-mail address, or a program.

Text: include

Text box: A text box is a movable, resizable container for text or graphics. You can use text boxes position several blocks of text on a page or to give text a different orientation from other text in the document.

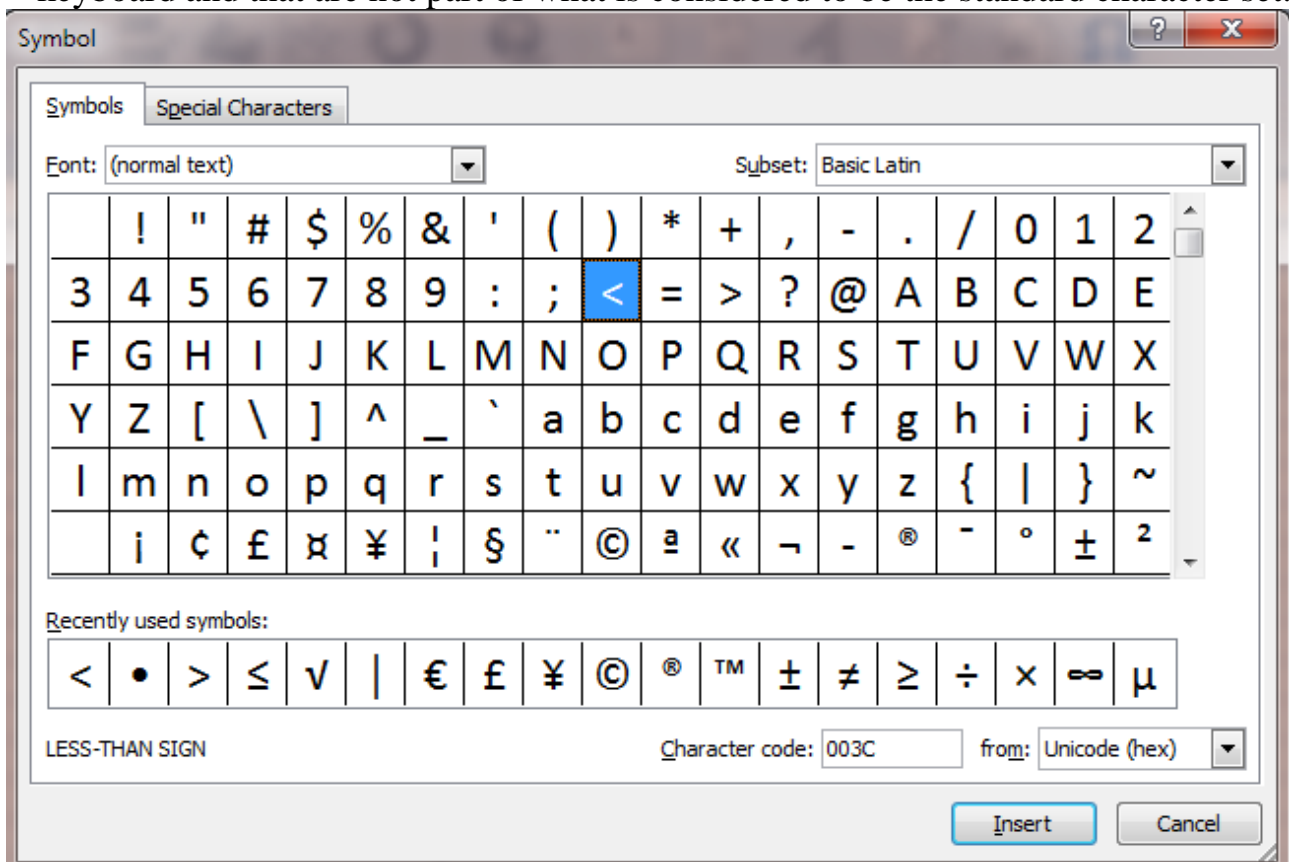
Header / Footer: the contents of a header (at the top of the page) or footer (at the bottom of a page) repeat automatically for each page that is printed.

Word art: insert decorative text to the document.

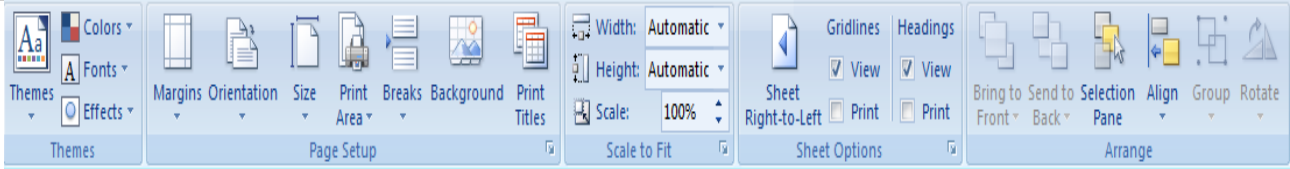
Signature line: insert a signature line that specifies the individual who must sign.

Object: insert an embedded object.

Symbol: Special characters and symbols are characters that can't be found on keyboard and that are not part of what is considered to be the standard character set.



Page Layout Commands



Themes: include:

Themes: change the overall design of the entire document include, colors, fonts, and effects

Colors: change the colors for the current theme.

Fonts: change the fonts for the current theme.

Effects: change the effects for the current theme.

Page setup: include

Margins- the margins tab allows to select the top, bottom, left, and right page margins, and to center the worksheet both horizontally and vertically on a page.

Orientation: Print orientations (portrait or landscape).

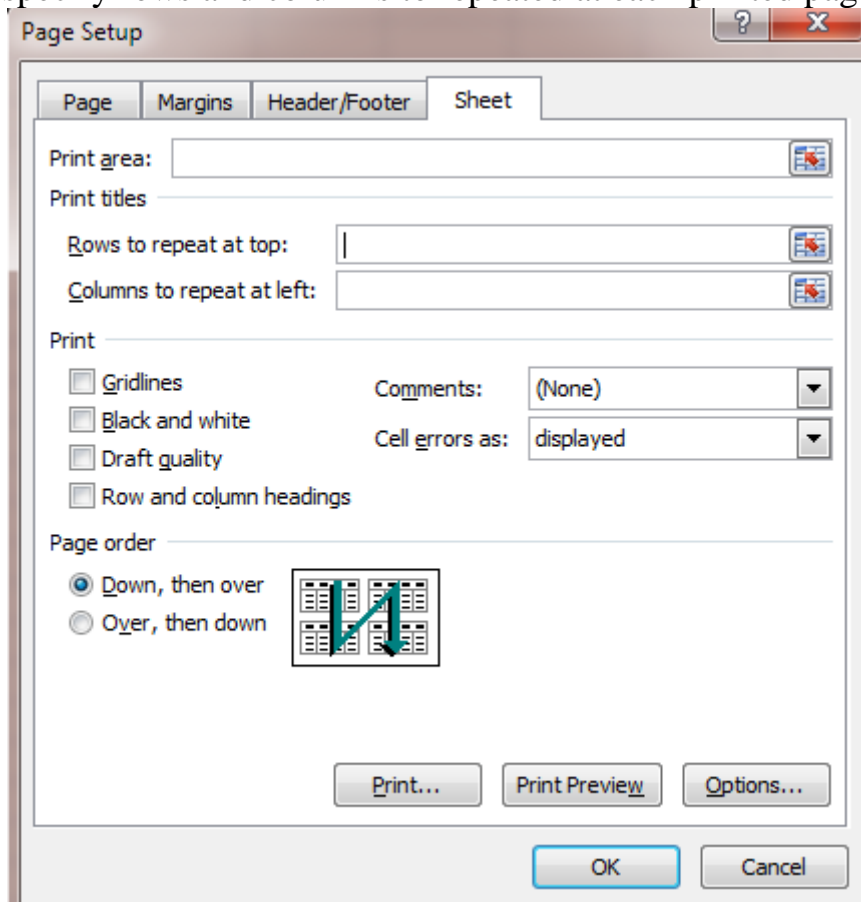
Size: use to specify paper size.

Print area: you don't always have to print an entire worksheet; instead, you can easily tell excel what part of the worksheet you want to print by selecting the print area.

Breaks: a page break is the point at which one page ends and another begins.

Background: choose an image to display as background of the sheet.

Print Titles: specify rows and columns to repeated at each printed page.



Scale to fit: include:

Width: shrink the width of printed output to fit a maximum number of pages.

Height: shrink the height of printed output to fit a maximum number of pages.

Scale: stretch or shrink the printed output to percentage of its actual size.

Sheet options:

Sheet right to left: switch the sheet direction so that the first column is on the right side.

Gridlines: show lines between rows and columns in the sheet to make editing and reading easier.

Headings: show rows and columns headings.

Arrange: include:

Bring to front: bring the selected object in front of all other objects so that no part of it is hidden behind another object.

Send to back: send the selected object behind all other objects.

Selection pane: show the selection pane to help select individual object and to change their orders and visibility.

Align: align the edges of multiple selected objects.

Group: group objects together so that they can be treated as a single object.

Rotate: rotate or flip the selected object.

Entering Formula: you can enter formulas in one of two type: by typing the enter formula, including the cell address, or by typing the formula operators and selecting the cell reference.

Type Formula

- Select the cell where you will place the formula.
- Type an equal sign "=" into the cell to begin the formula.
- Enter the appropriate cell references and operators for the formula the formula also appears in the formula bar as you type it. The cells that you specify in the formula are highlighted with a color board.
- press enter when you have finished the formula, and Excel calculate the results.

Enter formula by selecting cell address

- Click in the cell where you will place the formula.
- Type the equal sign "=" to begin the formula.
- Click the cell whose address you want to appear first in the formula. You can also click a cell in a different worksheet or workbook. The cell address appears in the cell and in the formula bar.
- Type a mathematical operator after the value to indicate the next operation you want to perform. The operator appears in the cell and in the formula bar.
- Continue clicking cells and typing operators until the formula is complete.
- Press enter to accept the formula and have Excel place its results into the cell.

Some of operators that you can use and how you would use them in simple formula.

Order of operators: the natural order of mathematic operators as follows:

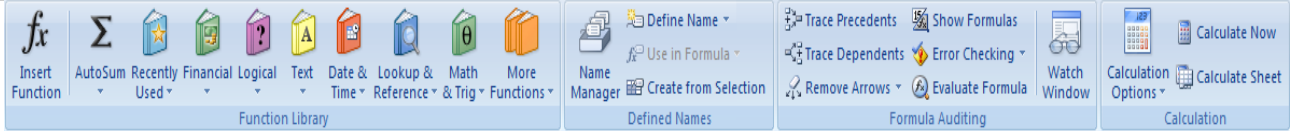
1. Exponent (^) and calculations with parenthesis.
2. Multiplication (*) and division (/).
3. Addition (+) and subtraction (-).

You can force the precedence of an operation by using parentheses.

Operator	Simple formula
$A1^3$	=A1^3
$A1+B1$	= A1+B1
$A1-B1$	= A1-B1
$A1 \times B1$	=A1*B1
$A1 \div B1$	=A1/B1
$A2+B2 \times C2$	=A2+B2*C2
$(A2+B2) \times C2$	=(A2+B2)*C2
$\frac{A1+B1}{C1-D1}$	=(A1+B1)/(C1-D1)
$A1 + \frac{B1-D1}{C1}$	=A1+B1/C1-D1
$A1 \times B1/2$	=A1*B1/2
$\frac{A1 \times B1}{C1 \times D1}$	=A1*B1/(C1*D1)
$A1+B1+\frac{C1}{3}$	=A1+B1+C1/3
$\frac{A1+B1+C1}{3}$	=(A1+B1+C1)/3
$B1(1+C2)$	= B1*(1+C2)
$B1 \times 1 + C2$	=B1*1+C2
$A1^2+B1^2+C1^2+D1^2$	=A1^2+B1^2+C1^2+D1^2
$(A1+B1+C1+D1)^2$	=(A1+B1+C1+D1)^2
$\frac{A1+B1}{C1}$	=(A1+B1)/C1
A1	=ABS(A1),example: abs(8)=8,abs(-9)=9
Integer (B1)	=INT(B1),example: int(7.1)=7, int(7.9)=7
Integer (C1)	=INT(C1),int(-9.2)=-10,int(-11.1)=-12
$\sqrt{D1}$	=D1^0.5 or D1^(1/2) or SQRT(D1)
$\frac{-b + \sqrt{b^2 - 4*a*c}}{2*a}$	=(- B1 + sqrt (B1^2-4*A1*C1))/(2*A1)
$\frac{-b - \sqrt{b^2 - 4*a*c}}{2*a}$	=(- B1 - sqrt (B1^2-4*A1*C1))/(2*A1)
e^{A1}	=exp(A1)
$1 - \frac{e^{A1}}{1+e^{A1}}$	= (1-exp(A1))/(1+exp(A1))
ln(A1)	=log (A1)
log(A1)	=log(A1)/log(10)
Sin(A1)	=Sin(A1*3.141592/180)
Cos(B2)	=Cos(B2*3.141592/180)
Tan (C3)	=tan(C3*3.141592/180)
Sec(A1)	=1/cos(A1*3.141592/180)
Csc(B2)	=1/Sin(B2*3.141592/180)
Tan ⁻¹ (B1)	=1/tan(B1*3.141592/180)
Log B1 – Sin A1 +C1 x D1	=Log(B1)/Log(10)- Sin (A1*3.14/180) +C1*D1

$\text{Ln } D1 - \text{Log } D1^2$	$= \text{Log}(D1) - \text{Log}(D1^2)/\text{Log}(10)$
$\text{Sin}(C4)$	$= \text{sin} (C4*3.14/180)$
$\text{Cos} (A1^2)$	$= \text{Cos} ((A1*3.141592/180)^2)$
$\text{Cos}^2(A1)$	$= \text{Cos} (A1*3.141592/180)^2$
$\text{Sin} (A1)+\text{Cos}(B1)/\text{Tan}(C1)$	$= (\text{Sin}(A1*3.14/180)+\text{Cos}(B1*3.14/180))/\text{Tan}(C1*3.14/180)$
$\text{Signature}(A1)$	$= \text{sign}(A1), =1 \text{ if } a \text{ is positive or } -1 \text{ if } a \text{ is negative}$
$\text{Signature}(D1)$	$= \text{sign}(D1), \text{example: } \text{sign}(7)=1, \text{sign}(-7)= -1$
$\text{random} (A1)$	$= \text{RAND}(1) , \text{its return random value between } 0,1, \text{example: } 0.87965431$
$\text{Ln} \frac{A + A - 3 }{2A + 5}$	$= \text{log}(((A1)+\text{abs}(A1-3))/(2*A1+5))$
$\frac{\sqrt{A^2 + 1} - 2A}{ A }$	$= (\text{Sqrt}(A1^2+1) - 2*A1)/\text{abs}(A1)$
$\frac{A \cdot \text{Tan} A}{(A + \text{Tan} A)^2}$	$= A1 * \text{tan}(A1*3.14/180)/(A1+\text{tan}(A1*3.14/180))^2$
$\frac{\text{Log} A + \frac{1}{A} - A^3}{10 - A}$	$= (\text{log}(A1)/\text{log}(10)+1/A1-A1^3)/(10-A1)$
$\text{Ln} \frac{A + A - 3 }{2A + 5}$	$= \text{log}((A1+\text{abs}(A1-3))/(2*A1+5))$
$\sqrt{\text{Cos} \frac{A^3}{5(A-1)}}$	$= \text{sqrt}(\text{cos}(A1^3/(5*(A1-1))*3.141592/180))$
$\frac{(A - B - 1/2)^2}{A + B}$	$= (\text{abs}(A1-B1)-1/2)^2/(A1+B1)$
$\frac{\sqrt{A+1} - \sqrt{3A}}{A^2 - 2}$	$= (\text{sqrt}(A1+1)-\text{sqrt}(3*a1))/(A1^2-2)$
$\sqrt{\frac{\text{Sin} A^3}{3(A-1)}}$	$= \text{sqrt}(\text{sin}(A1*3.14/180)/(3*(A1-1)))$
$Y = \frac{\sqrt{2-x^2}}{\sqrt{a+(b^2-1)^5}}$	$= \text{sqrt}((2-X1^2)/\text{sqrt}(a1+(B1^2-1)^5))$
$Y = \frac{\ln 3e^x - 9 }{\sqrt{3x^2}}$	$= \text{log}(\text{abs}(3*\text{exp}(X1)-9))/\text{sqrt}(3*X1^2)$
$Y = \log\left(\frac{1-e^{-2x}}{1+x}\right)$	$= \text{log}((1-\text{exp}(-2X1))/(1+x1))/\text{log}(10)$
$Y = x^2 + a b - c^2 - e^x$	$= X1^2 + A1*\text{abs}(b1-c1^2) - \text{Exp}(X1)$
$\text{Sin}^2(X) + \text{Cos}(X^3)$	$= \text{sin}(x1*3.14/180)^2 + \text{cos}((X1*3.14/180)^3)$

Formula Commands



Insert Function: Functions are ready made formulas that perform a series of operations on specified range of values .every function consists of the following three elements:

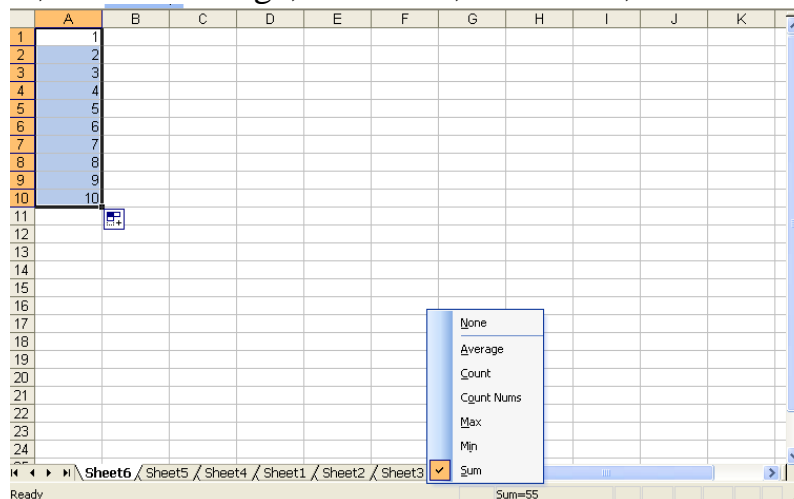
1. The "=" sign, which indicates that what follows is a function (formula).
2. The function name, such as sum, that indicates which operation will be performed.
3. A list of cell address, such as (A1:H1), which are to be acted upon by the function. Some functions can include by commas such as (A1, B1, and H1).

Some of Excel functions that probably used most often in worksheets:

<i>Functions</i>	<i>Example</i>
Average	=Average(B4:B9)
Count	=Count(A3:A7)
If	=if (A3>1000,"bonus",no bonus")
Max	=Max(B4:B10)
Min	=Min(B4:B10)
Sum	=Sum(A1:A10)

Using the status bar Auto Calculate feature.

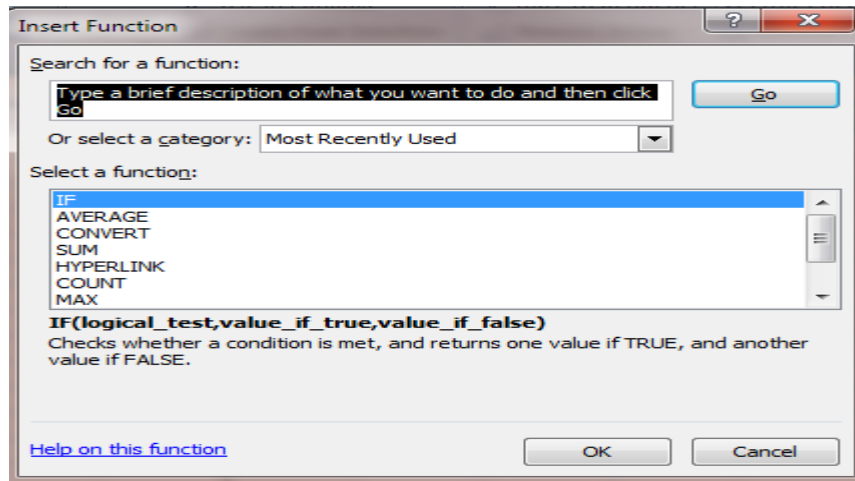
Using feature that Excel calls, you can view the sum of the column of cells simply by selecting the cells and looking at the status bar. the values in the selected cells are added. You can also right – click the auto calculate area of the status bar and choose different formulas, such as average, minimum, maximum, and count.



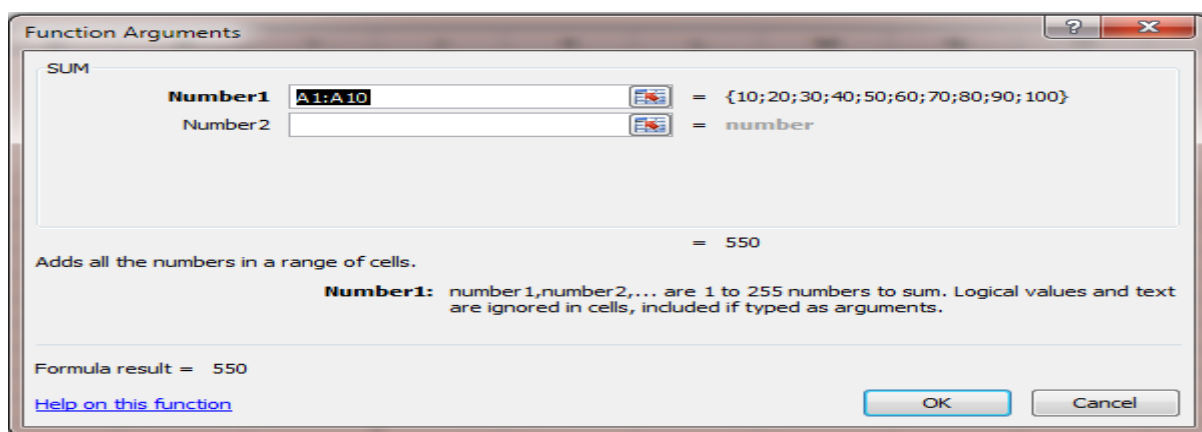
Using function feature: the insert function feature leads you to through the process of inserting a function and specifying the appropriate cell address in the function.

Use function feature

- Click in the cell where you want to place the function.
- Click the arrow button next the auto sum button and select **more functions**. The insert function dialog box appears.



- To search for a particular function, type a brief description of what you want to do in the search for a Function box. then click Go to conduct the search. you also can select a function category ,such as financial or statistical ,using the select a category drop – down box. in either case a list of functions is provided in the select function dialog box.
- From the functions list, select the function you want to insert. then click ok. the function Arguments dialog box appears. this dialog box allows you to specify the range of cells that the function acts upon .



- Next you must enter the range of cells that will be acted upon by the function. Click the **collapse** button on the far right of the Number1 text box in the Function arguments dialog box, this return you to the worksheet.
- Use the mouse to select cells that you want to place in the function. Then click the **expand** button on the right of the function arguments dialog box.
- Click **ok**. Excel inserts the function and cell addresses for the function into he selected cell and displays the result.

Example: Enter the following data:

	A	B	C	D	E
1		Qtr1	Qtr2	Qtr3	Qtr4
2	Raw Materials	157	96	211	182
3	Packaging	256	202	128	96
4	Work inProcess	39	35	51	75
5	Finished Products	82	48	76	106

- Calculate sum of columns B, C, D, and E.
- Calculate the Average of columns B, C, D, and E.
- Calculate the Max and Min value in each row.
- Calculate the sum and average of each row.
- In each columns, If the values ≥ 100 .print "Over", else print "Below".
- Count the number of values in each row.

Example: Enter the following data:

	A	B	C	D	E
1	Daily Production				
2	Rice	Tea	Sugar	Other	
3	Sunday	4900	1580	2600	3300
4	Monday	4750	1725	2350	3150
5	Tuesday	3900	1565	2975	2590
6	Wednesday	2600	1520	2845	2810
7	Thursday	3375	1635	2100	3050
8	Friday	2600	1520	2100	2590
9	Saturday	4750	1725	2975	3300
10					
11	SUM	26875	11270	17945	20790
12	MIN	2600	1520	2100	2590
13	MAX	4900	1725	2975	3300
14	AVERAGE	3839.286	1610	2563.571	2970
15	COUNT	7	7	7	7
16					

- Calculate sum of columns Rice, Tea, Sugar.
- Calculate the Max and Min value in each column.
- Calculate the Average of columns Rice, Tea, Sugar.
- Count the number of values in each column.

Example: Enter the following data:

	A	B
1	student	grade
2	iklas	74
3	zina	94
4	huda	73
5	maha	95
6	ieman	75
7	lyla	27
8	saba	33
9	nahla	51
10	swsan	20
11	asma	97
12		
13	SUM	639
14	AVERAGE	63.9
15	COUNT	10
16	MIN	20
17	MAX	97

- Calculate sum of column grade.
- Calculate the Average of column grade.
- Calculate the Max and Min value in grade.
- In column grade, If the values ≥ 50 .print pass, else print poor.
- Count the number of values in grade.

Matrix Multiply: the condition to multiply matrices is number of columns of first matrix equal to the number of rows in second matrix.

Matrices Multiply

- Select the cells you want the result display on write "=" in first cell.
- Click **Insert Function** from **Formula**, choose **MMULT**.
- The dialog box appear, select the range of matrix by drag the mouse ,and select the range of second matrix in the same way.
- Click **Ctrl + Shift + Enter**, the result display in selected cells.

Example: to calculate the result of multiply two matrices, first size (2×2) and the second size (2×3).

	A	B	C	D	E	F	G	H	I	J
1	2	7		1	8	7		16	79	63
2	8	7		2	9	7		22	127	105

Matrices Inverse: to calculate matrix inverse follow these steps:

Matrices Inverse

- Select the cells you want the result display on write "=" in first cell.
- Click **Insert Function** from **formula** , choose **MINVERSE**
- The dialog box appears; select the range of matrix by drag the mouse.
- Click **Ctrl + Shift + Enter**, the result display in selected cells.

Example: calculate the matrix inverse for the matrix size (2×2).

	A	B
1	2	7
2	8	7
3		
4	-0.16667	0.166667
5	0.190476	-0.04762

Function Library: include:

Auto sum: display the sum of the selected cells directly after the selected cells.

Recently used: brows and select from list of recently used function.

Financial: brows and select from list of financial functions.

Logical: brows and select from list of logical functions.

Text: brows and select from list of text functions.

Date &time: brows and select from list of date & time functions.

Lookup &references: brows and select from list of lookup &references functions.

Math & trig: brows and select from list of math &trigonometry functions.

More functions: brows and select from list of statistical, engineering, cube, information functions.

Define names: Create, edit, delete, and find all the names used in the workbook.

Formula Auditing

Checking the formula:

- **Trace precedents:** we select the result, and want to know from where it is, rows appear to cells that caused the result.
- **Trace dependents:** we select the cells that special perform formula on it and Excel display row to cell contain this formula result.
- **Remove all rows:** to remove all rows that appears.
- **Show formulas**
- **Error checking:** formula errors caused error results, There is some tools help in define error such:
 - #####: column is thin
 - #value: can't convert string to value.
 - #div/0: divided by zero.
 - #name: names cannot define to it.
 - #N/A: invalid formula.
 - #ref: invalid reference.
- **Evaluate formulas:** lunch the evaluate formula dialog box to debug a formula by evaluating each part of formula individually.

Example: to know the reference of the value (30) we select A5 and select trace precedents, arrow appears to four values caused the result.

	A
1	15
2	8
3	4
4	3
5	30

	A
1	15
2	8
3	4
4	3
5	30

Calculation: specify when formulas are calculated.



Get external date: import data from Microsoft access data base or from web pages or from text files, or from other data source.

Connections: display all data connections for the workbook.

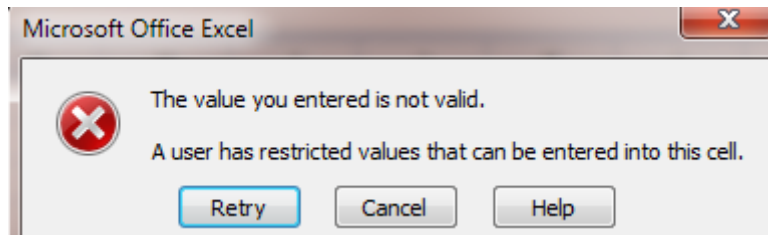
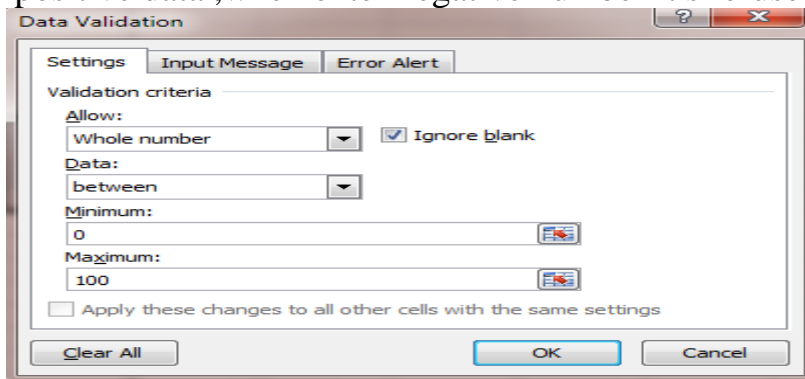
Sort & filter: sort & filter a list of data.

Data tools: include:

Text to columns: separate the contents of one excel cell to into separate columns.

Remove duplicate: remove duplicate rows from the sheet.

Data Validation: it is used to check correction of data. For example ,we want enter data values between 0 and 100 ,when enter number out of data ,Excel display message , "the number you entered is not valid", that is the number is refused .or we want only positive data ,when enter negative number it s refused.



Consolidate: where you need to combine revenues from several regions or calculate productivity static's several departments. Excel consolidation tools allow you to better manage, organize, and present your information.

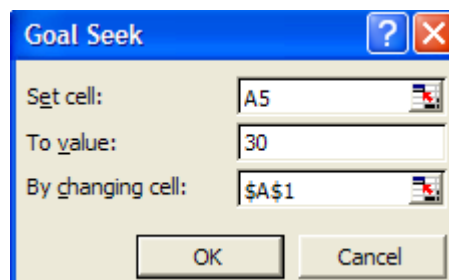
Goal Seek: also called backward solving, lets you begin at the finish line and then work backward to solve a problem.

Using Goal Seek

- Select Tools, Goal Seek.
- In the **Set Cell** text box, enter the cell containing the outcome formula.
- In the **To Value** text box, enter the desired target value.
- In the **By Changing cell** text box, enter the input cell that Excel may change to achieve the target value.
- Click **ok**.

Example: to change the summation of four values from 20 to 30, In the set cells text enter the cell A5, in the to value text box, enter 30, in the by changing cell text box, enter A1.after using goal seek the value of A1 change to 15, the value of A5 change to 30.

	A
1	5
2	8
3	4
4	3
5	20



	A
1	15
2	8
3	4
4	3
5	30

Out line: include:

Group: tie a range of cells together so that they can be collapsed or expanded.

Sub group: ungroup a range of cells that were previously grouped.

Subtotal: subtotaling describes the process of grouping records together in a worksheet list and inserting new rows for computing average ,sums, minimums, and maximums.

Create Subtotals

- Sort the list by the field for which you want to calculate subtotals.
- Select any cell in the worksheet list.
- Select **data, outline, and then subtotals**.
- Specify the sort field that contains the groupings, the desired summary function to calculate, and the fields you want to subtotal.

Example: to create subtotals to sporting sales ,the first step is sorting the data rows by sport type ,then select subtotal ,dialog box appears , select appropriate function from it, the summation of columns which contain sports sales ,summation each type alone, then all summation.

	A	B
1	sports	sales
2	golf	10
3	golf	20
4	golf	10
5	golf	30
6	tenes	4
7	tenes	8
8	tenes	8
9	tenes	6

Subtotal

At each change in:
sports

Use function:
Sum

Add subtotal to:
sports
sales

Replace current subtotals
 Page break between groups
 Summary below data

Remove All OK Cancel


1	2	3	A	B
	1		sports	sales
	2	-	golf	10
	3	-	golf	20
	4	-	golf	10
	5	-	golf	30
	6	-	golf Total	70
	7	-	tenes	4
	8	-	tenes	8
	9	-	tenes	8
	10	-	tenes	6
	11	-	tenes Total	26
	12	-	Grand Total	96



Proofing: include:

Spelling :Microsoft office provides several ways to check spelling and grammar.

Checking the spelling

- Click the Spelling button  (or select **Review, Proofing, Spelling**), the spelling dialog box appears. Excel finds the first misspelled word and displays it at the top of the spelling dialog box, a suggested correction appears in the suggestions box.
- To accept the suggestion in the suggestion box, click **change**, or click **change all**, to change all occurrences of the misspelled word.
- Click **ok** to confirm that the spelling check is finished.

Research: open the research task pane to search through reference materials, such as dictionaries, encyclopedias, and translations services.

Thesaurus: Suggestions other words with a similar meaning to the word you have selected.

Translate: translate the selected text into a different language.

Comment: you can add comments to particular cells although the comments are not really considered cell content these comments allows you to associate information with a cell ,information that does not appear with the workbook when sent to the printer.

Adding Comments to Cells

- Click the cell in which you want to place the comment.
- Select **Review, Comments, new comment**. A comment box appears next to the cell.
- Type your information into the comment box.
- Click anywhere else in the worksheet to close the comment box.

Changes: include:

Protected sheet: prevent unwanted changes to the data in a sheet by specifying what information can be change.

Protected workbook: restrict access to the workbook by preventing new sheet from being created or by granting access only to specific people.

Share work book: allow multiple people to work in a workbook at the same time.

View Commands



Workbook views: include:

Normal: In normal view ,page ,boundaries, headers and footers, backgrounds, drawing objects, and pictures that do not have the "in line with text" wrapping style do not appear.

Page Layout: view the document as it will appear in printed page.

Page break Preview: a page break is the point at which one page ends and another begins.

Custom views: save a set of display and print setting as a custom view.

Full screen: view the document in full screen mode.

Show /hide:

Ruler: show or hide ruler.

Grid lines: show or hide grid lines.

Message bar: show or hide message bar.

Formula Bar: show or hide formula bar.

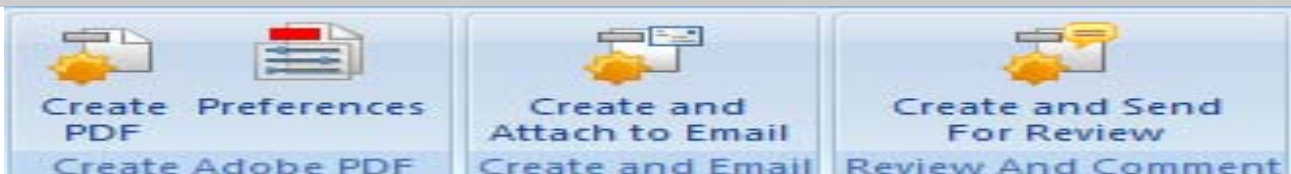
Headings: show or hide headings.

Zoom: to enlarge or reduce the view of the current worksheet, use the zoom feature. Simply click the zoom button on the standard toolbar or click **View, Zoom** and select the zoom percentage. You want to use from the following: 25%, 50%, 75%, or 200%.

Window: open a new window containing view of the current document.

Micros: record a macro or access to other macro options.

Acrobat Commands



Create adobe PDF: Create adobe PDF from current document.

Create and Email: Create adobe PDF and attach to new email.

Review and Comment: Create adobe PDF and imitate a shared review.

Examples

Example: Enter the following data:

	A6		fx		
	A	B	C	D	E
1	20	40	70	40	
2	10	30	50	60	
3	90	80	60	50	
4	10	90	200	50	
5	70	30	80	50	

- Calculate sum of columns A,B,C,D.
- Calculate the Average of columns A,B,C,D.
- Calculate the Max and Min value in each row.
- Calculate the sum and average of each row.
- In each columns, If the values ≥ 50 .print pass, else print poor.
- Count the number of values in each row.

Example: Enter the following data

	A	B	C	D	E	F
1	Name	Sex	Salary	Code	Collage	Work Date
2	iklas	female	600	1	Science	2000
3	zina	female	700	2	Engineering	2003
4	saad	male	650	3	Science	2000
5	maha	female	800	4	Engineering	2002
6	samir	male	730	2	Science	2001
7	lyla	female	910	2	Engineering	1995
8	saba	female	760	3	Engineering	1995
9	nahla	female	870	4	Science	1995
10	swsan	female	500	1	Engineering	1998
11	asma	female	700	2	Engineering	2000

- Display employee record they work in seines collage.
- Display the female employee only.
- Display all records.
- Display the two maximum salary.
- Display the five minimum salary.
- Display employee record they work before 2000.
- Display employee record in code 1,2.
- Display employee record they work between 2000 and 2003.

Example: Enter the following data

	A	B	C	D	E	F	G
1	no.	Product	Cost	Ordered	Total	Discount	Adjusted ToTal
2	1	Hard drive	100	2		10	
3	2	Ram	65	5		5	
4	3	Sound Card	85	8		2	
5	4	Modem	74	2		7	
6							
7						Sum	
8							

- Calculate the total of each product.(cost * ordered)
- Calculate the adjusted total of each product.(total – discount)
- Summation of adjusted total.

اتمنى ان لا ينتج الاصدار اللاحق قبل الانتهاء من كتابة هذه المحاضرات.