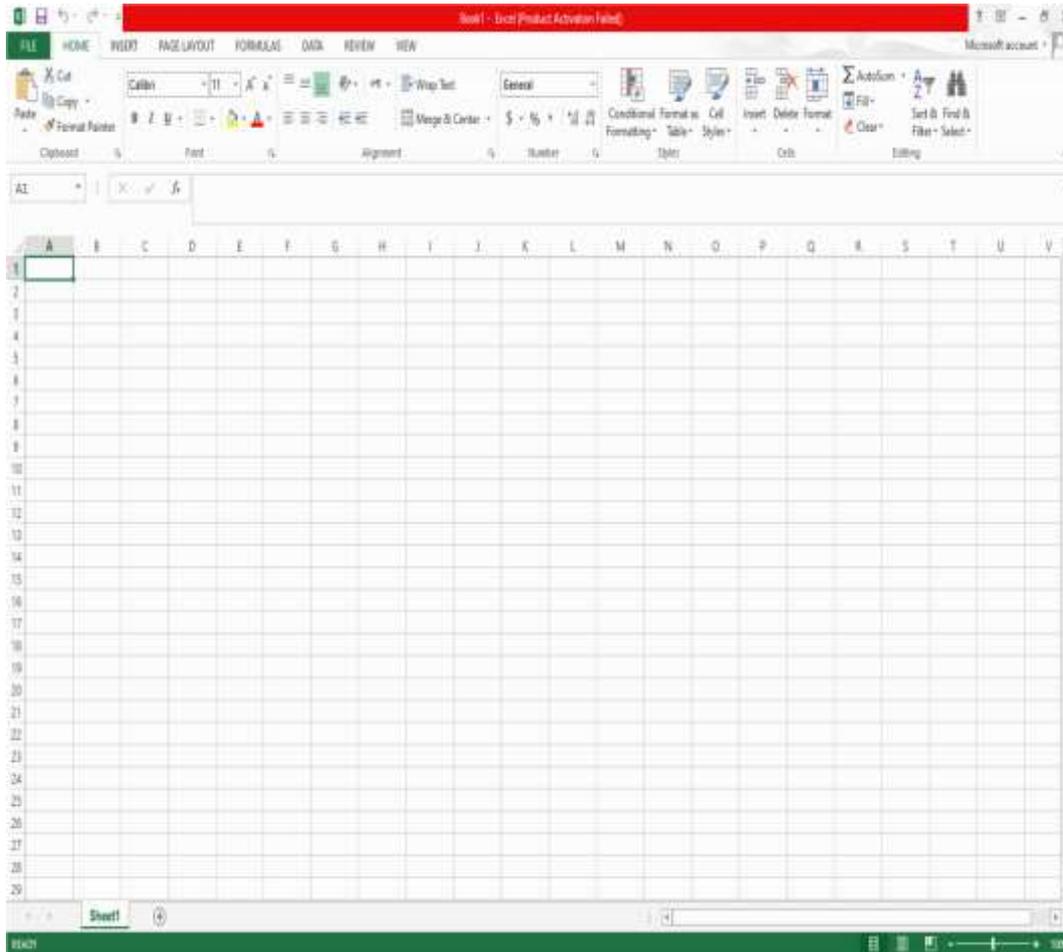


# MS EXCEL

Excel 2013 is a spreadsheet program that allows you to store, organize, and analyze information. While you may think that Excel is only used by certain people to process complicated data, anyone can learn how to take advantage of Excel's powerful features. Whether you're keeping a budget, organizing a training log, or creating an invoice, Excel makes it easy to work with different kinds of data.\*

Launching Excel 2013 \*\*\* Excel can be started either by selecting the program from the Windows start menu, or if there is an existing Excel shortcut available on your computer, it can be double-clicked to launch the program . Open Excel by going through these steps : 1. Click the Start button 2. Select All

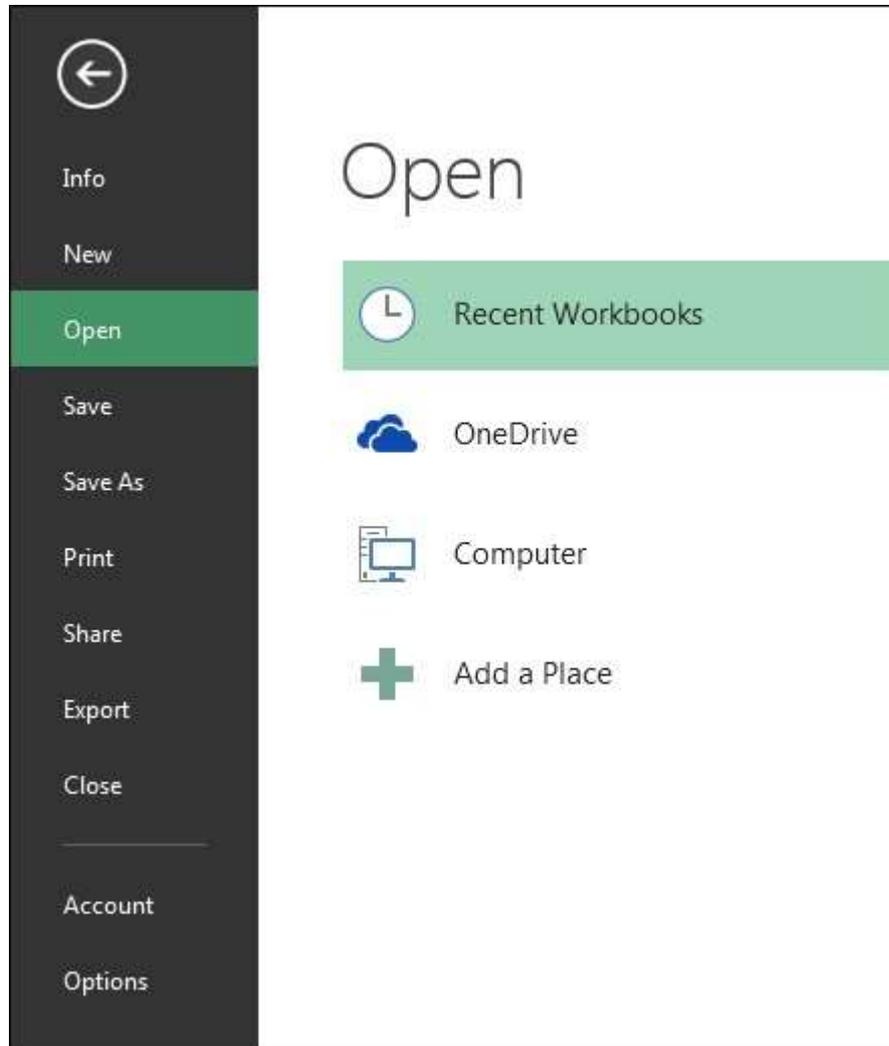
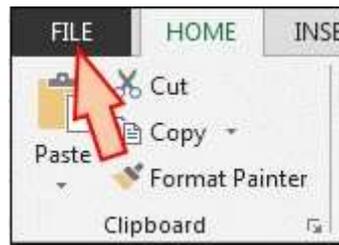
Programs 3. Select Microsoft Office 4. Click Microsoft Excel 2013



## FILE TAB

*File tab contains the basic required options such as New, Open, Save, Save as, Print, Share, Export, and Close options. Other than the aforementioned options, we can find account*

and Excel options tab, too.



- a) **Info:** - With this option, we can get the information about the particular Excel file. Created date, last modified date, Author name, Properties, versions etc.

## Info



**Protect Workbook**  
Control what types of changes people can make to this workbook.



**Inspect Workbook**  
Before publishing this file, be aware that it contains:  

- Author's name and absolute path



**Versions**  

- 🕒 There are no previous versions of this file.



**Browser View Options**  
Pick what users can see when this workbook is viewed on the Web.

**Properties**

Size: Not saved yet  
Title: Add a title  
Tags: Add a tag  
Categories: Add a category

**Related Dates**

Last Modified  
Created: Today, 4:37 PM  
Last Printed

**Related People**

Author:  Excel Tip  
Add an author

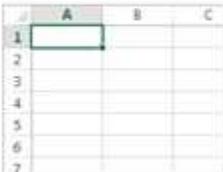
Last Modified By: Not saved yet  
[Show All Properties](#)

- b) **New:** - We use this option to open the new Excel file. We can open new file using shortcut key, Ctrl+N or by Clicking on File tab > New > Blank workbook. If Excel file is not opened, then Press Window+R and type Excel, New Excel file will open.

## New

Search for online templates

Suggested searches: Business Personal Industry Small Business Calculator Finance - Accounting Lists



Blank workbook



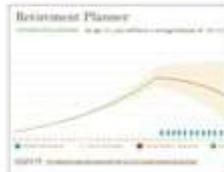
Welcome to Excel



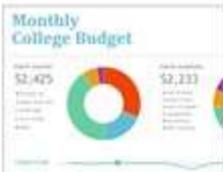
PayPal invoicing



His and her weight loss tracker



Retirement financial planner



Monthly college budget



Event budget



Daily work schedule

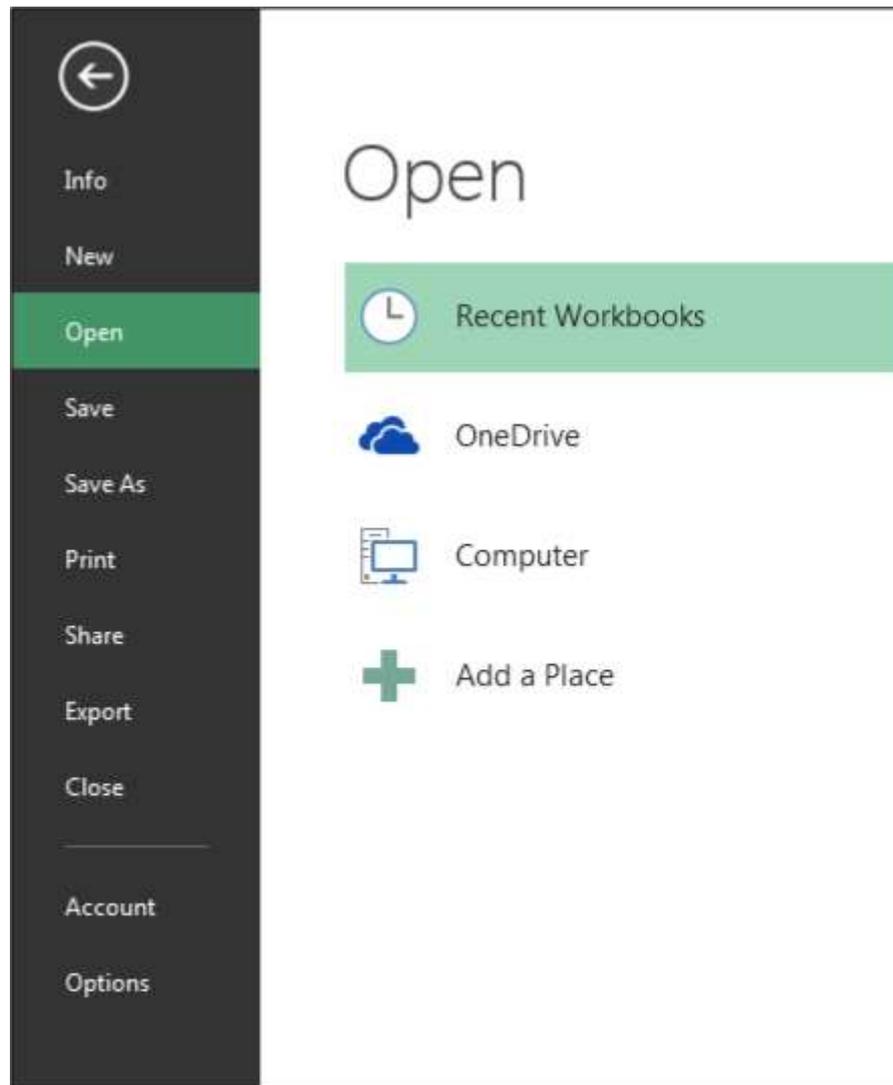


Family monthly budget planner



Employee absence schedule

- c) **Open:** - We use this option to open the existing file (shortcut Ctrl+O). "Open" option appears and you can choose to open the file. Alternatively, File tab > Open > choose the file

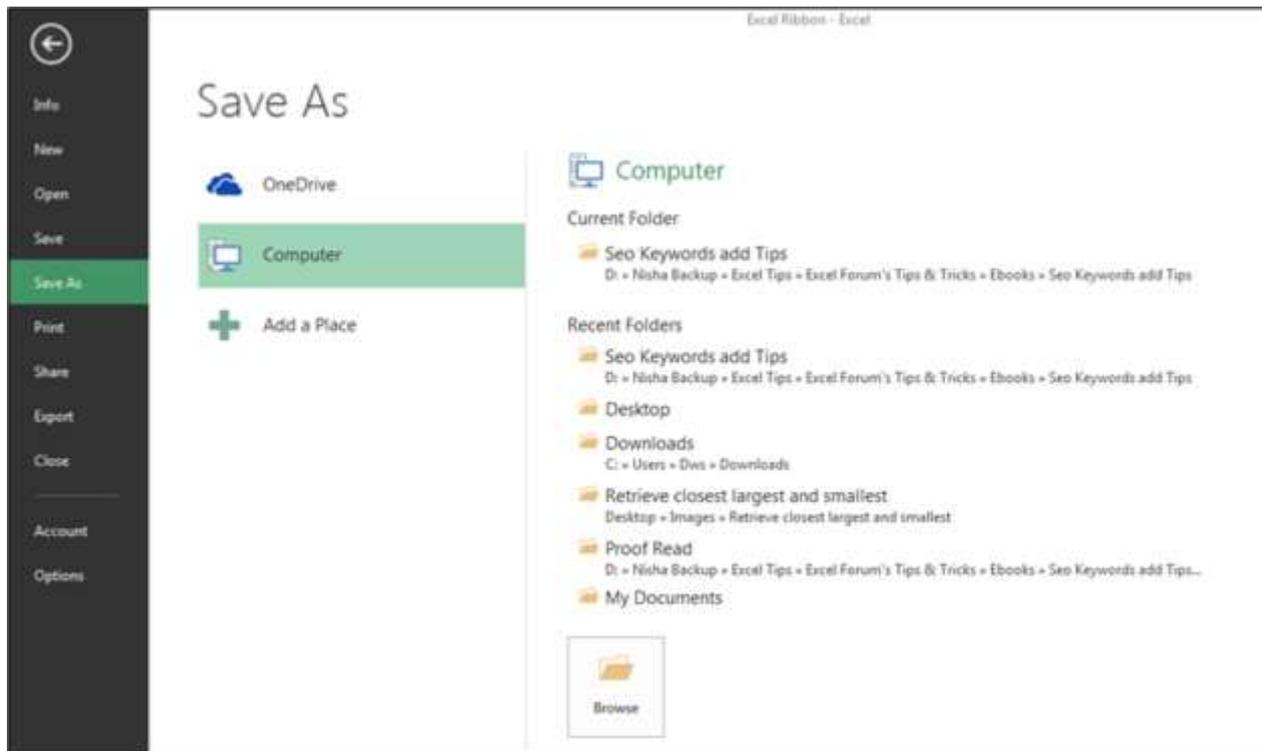


**d) Save:** - We use this option to save the current file.

Shortcut: - Ctrl+S

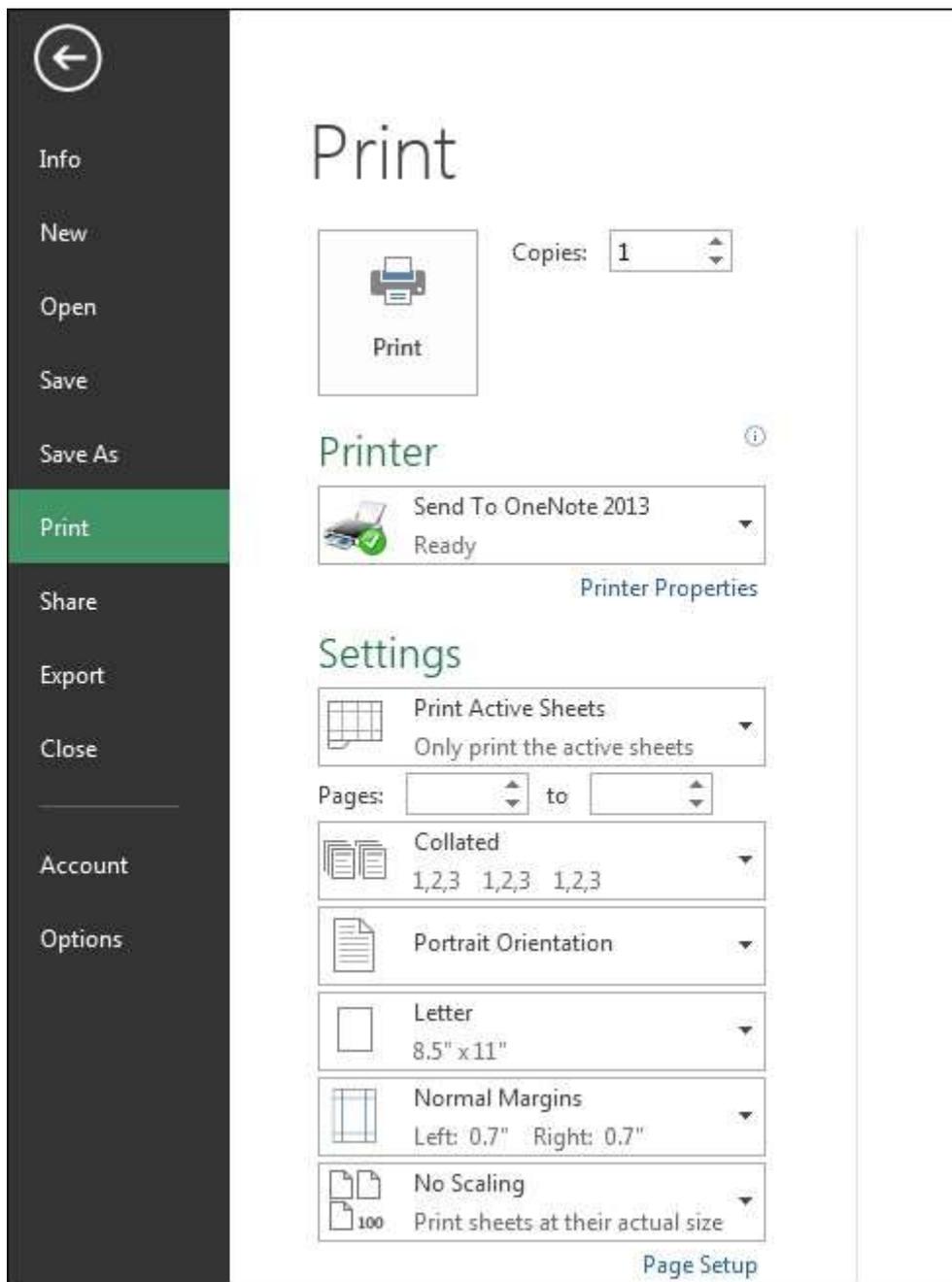
Path: - Click on File tab > Save

**e) Save as:** - We use this option to make another copy or save the file at another place. F12 is the shortcut key to save as the file or we can save the file following these steps: - Click on File tab > Save as and then choose the location.

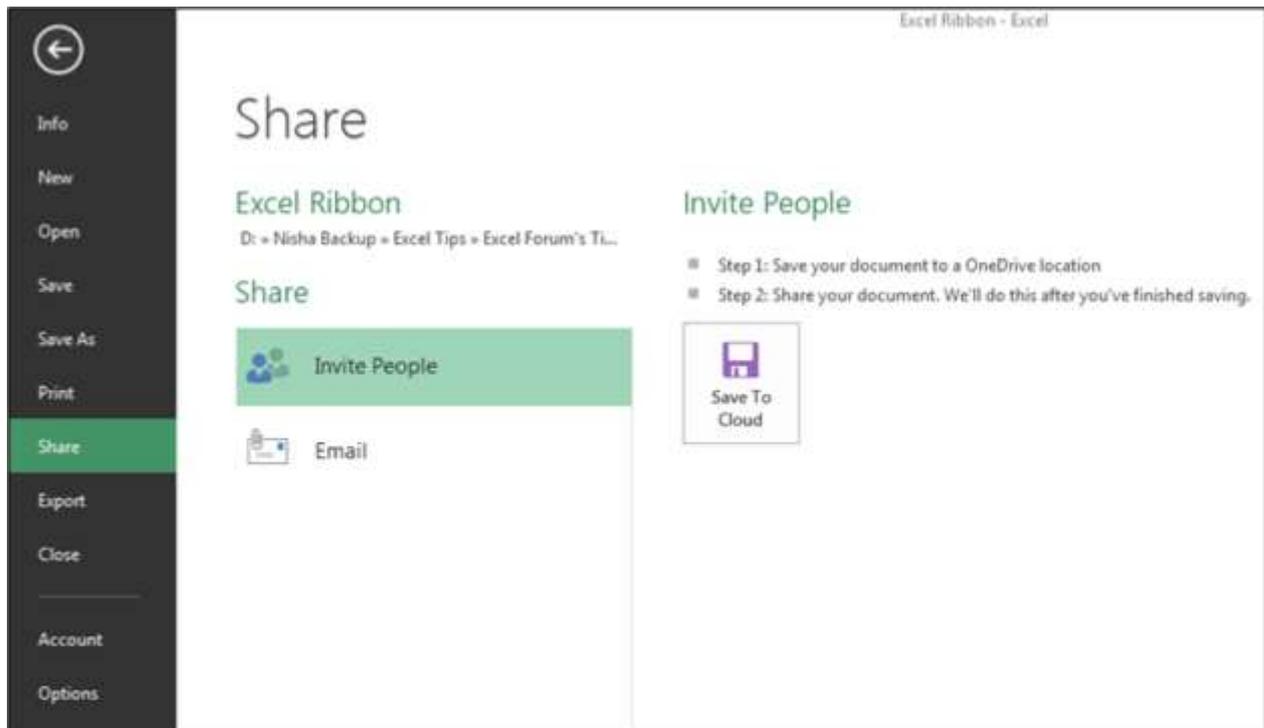


f) **Print:** - We use this option to print the current file. Ctrl+P is the shortcut key to print, or we can follow these steps: - File > Print and then we will have the page setup option.

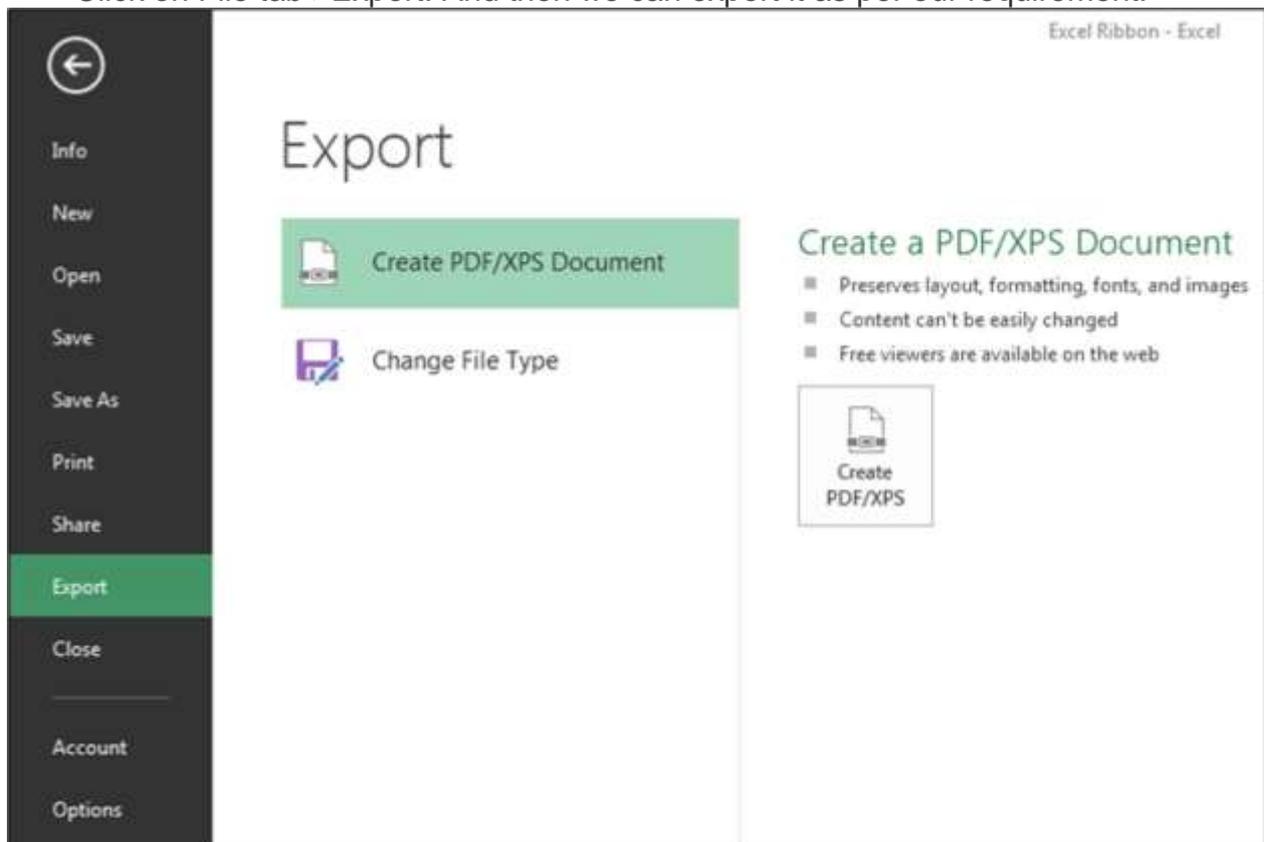
We can set the page according to our requirements.



- g) **Share:** - We use this option to share the file with multiple users and send it over email. To share the file we can follow the steps: - Click on File tab >Share.

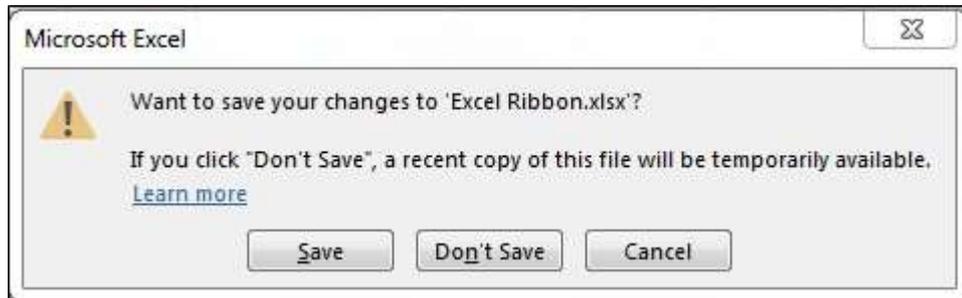


- h) **Export:** - We use this option to export the file in PDF or XPS document and we can change the file type as well. To Export the file, we can follow the steps: - Click on File tab >Export. And then we can export it as per our requirement.

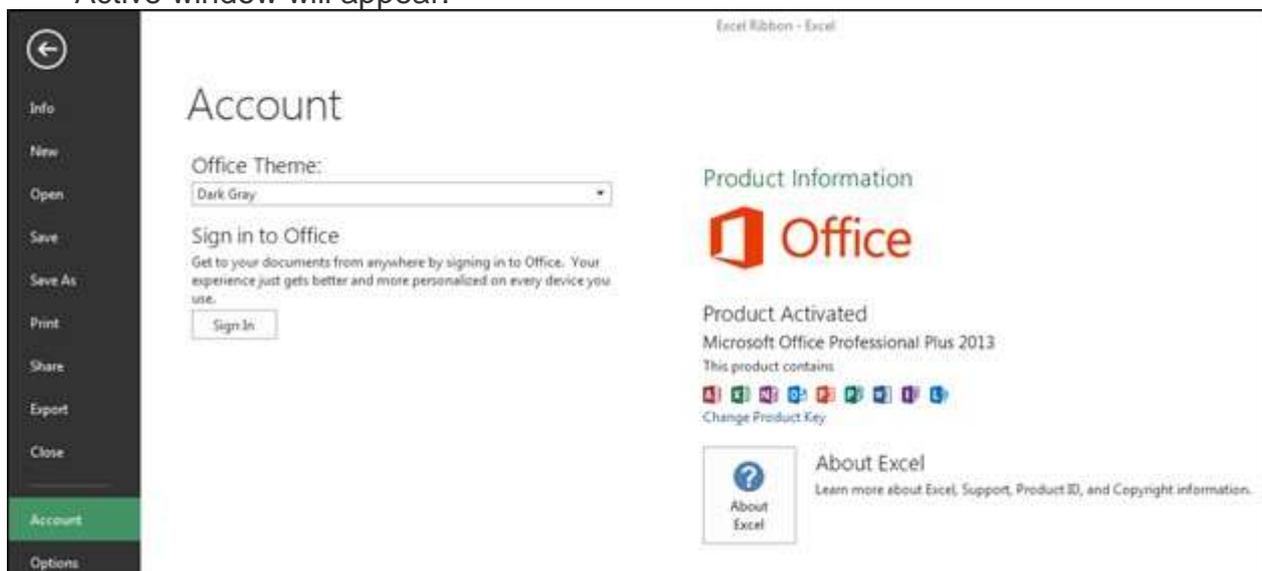


- i) **Close:** - We use this option to close the file. Ctrl+W is the shortcut key to close the workbook or we can follow the steps: - Click on File tab >Close, active file will be closed.

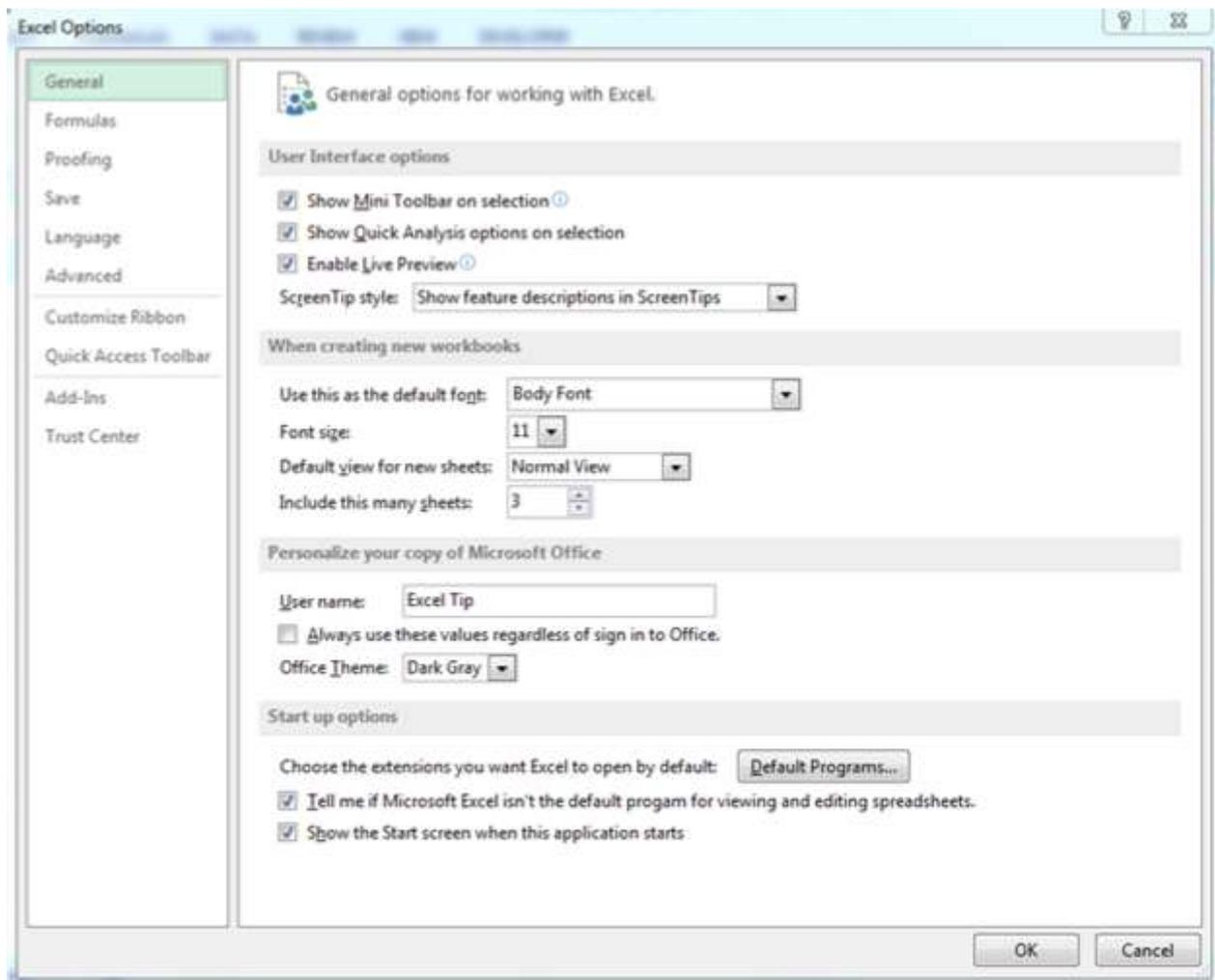
When we close the file, we get the confirmation message to save the file or not or cancel the command.



- j) **Account:** - We use this option to sign in to our office account and we can change office theme, too. We can follow the steps: - Click on File tab >Active, Active window will appear.



- k) **Options:** - It was in the tool menu of the previous versions of 2007 MS. We use this option to add extra and advanced features, like Developer tab, Power pivot, Analysis toolpak and many more. Also, we can change default settings, like font size, font style, number of sheets etc. In Excel options, we have 10 categories:-
- 1) General
  - 2) Formulas
  - 3) Proofing
  - 4) Save
  - 5) Language
  - 6) Advanced
  - 7) Customize Ribbon
  - 8) Quick Access toolbar
  - 9) Add Ins
  - 10) Trust Center



## HOME TAB

The Excel Home Tab is used to perform common commands such as bold, underline, copy, and paste. It is also used to apply formats to cells in a worksheet.

The table below describes the commands in each of the groups in the

### Home Tab 1. Clipboard

**Paste** To insert data that has been placed on the clipboard into a worksheet cell, click this button.

**Cut** This button is used to remove data from a worksheet cell and place it on the clipboard. Once the data has been placed on the clipboard, it can be inserted into another cell in the same worksheet or into a different worksheet.

**Copy** To copy data from a cell in a worksheet so that it can be placed into another area of the worksheet, click this button. The data that is copied is placed on the clipboard.

**Format Painter** Click this button to apply formatting from one cell in a worksheet to another cell or range of cells in the same worksheet. Clicking the button once will apply the formatting to only one other cell or range. Double-clicking makes it possible to apply the formatting to more than one cell or range of cells.

**Clipboard Task Pane Launcher** This button is used to open the Clipboard Task Pane. It is located in the bottom right corner of the Clipboard Group. The task pane shows the items that have been added to the Clipboard. Items can then be pasted into the worksheet.

## 2. Font

**Font Type** This button is used to change the style of the font within a cell or a range of cells in a worksheet. A list of different font styles will appear. Move the mouse pointer over the style to see a Live Preview.

**Font Size** To change the size of the font in a cell or range of cells in a worksheet, click this button. Move the mouse pointer over each of the sizes to see a Live Preview. A list of different font sizes will appear. Click the desired size to select it.

**Increase Font Size** This button is used to increase the font size within a cell or range of cells. Each time the button is clicked, the size of the font increases by one or two points.

**Decrease Font Size** Click this button to decrease the size of the font by one or two point increments. Each time the button is clicked, the size of the font will decrease one or two points.

**Bold** To apply bold formatting to a cell or range of cells, click this button.

**Italics** To change the style of the font to italics, click this button.

**Underline** Click this button to underline the text in a cell or range of cells.

**Border** This button is used to apply a border around a cell or a range of cells.

**Fill Color** To fill in the background color for a cell or range of cells, click this button.

**Font Color** Click this button to change the font for the text in a cell or a range of cells.

**Font Settings Dialog Box Launcher** To open the Format Cells dialog box with the Font Tab selected, click this button. The button is located in the bottom right corner of the Font Group.

### 3. Alignment

**Top Align** To vertically align the text in a cell at the top of the cell or range of cells, click this button.

**Middle Align** This button is used to vertically align the text in the middle of a cell.

**Bottom Align** Click this button to vertically align the text at the bottom of the cell.

**Orientation** To change the way text is displayed in a cell, click this button. The text will rotate in a different direction each time the button is clicked.

**Wrap Text** When working with text in a cell, clicking this button will allow long text entries to wrap within the cell. When a word won't fit within the width of the cell, it will move to the next line. The height of the cell will expand to accommodate the text.

**Align Left** To place text or numbers at the left margin of a cell, click this button. This is the default for all text items that are placed in a cell.

**Center** Click this button to center text or numbers within a cell.

**Align Right** This button is used to align text or number entries at the right margin of a cell. This is the default for all numbers that are placed in a cell.

**Decrease Indent** An indent creates a temporary left margin within a cell. To decrease this temporary margin, click this button.

**Increase Indent** An indent is used to set a temporary left margin within a cell. It usually is set in increments of .5 inches. To increase the temporary left margin, click this button.

**Merge and Center** To center text across a range of cells, click this button. The purpose of this feature is to allow for the placement of a heading across a range of columns in a worksheet.

**Alignment Settings Dialog Box Launcher** This button is used to open the Format Cells dialog box with the Alignment Tab selected. In this dialog box, it is possible to make changes to the horizontal and vertical cell alignment, as well as other alignment options. The button is located in the bottom right corner of the Alignment Group.

#### 4. Number Group

**Number Format** Click the list arrow for this option to display a list of number formats. Click the format that is to be applied to the number.

**Accounting Number Format** This format will display with a dollar sign and two decimal places. To select a different number format, such as the Euro symbol, click this button.

**Percent Style** To display the value in the cell or range of cells as a percentage, click this button.

**Comma Style** When this button is clicked, the values in the cell will display with a comma separator and two decimal places.

**Increase Decimal** To increase the number of decimal places that are displayed for a value, click this button.

**Decrease Decimal** Click this button to decrease the number of decimal places that are displayed for a value. Number

**Format Dialog Box Launcher** This button is used to open the Format Cells dialog box with the Numbers Tab selected. It can be found in the lower right corner of the Number Group. This dialog box is used to make changes to the format of the numbers in the selected cells in the worksheet.

#### 5. Styles Group

**Conditional Formatting** This button is used to select different formatting for cells based on particular criteria. It is possible to highlight interesting cells, emphasize unusual values, and visualize data using Data Bars, Color Scales, and Icon sets.

**Format as Table** Click this button to quickly format a selected range of cells as a table using a gallery of table styles.

**Cell Styles** This button is used to apply predefined formatting to a single cell. A gallery of styles will appear. Move the mouse pointer over the style to see a Live Preview of the style.

## 6. Cells Group

**Insert** To insert cells, sheet rows, or sheet columns, click this button. A list of possible options will appear. Click the option that is to be applied to the worksheet.

**Delete** This button is used to delete cells, sheet rows, or sheet columns from a worksheet. If the arrow is clicked, a list of available options will appear.

**Format** Click this button to change the row or column height and width, to organize worksheets in the workbook, to protect the document, or to hide a sheet in the workbook. A list of available options will appear when the arrow is clicked.

## 7. Editing Group

**Auto Sum** To display the sum of selected cells directly to the right or below the selection, click this button. Where the sum is displayed will depend on whether the selection range is a column or row.

**Fill** Click this button to continue a pattern of values in a selected range of cells.

**Clear** This button is used to clear the contents from the cells in the selected range. It can also be used to clear the formatting or comments associated with the cell selection. **S**

**ort and Filter** To sort the data in a selected range of cells, click this button. It is also possible to filter out specific data in the selected cells.

**Find and Select** Click this button to locate specific data in a worksheet or a range of cells. It is also possible to replace data within the worksheet or range of cells.

# INSERT TAB

The Insert Tab is used to insert objects such as charts, pictures, hyperlinks, headers and footers, and text boxes. The table below provides a list of the different groups and buttons that appear on this ribbon. Groups/Buttons Description

## 1. Tables Group

**Pivot Table** This button is used to insert a Pivot Table or Pivot Chart into a current worksheet or a new worksheet. Pivot tables are used to summarize and organize complicated data.

**Recommended Pivot Tables** Click this button to display a customized list of PivotTables that will best suit the data in an Excel table.

**Table** This button is used to insert a table into the worksheet. Tables make it easy to analyse and sort data.

## 2. Illustrations Group

**Picture** To insert a picture that has been stored on the computer, click this button. When the button is clicked, the Insert Picture dialog box will appear. This dialog box is used to locate the picture that is to be inserted into the worksheet.

**Online Pictures** To insert an image into the worksheet, click this button. Clip art images include movies, pictures, and sounds. When the button is clicked the Insert Picture window will display. Input the Search criteria and click the Search button. A gallery of images will appear.

**Shapes** Shapes are objects, such as rectangles, circles, lines, and arrows. To insert a shape into the worksheet, click this button. When the button is clicked, a gallery of different shapes is displayed.

**Smart Art** To insert objects such as organization charts, click this button. A gallery of different objects is displayed. This gallery is divided into categories, such as list, process, cycle, hierarchy, relationship, matrix, or pyramid.

**Screenshot** This feature can be used to insert a picture of any program that is not minimized to the taskbar. Click the Screen Clipping link to insert a picture of any part of the screen.

## 3. Apps Group

**Store** Select this option to find apps in the Office Store

## 4. Charts Group

**Recommended Charts** Select the data in a worksheet and then click this button to see a list of customized charts that Excel recommends for the selected data. **Column or Bar** Use this chart type to visually compare values across a few categories.

**Hierarchy** This chart is used to compare parts to a whole or when several columns of categories form a hierarchy.

**Waterfall or Stock** To visualize the impact of multiple data points as a running total these chart types. They are generally useful for visualizing data over time to see the starting points versus the current point and how those points were reached.

**Line or Area** These charts are used to show trends for categories or over a period of time such as days, months, or years.

**Statistic** To show statistical analysis of data, use this type of chart.

**Combo** This chart type is used to highlight different types of information. It can be used when range of data in the chart varies widely or when a wide range of mixed data is used.

**Pie or Doughnut** This button is used to insert a pie or doughnut chart into the worksheet. These chart types are used to display the contribution of each item to the total.

**Scatter or Bubble** These chart types are used to compare pairs of values.

**Surface or Radar** This type of chart is useful when optimum combinations between two sets of data need to be found.

**Pivot Chart in excel** is an in-built Programme tool in excel which helps you out to summarize selected rows and column of data in a spreadsheet. It's the visual representation of a pivot table or any tabular data which helps to summarize & analyse the datasets, patterns, and trends.

**Create Chart Dialog Box** Launcher to open the Insert Chart dialog box, click this button. The purpose of this dialog box is to provide additional chart types that can be used in Excel.

## **5. Power view group**

Import Data into Excel 2013, and Create a Data Model. Extend Data Model relationships using Excel 2013, Power Pivot, and DAX. Create Map-based Power View Reports. Incorporate Internet Data, and Set Power View Report Defaults.

Create Amazing Power View Reports.

## **6. Sparkline's Group**

**Line** This option is used to insert a line chart within a single cell. When the button is clicked a dialog box will appear asking for the range of data that is

to be plotted **Column** Use this option to insert a column chart within a single cell. When the button is clicked a dialog box will appear asking for the range of data that is to be plotted.

**Win/Loss** To insert a win/loss chart into a single cell, select this option. When the button is clicked a dialog box will appear asking for the range of data that is to be plotted.

## 7. Filter Group

**Slicer** A slicer is used to filter data interactively. This makes it faster and easier to filter Pivot Tables, Pivot Charts, and cube functions.

**Timeline** This feature is used to filter dates interactively. This makes it faster and easier to select time periods in order to filter Pivot Tables, Pivot Charts, and cube functions.

## 8. Links Group

**Hyperlink** To insert a link to another worksheet, a Web site, another program, a picture, or an e-mail address, click this button.

## 9. Text Group

**Text Box** This button is used to insert a textbox into the worksheet. Text boxes can be used to highlight an item in a chart or within the worksheet. Textboxes can be inserted and/or positioned anywhere within the worksheet page.

**Header and Footer** To insert a header and/or footer into a worksheet, click this button. The header or footer area of the worksheet will display when this button is clicked. The header or footer can be inserted directly into this area.

**Word Art** Click this button to insert a Word Art object into the worksheet or chart. A gallery of Word Art styles will appear. Select any of the styles to display the text box. The text box is where the text for the Word Art can be specified.

**Signature Line** Use this button to insert a signature line into the worksheet. The signature line specifies the individual who is to sign the file in order to access it.

**Object** To insert an embedded object, such as documents from other programs, click this button. A dialog box will display from which a list of options can be chosen. Click the Create from File option to insert a designated file.

## 10. Symbols Group

**Equation** This button is used to insert a mathematical equation into a document. The equation tools ribbon will appear when the button is clicked. This ribbon is used to create the equation. A list of common equations is also available. **Symbol** This button is used to insert a symbol, such as a copyright symbol, into the worksheet. When the button is clicked, a gallery of different symbols will appear.

# PAGE LAYOUT TAB

## 1. Theme

**Themes** - Drop-Down. Changes the overall look and feel of your workbook including colours, fonts and effects. The drop-down contains the commands: Built-in, More Themes on Microsoft Office Articles (Removed in 2010), Browse for Themes and Save Current Theme. The built-in themes are: Office, Facet, Integral, Ion, Boardroom, Organic, Retrospect, Slice, Wisp, Berlin and Frame. Tooltip indicates the current theme. The default theme is "Office".

**Colors** - Drop-Down. Displays a list of all the available colours and lets you change the colour component of the active theme. The drop-down contains the commands: Built-in and Customize Colors.

**Fonts** - Drop-Down. Displays a list of all the available fonts and lets you change the font component of the active theme. The drop-down contains the commands:

Built-in and Customize Fonts.

**Effects** - Drop-Down. Displays a list of all the available effects and lets you change the effect component of the active theme. The drop-down contains the commands: Office, Office 2007-2010, Subtle Solids, Banded Edges, Smokey Glass, Glow Edge, Grunge Texture, Frosted Glass, Top Shadow, Inset, Milk Glass, Riblet, Reflection, Extreme Shadow, Glossy.

## 2. Page Setup

You can quickly display the "Page Setup" dialog box, Page tab, by clicking on the launcher in the bottom right corner of this group.

**Margins** - Drop-Down. Lets you choose from one of your built-in margin settings or lets you customise your own. The drop-down contains the commands: Normal, Wide, Narrow and Custom Margins. The Custom Margins displays the "Page Setup" dialog box, Margins tab.

**Orientation** - Drop-Down. Lets you switch between Portrait and Landscape. **Size** - Drop-Down. Lets you select from all the different available paper sizes. The More Paper Sizes displays the "Page Setup" dialog box, Page tab.

**Print Area** - Drop-Down. This drop-down contains the commands: Set Print Area and Clear Print Area.

**Breaks** - Drop-Down. This drop-down contains the commands: Insert Page Break, Remove Page Break and Reset All Page Breaks.

**Background** - Displays the "Sheet Background" dialog box to let you add a background image to the back of a worksheet. This caption changes to 'Delete Background' if an image is assigned to the active worksheet.

**Print Titles** - Displays the "Page Setup" dialog box, Sheet tab. This allows you to enter rows or columns to repeat.

### 3. Scale to Fit

You can quickly display the "Page Setup" dialog box, Page tab, by clicking on the launcher in the bottom right corner of this group.

**Width** - Choice of 1 to 9 pages. The combo box contains Automatic, 1 to 9 pages and More Pages. The More Pages displays the "Page Setup" dialog box, Page tab.

Provides a shortcut to (Page Setup)(Page tab, Scaling).

**Height** - Choice of 1 to 9 pages. The combo box contains Automatic, 1 to 9 pages and More Pages. The More Pages displays the "Page Setup" dialog box, Page tab.

Provides a shortcut to (Page Setup)(Page tab, Scaling).

**Scale** - Changes the page scale in increments of 5%. Provides a shortcut to the (Page Setup)(Page tab, Scaling).

## 4. Sheet Options

You can quickly display the "Page Setup" dialog box, Sheet tab, by clicking on the launcher in the bottom right corner of this group.

**Sheet right to left** - In order to move one sheet to the right, hold down Ctrl, then press the PgDn key. To keep moving to the right, press the PgDn key again. In order to move back or one sheet to the left, hold down Ctrl, then press the PgUp key. To keep moving to the left, press the PgUp key again.

**Gridlines View** - Toggles the display of gridlines on the active worksheet. Provides a shortcut to (Page Setup)(Sheet tab, "Gridlines").

**Gridlines Print** - Toggles whether the gridlines are printed. Provides a shortcut to (Excel Options)(Advanced tab, "Show gridlines").

**Headings View** - Toggles the displays of row and column headers on the active worksheet. Provides a shortcut to (Excel Options)(Advanced tab, "Show row and column headers").

**Headings Print** - Toggles whether the row and column headers are printed. Provides a shortcut to (Page Setup)(Sheet tab, "Row and column headings").

## 5. Arrange

This whole group also appears on the Drawing Tools - Format Tab, Picture Tools - Format Tab.

**Bring Forward** - Button with Drop-Down. The button brings the selected object forward one level. The drop-down contains the commands: Bring to Front and Bring Forward. Bring to Front will bring the selected object in front of all the other objects.

**Send Backward** - Button with Drop-Down. The button brings the selected object back one level. The drop-down contains the commands: Send to Back and Send Backward. Send to Back will send the selected object to the back of all the other objects.

**Selection Pane** - Drop-Down. Displays the Selection Task Pane.

**Align** - Drop-Down. This drop-down contains the commands: Align Left, Align Center, Align Right, Align Top, Align Middle, Align Bottom, Distribute

Horizontally, Distribute Vertically, Snap to Grid, Snap to Shape, View Gridlines.

**Align** (Word extras) Align to Page, Align to Margin, Align Selected Objects, View Gridlines and Grid Settings.

**Align** (PowerPoint extras) Align to Slide, Align Selected Objects, View Gridlines and View Settings.

**Group** - Drop-Down. This drop-down contains the commands: Group, Regroup and Ungroup.

**Rotate** - Rotate or flip the selected object. Drop-Down. This drop-down contains the commands: Rotate Right 90, Rotate Left 90, Flip Vertical, Flip Horizontal and More Rotation Options.

## FORMULAS TAB

Compatibility Excel Formulas & Functions

Functions	Excel Formulas	Description
CONCATENATE	=CONCATENATE(text1,text2,...)	Joins several text items into one text item. Easier to use '&' instead of the function usually.
FLOOR	=FLOOR(number,significance)	Rounds a number down, toward zero
BINOMDIST	=BINOMDIST(number_s,trials,probability_s,cumulative)	Returns the individual term binomial distribution probability
CHIDIST	=CHIDIST(x,deg_freedom)	Returns the one-tailed probability of the chisquared distribution

CHIINV	=CHITEST(actual_range,expected_range)	Returns the test for independence
CONFIDENCE	=CONFIDENCE(alpha,standard_dev,size)	Returns the confidence interval for a population mean
FTEST	=FTEST(array1,array2)	
LOGINV	=LOGINV(probability,mean,standard_dev)	Returns the inverse of the lognormal cumulative distribution
LOGNORMDIST	=LOGNORMDIST(x,mean,standard_dev)	Returns the cumulative lognormal distribution
MODE	=MODE(number1,number2,...)	Returns the most common value in a data set
NORMDIST	=NORMDIST(x,mean,standard_dev,cumulative)	Returns the normal cumulative distribution
NORMINV	=NORMINV(probability,mean,standard_dev)	Returns the inverse of the normal cumulative distribution
NORMSDIST	=NORMSDIST(z)	Returns the standard normal cumulative distribution
NORMSINV	=NORMSINV(probability)	Returns the inverse of the standard normal cumulative distribution

PERCENTILE	=PERCENTILE(array, k)	Returns the k-th percentile of values in a range
PERCENTRANK K	=PERCENTRANK(array,x,significance)	Returns the percentage rank of a value in a data set
POISSON	=POISSON(x,mean,cumulative)	Returns the Poisson distribution
QUARTILE	=QUARTILE(array,quart)	Returns the quartile of a data set
RANK	=RANK(number,ref,order)	Returns the rank of a number in a list of numbers
STDEV	=STDEV(number1,number2,...)	Estimates standard deviation based on a sample

STDEVP	=STDEVP(number1, number2,...)	Calculates standard deviation based on the entire population
TDIST	=TDIST(x,deg_freedom,tails)	Returns the Student's t-distribution
TINV	=TINV(probability,deg_freedom)	Returns the inverse of the Student's t-distribution
VAR	=VAR(number1,number2,...)	Estimates variance based on a sample
VARP	=VARP(number1,number2,...)	Calculates variance based on the entire population
FINV	=FINV(probability,deg_freedom1,deg_freedom2)	Returns the inverse of the F probability distribution
FORECAST	=FORECAST(x,known_y's,known_x's)	Returns a value along a linear trend
BETADIST	=BETADIST(x,alpha,beta,A,B)	Returns the beta cumulative distribution function
BETAINV	=BETAINV(probability,alpha,beta,A,B)	Returns the inverse of the cumulative distribution function for a specified beta distribution
COVAR	=COVAR(array1,array2)	Returns covariance, the average of the products of paired deviations
CRITBINOM	=CRITBINOM(trials,probability_s,alpha)	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value
EXPONDIST	=EXPONDIST(x,lambda,cumulative)	Returns the exponential distribution

POISSON	=POISSON(x,mean,cumulative)	Returns the Poisson distribution
FDIST	=FDIST(x,deg_freedom1,deg_freedom2)	Returns the F probability distribution
GAMMADIST	=GAMMADIST(x,alpha,beta,cumulative)	Returns the gamma distribution
GAMMAINV	=GAMMAINV(probability,alpha,beta)	Returns the inverse of the gamma cumulative distribution
HYPGEOMDIST	=HYPGEOMDIST(sample_s,number_sample,population_s,number_pop)	Returns the hypergeometric distribution
NEGBINOMDIST	=NEGBINOMDIST(number_f,number_s,probability_s)	Returns the negative binomial distribution
TTEST	=TTEST(array1,array2,tails,type)	Returns the probability associated with a Student's t-test
WEIBULL	=WEIBULL(x,alpha,beta,cumulative)	Calculates variance based on the entire population, including numbers, text, and logical values
ZTEST	=ZTEST(array,x,sigma)	Returns the one-tailed probability-value of a z-test

## Cube Excel Formulas & Functions

Functions	Excel Formulas	Description
CUBEKPIMEMBER	=CUBEKPI MEMBER(connection, kpi_name, kpi_property,caption)	Returns a key performance indicator (KPI) name, property, and measure, and displays the name and property in the cell. A KPI is a quantifiable measurement, such as monthly gross profit or quarterly employee turnover, used to monitor an organization's performance.
CUBEMEMBER	= CUBEMEMBER(connection,member_expression,caption)	RReturns a member or tuple in a cube hierarchy. Use to validate that the member or tuple exists in the cube.
CUBEMEMBERPROPERTY	= CUBEMEMBERPROPERTY(connection,member_expression,property)	Returns the value of a member property in the cube. Use to validate that a member name exists within the cube and to return the specified property for this member.
CUBERANKEDMEMBER	= CUBERANKEDMEMBER(connection,set_expression,rank,caption)	Returns the nth, or ranked, member in a set. Use to return one or more elements in a set, such as the top sales performer or top 10 students.
CUBESET	= CUBESET (connection ,set_expression,caption,sort_order,sort_by)	Defines a calculated set of members or tuples by sending a set expression to the cube on the server, which creates the set, and then returns that set to Microsoft Office Excel.

CUBESETCOUNT	= CUBESET COUNT(set )	Returns the number of items in a set.
CUBEVALUE	= CUBEVAL UE(connec tion, memb er_express ion1,...)	Returns an aggregated value from a cube

## Database Excel Formulas & Functions

Functions	Excel Formulas	Description
DGET	=DGET(database,field,criteria)	Extracts from a database a single record that matches the specified criteria
DSUM	=DSUM(database,field,criteria)	Adds the numbers in the field column of records in the database that match the criteria
DAVERAGE	=DAVERAGE(database,field,criteria)	Returns the average of selected database entries
DCOUNT	=DCOUNT(database,field,criteria)	Counts the cells that contain numbers in a database
DCOUNTA	=DCOUNTA(database,field,criteria)	Counts nonblank cells in a database
DMAX	=DMAX(database,field,criteria)	Returns the maximum value from selected database entries
DMIN	=DMIN(database,field,criteria)	Returns the minimum value from selected database entries

DPRODUCT	=DPRODUCT(database,field,criteria)	Multiplies the values in a particular field of records that match the criteria in a database
DSTDEV	=DSTDEV(database,field,criteria)	Estimates the standard deviation based on a sample of selected database entries
DSTDEVP	=DSTDEVP(database,field,criteria)	Calculates the standard deviation based on the entire population of selected database entries
DVAR	=DVAR(database,field,criteria)	Estimates variance based on a sample from selected database entries
DVARP	=DVARP(database,field,criteria)	Calculates variance based on the entire population of selected database entries

### Date & Time Excel Formulas & Functions

Functions	Excel Formulas	Description
DATE	= DATE(year,month,day )	Returns the serial number of a particular date
DATEVALUE	=DATEVALUE(date_text)	Converts a date in the form of text to a serial number
DAY	=DAY(serial_number)	Converts a serial number to a day of the month
HOUR	=HOUR(serial_number)	Converts a serial number to an hour
MINUTE	= MINUTE(serial_number)	Converts a serial number to a minute

MONTH	= MONTH(serial_number)	Converts a serial number to a month
NOW	=NOW()	Returns the serial number of the current date and time
SECOND	= SECOND(serial_number)	Converts a serial number to a second
TIME	= TIME(hour,minute,second)	Returns the serial number of a particular time
TIMEVALUE	=TIMEVALUE(time_text)	Converts a time in the form of text to a serial number
TODAY	=TODAY()	Returns the serial number of today's date
YEAR	=YEAR(serial_number)	Converts a serial number to a year
DAYS360	=DAYS360(start_date,end_date,method)	Calculates the number of days between two dates based on a 360-day year
EDATE	= EDATE(start_date,months)	Returns the serial number of the date that is the indicated number of months before or after the start date
EOMONTH	=EOMONTH(start_date,months)	Returns the serial number of the last day of the month before or after a specified number of months
NETWORKDAYS	= NETWORKDAYS(start_date,end_date,[holidays])	Returns the number of whole workdays between two dates

NETWORKDAYS.INTL	=NETWORKDAYS.INTL(start_date,end_date,[weekend],[holidays])	Returns the number of whole workdays between two dates using parameters to indicate which and how many days are weekend days
WEEKDAY	=WEEKDAY(serial_number,[return_type])	Converts a serial number to a day of the week
WEEKNUM	=WEEKNUM(serial_number,[return_type])	Converts a serial number to a number representing where the week falls numerically with a year
WORKDAY	=WORKDAY(start_date, days, [holidays])	Returns the serial number of the date before or after a specified number of workdays
WORKDAY.INTL	=WORKDAY.INTL(start_date,days,weekend,holidays)	Returns the serial number of the date before or after a specified number of workdays using parameters to indicate which and how many days are weekend days
YEARFRAC	=YEARFRAC(start_date, end_date,basis)	Returns the year fraction representing the number of whole days between start_date and end_date

## Information Excel Formulas & Functions

Functions	Excel Formulas	Description
CELL	=CELL(info_type, [reference])	Returns information about the formatting, location, or contents of a cell
ISBLANK	=ISBLANK(value)	Returns TRUE if the value is blank
ISERROR	=ISERROR(value)	Returns TRUE if the value is any error value

ISNONTEXT	=ISNONTEXT(value)	Returns TRUE if the value is not text
ISNUMBER	=ISNUMBER(value)	Returns TRUE if the value is a number
ISTEXT	=ISTEXT(value)	Returns TRUE if the value is text
ERROR.TYPE	= ERROR.TYPE(error_val )	Returns a number corresponding to an error type
INFO	=INFO(type_text)	Returns information about the current operating environment
ISERR	=ISERR(value)	Returns TRUE if the value is any error value except #N/A
ISEVEN	=ISEVEN(number)	Returns TRUE if the number is even
ISLOGICAL	=ISLOGICAL(value)	Returns TRUE if the value is a logical value
ISNA	=ISNA(value)	Returns TRUE if the value is the #N/A error value
ISODD	=ISODD(number)	Returns TRUE if the number is odd
ISREF	=ISREF(value)	Returns TRUE if the value is a reference
N	=N(value)	Returns a value converted to a number
NA	=NA()	Returns the error value #N/A
TYPE	=TYPE(value)	Returns a number indicating the data type of a value

## Logical Excel Formulas & Functions

Functions	Excel Formulas	Description
AND	= AND(logical1,logical2, ...)	Returns TRUE if all of its arguments are TRUE
FALSE	=FALSE	Returns the logical value FALSE
IF	=IF(logical_test, [value_if_true], [value_if_false])	Specifies a logical test to perform
IFERROR	=IFERROR(value, value_if_error)	Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula
NOT	=NOT(logical)	Reverses the logic of its argument
OR	= OR(logical1,logical2,... )	Returns TRUE if any argument is TRUE
TRUE	=TRUE	Returns the logical value TRUE
LOOKUP	= LOOKUP(lookup_value, array)– 2 types	Looks up values in a vector or array

## Lookup & Reference Excel Formulas & Functions

Functions	Excel Formulas	Description
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ADDRESS	=ADDRESS(row_num, column_num, [abs_num], [a1], [sheet_text])	Returns a reference as text to a single cell in a worksheet
COLUMN	=COLUMN([reference])	Returns the column number of a reference
COLUMNS	=COLUMNS(array)	Returns the number of columns in a reference
HLOOKUP	=HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])	Looks in the top row of an array and returns the value of the indicated cell
INDEX	=INDEX(array, row_num, [column_num])– 2 types	Uses an index to choose a value from a reference or array
INDIRECT	=INDIRECT(ref_text, a1)	Returns a reference indicated by a text value
MATCH	=MATCH(lookup_value, lookup_array, match_type)	Looks up values in a reference or array
OFFSET	=OFFSET(reference, rows, cols, height, width)	Returns a reference offset from a given reference
ROW	=ROW([reference])	Returns the row number of a reference
ROWS	=ROWS(array)	Returns the number of rows in a reference

VLOOKUP	=VLOOKUP(lookup_value,table_array,col_index_num,[range_lookup])	Looks in the first column of an array and moves across the row to return the value of a cell
CHOOSE	=CHOOSE(index_num,value1,value2,...)	Chooses a value from a list of values
GETPIVOTDATA	=GETPIVOTDATA(data_field,pivot_table,field,item,...)	Returns data stored in a PivotTable report
HYPERLINK	=HYPERLINK(link_location,friendly_name)	Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet
TRANSPOSE	=TRANSPOSE(array)	Returns the transpose of an array
AREAS	=AREAS(reference)	Returns the number of areas in a reference
RTD	=RTD(progID,server,topic1,topic2,...)	Retrieves real-time data from a program that supports COM automation (Automation: A way to work with an application's objects from another application or development tool. Formerly called OLE Automation, Automation is an industry standard and a feature of the Component Object Model (COM).)

## Text Excel Formulas & Functions

Functions	Excel Formulas	Description
EXACT	=EXACT(text1,text2)	Checks to see if two text values are identical

LOWER	=LOWER(text)	Converts text to lowercase
PROPER	=PROPER(text)	Capitalizes the first letter in each word of a text value
TRIM	=TRIM(text)	Removes spaces from text
UPPER	=UPPER(text)	Converts text to uppercase
CHAR	=CHAR(number)	Returns the character specified by the code number
CLEAN	=CLEAN(text)	Removes all nonprintable characters from text
CODE	=CODE(text)	Returns a numeric code for the first character in a text string
DOLLAR	=DOLLAR(number,decimals)	Converts a number to text, using the \$ (dollar) currency format
FIXED	=FIXED(number,decimals,no_commas)	Formats a number as text with a fixed number of decimals
PHONETIC	=PHONETIC(reference)	Extracts the phonetic (furigana) characters from a text string
REPT	=REPT(text,number_times)	Repeats text a given number of times

SUBSTITUTE	=SUBSTITUTE(text,old_text,new_text,instance_num)	Substitutes new text for old text in a text string
T	=T(value)	Converts its arguments to text
VALUE	=VALUE(text)	Converts a text argument to a number
ASC	=ASC(text)	Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters
BAHTTEXT	=BAHTTEXT(number)	Converts a number to text, using the ฿ (baht) currency format

### Most Common Excel Formulas & Functions

Functions	Excel Formulas	Description
FIND	=FIND(find_text,within_text,start_num)	Finds one text value within another (case-sensitive)
LEFT	=LEFT(text,num_chars)	Returns the leftmost characters from a text value
LEN	=LEN(text)	Returns the number of characters in a text string
MID	=MID(text,start_num,num_chars)	Returns a specific number of characters from a text string starting at the position you specify
REPLACE	=REPLACE(old_text,start_num,num_chars,new_text)	Replaces characters within text

RIGHT	=RIGHT(text,num_characters)	Returns the rightmost characters from a text value
SEARCH	=SEARCH(find_text,within_text,start_num)	Finds one text value within another (not casesensitive)

## Engineering Excel Formulas & Functions

Functions	Excel Formulas	Description
CONVERT	=CONVERT(number,from_unit,to_unit)	Converts a number from one measurement system to another
DELTA	=DELTA(number1,number2)	Tests whether two values are equal
ERF	=ERF(lower_limit,upper_limit)	Returns the error function
ERFC	=ERFC(x)	Returns the complementary error function
GESTEP	=GESTEP(number,step)	Tests whether a number is greater than a threshold value
ERF.PRECISE	=ERF.PRECISE(X)	Returns the error function
ERFC.PRECISE	=ERFC.PRECISE(X)	Returns the complementary ERF function integrated between x and infinity
BESSELI	=BESSELI(x,n)	Returns the modified Bessel function $I_n(x)$

BESSELJ	=BESSELJ(x,n)	Returns the Bessel function $J_n(x)$
BESSELK	=BESSELK(x,n)	Returns the modified Bessel function $K_n(x)$
BESSELY	=BESSELY(x,n)	Returns the Bessel function $Y_n(x)$
BIN2DEC	=BIN2DEC(number)	Converts a binary number to decimal
BIN2HEX	=BIN2HEX(number,places)	Converts a binary number to hexadecimal
DEC2OCT	=DEC2OCT(number,places)	Converts a decimal number to octal
HEX2BIN	=HEX2BIN(number,places)	Converts a hexadecimal number to binary
HEX2DEC	=HEX2DEC(number)	Converts a hexadecimal number to decimal
HEX2OCT	=HEX2OCT(number,places)	Converts a hexadecimal number to octal
IMABS	=IMABS(inumber)	Returns the absolute value (modulus) of a complex number
IMAGINARY	=IMAGINARY(inumber)	Returns the imaginary coefficient of a complex number
IMARGUMENT	=IMARGUMENT(inumber)	Returns the argument theta, an angle expressed in radians

IMCONJUGATE	=IMCONJUGATE(inumber)	Returns the complex conjugate of a complex number
IMCOS	=IMCOS(inumber)	Returns the cosine of a complex number
IMDIV	=IMDIV(inumber1,inumber2)	Returns the quotient of two complex numbers
IMEXP	=IMEXP(inumber)	Returns the exponential of a complex number
IMLN	=IMLN(inumber)	Returns the natural logarithm of a complex number
IMLOG10	=IMLOG10(inumber)	Returns the base-10 logarithm of a complex number
IMLOG2	=IMLOG2(inumber)	Returns the base-2 logarithm of a complex number
IMPOWER	=IMPOWER(inumber, number)	Returns a complex number raised to an integer power
IMPRODUCT	=IMPRODUCT(inumber1,inumber2,...)	Returns the product of complex numbers
IMREAL	=IMREAL(inumber)	Returns the real coefficient of a complex number
IMSIN	=IMSIN(inumber)	Returns the sine of a complex number
IMSQRT	=IMSQRT(inumber)	Returns the square root of a complex number
IMSUB	=IMSUB(inumber1,inumber2)	Returns the difference between two complex numbers

IMSUM	=IMSUM(inumber1,inumber2,...)	Returns the sum of complex numbers
OCT2BIN	=OCT2BIN(number,places)	Converts an octal number to binary
OCT2DEC	=OCT2DEC(number)	Converts an octal number to decimal
OCT2HEX	=OCT2HEX(number,places)	Converts an octal number to hexadecimal

### Financial Excel Formulas & Functions

Functions	Excel Formulas	Description
AMORDEGRC	=AMORDEGRC(cost,date_purchased,first_period,salvage,period,rate,basis)	Returns the depreciation for each accounting period by using a depreciation coefficient
AMORLINC	=AMORLINC(cost,date_purchased,first_period,salvage,period,rate,basis)	Returns the depreciation for each accounting period
DOLLARDE	=DOLLARDE(fractional_dollar,fraction)	Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number
DOLLARFR	=DOLLARFR(decimal_dollar,fraction)	Converts a dollar price, expressed as a decimal number, into a dollar price, expressed as a fraction
SLN	=SLN(cost,salvage,life)	Returns the straight-line depreciation of an asset for one period

SYD	=SYD(cost,salvage,life,per)	Returns the sum-of-years' digits depreciation of an asset for a specified period
DB	=DB(cost,salvage,life,period,month)	Returns the depreciation of an asset for a specified period by using the fixed-declining balance method
DDB	=DDB(cost,salvage,life,period,factor)	Returns the depreciation of an asset for a specified period by using the double-declining balance method or some other method that you specify
EFFECT	=EFFECT(nominal_rate,npery)	Returns the effective annual interest rate
FV	=FV(rate,nper,pmt,pv,type)	Returns the future value of an investment
IPMT	=IPMT(rate,per,nper,pv,fv,type)	Returns the interest payment for an investment for a given period
IRR	=IRR(values,guess)	Returns the internal rate of return for a series of cash flows
MIRR	=MIRR(values,finance_rate,reinvest_rate)	Returns the internal rate of return where positive and negative cash flows are financed at different rates
NOMINAL	=NOMINAL(effect_rate,npery)	Returns the annual nominal interest rate
NPER	=NPER(rate,pmt,pv,fv,type)	Returns the number of periods for an investment

NPV	=NPV(rate,value1,value2,...)	Returns the net present value of an investment based on a series of periodic cash flows and a discount rate
PV	=PV(rate,nper,pmt,fv,type)	Returns the present value of an investment
RATE	=RATE(nper,pmt,pv,fv,type,guess)	Returns the interest rate per period of an annuity
YIELD	=YIELD(settlement,maturity,rate,pr,redemption,frequency,basis)	Returns the yield on a security that pays periodic interest
ACCRINT	=ACCRINT(issue,first_interest,settlement,rate,par,frequency,basis,calc_method)	Returns the accrued interest for a security that pays periodic interest
ACCRINTM	=ACCRINTM(issue,settlement,rate,par,basis)	Returns the accrued interest for a security that pays interest at maturity
COUPDAYBS	=COUPDAYBS(settlement,maturity,frequency,basis)	Returns the number of days from the beginning of the coupon period to the settlement date
COUPDAYS	=COUPDAYS(settlement,maturity,frequency,basis)	Returns the number of days in the coupon period that contains the settlement date
COUPDAYSNC	=COUPDAYSNC(settlement,maturity,frequency,basis)	Returns the number of days from the settlement date to the next coupon date

COUPNCD	=COUPNCD(settlement,maturity,frequency,basis)	Returns the next coupon date after the settlement date
COUPNUM	=COUPNUM(settlement,maturity,frequency,basis)	Returns the number of coupons payable between the settlement date and maturity date
COUPPCD	=COUPPCD(settlement,maturity,frequency,basis)	Returns the previous coupon date before the settlement date
CUMIPMT	=CUMIPMT(rate,nper,pv,start_period,end_period,type)	Returns the cumulative interest paid between two periods
CUMPRINC	=CUMPRINC(rate,nper,pv,start_period,end_period,type)	Returns the cumulative principal paid on a loan between two periods
DISC	=DISC(settlement,maturity,pr,redemption,basis)	Returns the discount rate for a security
DURATION	=DURATION(settlement,maturity,coupon,yld,frequency,basis)	Returns the annual duration of a security with periodic interest payments
FVSCHEDULE	=FVSCHEDULE(principal,schedule)	Returns the future value of an initial principal after applying a series of compound interest rates
INTRATE	=INTRATE(settlement,maturity,investment,redemption,basis)	Returns the interest rate for a fully invested security

ISPMT	=ISPMT(rate,per,nper,pv)	Calculates the interest paid during a specific period of an investment
MDURATION	=MDURATION(settlement,maturity,coupon,yld,frequency,basis)	Returns the Macauley modified duration for a security with an assumed par value of \$100
ODDFPRICE	=ODDFPRICE(settlement,maturity,issue,first_coupon,rate,yld,redemption,frequency,basis)	Returns the price per \$100 face value of a security with an odd first period
ODDFYIELD	=ODDFYIELD(settlement,maturity,issue,first_coupon,rate,pr,redemption,frequency,basis)	Returns the yield of a security with an odd first period
ODDLPRICE	=ODDLPRICE(settlement,maturity,last_interest,rate,yld,redemption,frequency,basis)	Returns the price per \$100 face value of a security with an odd last period
ODDLYIELD	=ODDLYIELD(settlement,maturity,last_interest,rate,pr,redemption,frequency,basis)	Returns the yield of a security with an odd last period
PMT	=PMT(rate,nper,pv,fv,type)	Returns the periodic payment for an annuity
PPMT	=PPMT(rate,per,nper,pv,fv,type)	Returns the payment on the principal for an investment for a given period

PRICE	=PRICE(settlement,maturity,rate,yld,redemption,frequency,basis)	Returns the price per \$100 face value of a security that pays periodic interest
PRICEDISC	=PRICEDISC(settlement,maturity,discount,redemption,basis)	Returns the price per \$100 face value of a discounted security
PRICEMAT	=PRICEMAT(settlement,maturity,issue,rate,yld,basis)	Returns the price per \$100 face value of a security that pays interest at maturity
RECEIVED	=RECEIVED(settlement,maturity,investment,discount,basis)	Returns the amount received at maturity for a fully invested security
TBILLEQ	=TBILLEQ(settlement,maturity,discount)	Returns the bond-equivalent yield for a Treasury bill
TBILLPRICE	=TBILLPRICE(settlement,maturity,discount)	Returns the price per \$100 face value for a Treasury bill
TBILLYIELD	=TBILLYIELD(settlement,maturity,pr)	Returns the yield for a Treasury bill
VDB	=VDB(cost,salvage,life,start_period,end_period,factor,no_switch)	Returns the depreciation of an asset for a specified or partial period by using a declining balance method
XIRR	=XIRR(values,dates,guess)	Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic
XNPV	=XNPV(rate,values,dates)	Returns the net present value for a schedule of cash flows that is not necessarily periodic

YIELDDISC	=YIELDDISC(settlement,maturity,pr,redemption,basis)	Returns the annual yield for a discounted security; for example, a Treasury bill
YIELDMAT	=YIELDMAT(settlement,maturity,issue,rate,pr,basis)	Returns the annual yield of a security that pays interest at maturity

## Math and Trigonometry Excel Formulas & Functions

Functions	Excel Formulas	Description
ABS	=ABS(number)	Returns the absolute value of a number
PRODUCT	=PRODUCT(number1, number2,...)	Multiplies its arguments
RAND	=RAND()	Returns a random number between 0 and 1
RANDBETWEEN	=RANDBETWEEN(bottom,top)	Returns a random number between the numbers you specify
ROUND	=ROUND(number,num_digits)	Rounds a number to a specified number of digits
ROUNDDOWN	=ROUNDDOWN(number,num_digits)	Rounds a number down, toward zero
ROUNDUP	=ROUNDUP(number,num_digits)	Rounds a number up, away from zero
SUBTOTAL	=SUBTOTAL(function_num,ref1,...)	Returns a subtotal in a list or database

SUM	=SUM(number1,number2,...)	Adds its arguments
SUMIF	=SUMIF(range,criteria,[sum_range])	Adds the cells specified by a given criteria
SUMIFS	=SUMIFS(sum_range,criteria_range,criteria,...)	Adds the cells in a range that meet multiple criteria
SUMPRODUCT	=SUMPRODUCT(array1,array2,[array3],...)	Returns the sum of the products of corresponding array components
CEILING	=CEILING(number,significance)	Rounds a number to the nearest integer or to the nearest multiple of significance
CEILING.PRECISE	=CEILING.PRECISE(number,significance)	Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up.
EVEN	=EVEN(number)	Rounds a number up to the nearest even integer
EXP	=EXP(number)	Returns e raised to the power of a given number
FACT	=FACT(number)	Returns the factorial of a number
FLOOR.PRECISE	=FLOOR.PRECISE(number,significance)	Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up.
GCD	=GCD(number1,number2,...)	Returns the greatest common divisor

INT	=INT(number)	Rounds a number down to the nearest integer
ISO.CEILING	=ISO.CEILING(number, significance)	Returns a number that is rounded up to the nearest integer or to the nearest multiple of significance
LCM	=LCM(number1, number2,...)	Returns the least common multiple
MOD	=MOD(number, divisor)	Returns the remainder from division
MROUND	=MROUND(number, multiple)	Returns a number rounded to the desired multiple
ODD	=ODD(number)	Rounds a number up to the nearest odd integer
PI	=PI()	Returns the value of pi
POWER	=POWER(number, power)	Returns the result of a number raised to a power
QUOTIENT	=QUOTIENT(numerator, denominator)	Returns the integer portion of a division
SERIESSUM	=SERIESSUM(x, n, m, coefficients)	Returns the sum of a power series based on the formula
SIGN	=SIGN(number)	Returns the sign of a number
SQRT	=SQRT(number)	Returns a positive square root

SUMSQ	=SUMSQ(number1,number2,...)	Returns the sum of the squares of the arguments
TRUNC	=TRUNC(number,number_digits)	Truncates a number to an integer
AGGREGATE	=AGGREGATE(function_num,options,array,k)	Returns an aggregate in a list or database
COMBIN	=COMBIN(number,number_chosen)	Returns the number of combinations for a given number of objects
COS	=COS(number)	Returns the cosine of a number
COSH	=COSH(number)	Returns the hyperbolic cosine of a number
FACTDOUBLE	=FACTDOUBLE(number)	Returns the double factorial of a number
LN	=LN(number)	Returns the natural logarithm of a number
LOG	=LOG(number,base)	Returns the logarithm of a number to a specified base
LOG10	=LOG10(number)	Returns the base-10 logarithm of a number
MULTINOMIAL	=MULTINOMIAL(number1,number2,...)	Returns the multinomial of a set of numbers
SIN	=SIN(number)	Returns the sine of the given angle

SINH	=SINH(number)	Returns the hyperbolic sine of a number
SUMX2MY2	=SUMX2MY2(array_x, array_y)	Returns the sum of the difference of squares of corresponding values in two arrays
SUMX2PY2	=SUMX2PY2(array_x, array_y)	Returns the sum of the sum of squares of corresponding values in two arrays
SUMXMY2	=SUMXMY2(array_x, array_y)	Returns the sum of squares of differences of corresponding values in two arrays
TAN	=TAN(number)	Returns the tangent of a number
TANH	=TANH(number)	Returns the hyperbolic tangent of a number
ACOS	=ACOS(number)	Returns the arccosine of a number
ACOSH	=ACOSH(number)	Returns the inverse hyperbolic cosine of a number
ASIN	=ASIN(number)	Returns the arcsine of a number
ASINH	=ASINH(number)	Returns the inverse hyperbolic sine of a number
ATAN	=ATAN(number)	Returns the arctangent of a number
ATAN2	=ATAN2(x_num, y_num)	Returns the arctangent from x- and y-coordinates
ATANH	=ATANH(number)	Returns the inverse hyperbolic tangent of a number

DEGREES	=DEGREES(angle)	Converts radians to degrees
MDETERM	=MDETERM(array)	Returns the matrix determinant of an array
MINVERSE	=MINVERSE(array)	Returns the matrix inverse of an array
MMULT	=MMULT(array1,array 2)	Returns the matrix product of two arrays
RADIANS	=RADIANS(angle)	Converts degrees to radians
ROMAN	=ROMAN(number,form)	Converts an arabic numeral to roman, as text
SQRTPI	=SQRTPI(number)	Returns the square root of (number * pi)

### Statistical Excel Formulas & Functions

Functions	Excel Formulas	Description
AVERAGE	=AVERAGE(number1, number2,...)	Returns the average of its arguments
AVERAGEIF	=AVERAGEIF(range,criteria,[average_range])	Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria
COUNT	=COUNT(value1,value 2,...)	Counts how many numbers are in the list of arguments
COUNTA	=COUNTA(value1,value 2,...)	Counts how many values are in the list of arguments

COUNTBLANK	=COUNTBLANK(range)	Counts the number of blank cells within a range
COUNTIF	=COUNTIF(range,criteria)	Counts the number of cells within a range that meet the given criteria
COUNTIFS	=COUNTIFS(criteria_range,criteria,...)	Counts the number of cells within a range that meet multiple criteria
MAX	=MAX(number1,number2,...)	Returns the maximum value in a list of arguments
MEDIAN	=MEDIAN(number1,number2,...)	Returns the median of the given numbers
MIN	=MIN(number1,number2,...)	Returns the minimum value in a list of arguments
TEXT	=TEXT(value,format_text)	Formats a number and converts it to text
AVERAGEA	=AVERAGEA(value1,value2,...)	Returns the average of its arguments, including numbers, text, and logical values
AVERAGEIFS	=AVERAGEIFS(average_range,criteria_range,criteria,...)	Returns the average (arithmetic mean) of all cells that meet multiple criteria
GEOMEAN	=GEOMEAN(number1,number2,...)	Returns the geometric mean
INTERCEPT	=INTERCEPT(known_y's,known_x's)	Returns the intercept of the linear regression line

LARGE	=LARGE(array,k)	Returns the k-th largest value in a data set
LINEST	=LINEST(known_y's,known_x's,const,stats)	Returns the parameters of a linear trend
LOGEST	=LOGEST(known_y's,known_x's,const,stats)	Returns the parameters of an exponential trend
MAXA	=MAXA(value1,value2,...)	Returns the maximum value in a list of arguments, including numbers, text, and logical values
MINA	=MINA(value1,value2,...)	Returns the smallest value in a list of arguments, including numbers, text, and logical values
MODE.MULT	=MODE.MULT(number1,number2,...)	Returns a vertical array of the most frequently occurring, or repetitive values in an array or range of data
MODE.SNGL	=MODE.SNGL(number1,number2,...)	Returns the most common value in a data set
PROB	=PROB(x_range,prob_range,lower_limit,upper_limit)	Returns the probability that values in a range are between two limits
RANK.AVG	=RANK.AVG(number,ref,order)	Returns the rank of a number in a list of numbers
RANK.EQ	=RANK.EQ(number,ref,order)	Returns the rank of a number in a list of numbers
SKEW	=SKEW(number1,number2,...)	Returns the skewness of a distribution

SLOPE	=SLOPE(known_y's,known_x's)	Returns the slope of the linear regression line
SMALL	=SMALL(array,k)	Returns the k-th smallest value in a data set
STANDARDIZE	=STANDARDIZE(x,mean,standard_dev)	Returns a normalized value
TREND	=TREND(known_y's,known_x's,new_x's,const)	Returns values along a linear trend
NORM.S.INV	=NORM.S.INV(probability)	Returns the inverse of the standard normal cumulative distribution
AVEDEV	=AVEDEV(number1,number2,...)	Returns the average of the absolute deviations of data points from their mean
BETA.DIST	=BETA.DIST(x,alpha,beta,cumulative,A,B)	Returns the beta cumulative distribution function
BETA.INV	=BETA.INV(probability,alpha,beta,A,B)	Returns the inverse of the cumulative distribution function for a specified beta distribution
BINOM.DIST	=BINOM.DIST(number_s,trials,probability_s,cumulative)	Returns the individual term binomial distribution probability
BINOM.INV	=BINOM.INV(trials,probability_s,alpha)	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value
CHISQ.DIST	=CHISQ.DIST(x,deg_freedom,cumulative)	Returns the cumulative beta probability density function

CHISQ.DIST.RT	=CHISQ.DIST.RT(x,deg_freedom)	Returns the one-tailed probability of the chisquared distribution
CHISQ.INV	=CHISQ.INV(probability,deg_freedom)	Returns the cumulative beta probability density function
CHISQ.INV.RT	=CHISQ.INV.RT(probability,deg_freedom)	Returns the inverse of the one-tailed probability of the chi-squared distribution
CHISQ.TEST	=CHISQ.TEST(actual_range,expected_range)	Returns the test for independence
CONFIDENCE.NORM	=CONFIDENCE.NORM(alpha,standard_dev,size)	Returns the confidence interval for a population mean
CONFIDENCE.T	=CONFIDENCE.T(alpha,standard_dev,size)	Returns the confidence interval for a population mean, using a Student's t distribution
CORREL	=CORREL(array1,array2)	Returns the correlation coefficient between two data sets
COVARIANCE.P	=COVARIANCE.P(array1,array2)	Returns covariance, the average of the products of paired deviations
COVARIANCE.S	=COVARIANCE.S(array1,array2)	Returns the sample covariance, the average of the products deviations for each data point pair in two data sets
DEVSQ	=DEVSQ(number1,number2,...)	Returns the sum of squares of deviations
EXPON.DIST	=EXPON.DIST(x,lambda,cumulative)	Returns the exponential distribution

F.DIST	=F.DIST(x,deg_freedom1,deg_freedom2,cumulative)	Returns the F probability distribution
F.DIST.RT	=F.DIST.RT(x,deg_freedom1,deg_freedom2)	Returns the F probability distribution
F.INV	=F.INV(probability,deg_freedom1,deg_freedom2)	Returns the inverse of the F probability distribution
F.INV.RT	=F.INV.RT(probability,deg_freedom1,deg_freedom2)	Returns the inverse of the F probability distribution
F.TEST	=F.TEST(array1,array2)	Returns the result of an F-test
FISHER	=FISHER(x)	Returns the Fisher transformation
FISHERINV	=FISHERINV(y)	Returns the inverse of the Fisher transformation
FREQUENCY	=FREQUENCY(data_array,bins_array)	Returns a frequency distribution as a vertical array
GAMMA.DIST	=GAMMA.DIST(x,alpha,beta,cumulative)	Returns the gamma distribution
GAMMA.INV	=GAMMA.INV(probability,alpha,beta)	Returns the inverse of the gamma cumulative distribution
GAMMALN	=GAMMALN(x)	Returns the natural logarithm of the gamma function, G(x)

GAMMALN.PRECISE	=GAMMALN.PRECISE(x)	Returns the natural logarithm of the gamma function, G(x)
GROWTH	=GROWTH(known_y's,known_x's,new_x's,const)	Returns values along an exponential trend
HARMEAN	=HARMEAN(number1,number2,...)	Returns the harmonic mean
HYPGEOM.DIST	=HYPGEOM.DIST(sample_s,number_sample,population_s,number_pop,cumulative)	Returns the hypergeometric distribution
KURT	=KURT(number1,number2,...)	Returns the kurtosis of a data set
LOGNORM.DIST	=LOGNORM.DIST(x,mean,standard_dev,cumulative)	Returns the cumulative lognormal distribution
LOGNORM.INV	=LOGNORM.INV(probability,mean,standard_dev)	Returns the inverse of the lognormal cumulative distribution
NEGBINOM.DIST	=NEGBINOM.DIST(number_f,number_s,probability_s,cumulative)	Returns the negative binomial distribution
NORM.DIST	=NORM.DIST(x,mean,standard_dev,cumulative)	Returns the normal cumulative distribution

NORM.INV	=NORM.INV(probability,mean,standard_dev)	Returns the inverse of the normal cumulative distribution
NORM.S.DIST	=NORM.S.DIST(z,cumulative)	Returns the standard normal cumulative distribution
PEARSON	=PEARSON(array1,array2)	Returns the Pearson product moment correlation coefficient
PERCENTILE.EXC	=PERCENTILE.EXC(array,k)	Returns the k-th percentile of values in a range, where k is in the range 0..1, exclusive
PERCENTILE.INC	=PERCENTILE.INC(array,k)	Returns the k-th percentile of values in a range
PERCENTRANK.EXC	=PERCENTRANK.EXC(array,x,significance)	Returns the rank of a value in a data set as a percentage (0..1, exclusive) of the data set
PERCENTRANK.INC	=PERCENTRANK.INC(array,x,significance)	Returns the percentage rank of a value in a data set
PERMUT	=PERMUT(number,number_chosen)	Returns the number of permutations for a given number of objects
POISSON.DIST	=POISSON.DIST(x,mean,cumulative)	Returns the Poisson distribution
QUARTILE.EXC	=QUARTILE.EXC(array,quart)	Returns the quartile of the data set, based on percentile values from 0..1, exclusive
QUARTILE.INC	=QUARTILE.INC(array,quart)	Returns the quartile of a data set

RSQ	=RSQ(known_y's,known_x's)	Returns the square of the Pearson product moment correlation coefficient
STDEV.P	=STDEV.P(number1,number2,...)	Calculates standard deviation based on the entire population
STDEV.S	=STDEV.S(number1,number2,...)	Estimates standard deviation based on a sample
STDEVA	=STDEVA(value1,value2,...)	Estimates standard deviation based on a sample, including numbers, text, and logical values
STDEVPA	=STDEVPA(value1,value2,...)	Calculates standard deviation based on the entire population, including numbers, text, and logical values
STEYX	=STEYX(known_y's,known_x's)	Returns the standard error of the predicted y-value for each x in the regression
T.DIST	=T.DIST(x,deg_freedom,cumulative)	Returns the Percentage Points (probability) for the Student t-distribution
T.DIST.2T	=T.DIST.2T(x,deg_freedom)	Returns the Percentage Points (probability) for the Student t-distribution
T.DIST.RT	=T.DIST.RT(x,deg_freedom)	Returns the Student's t-distribution
T.INV	=T.INV(probability,deg_freedom)	Returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom
T.INV.2T	=T.INV.2T(probability,deg_freedom)	Returns the inverse of the Student's t-distribution

T.TEST	=T.TEST(array1,array2 ,tails,type)	Returns the probability associated with a Student's t-test
TRIMMEAN	=TRIMMEAN(array,percent)	Returns the mean of the interior of a data set
VAR.P	=VAR.P(number1,number2,...)	Calculates variance based on the entire population
VAR.S	=VAR.S(number1,number2,...)	Estimates variance based on a sample
VARA	=VARA(value1,value2,...)	Estimates variance based on a sample, including numbers, text, and logical values
VARPA	=VARPA(value1,value2,...)	Calculates variance based on the entire population, including numbers, text, and logical values
WEIBULL.DIST	=WEIBULL.DIST(x,alpha,beta,cumulative)	Returns the Weibull distribution
Z.TEST	=Z.TEST(array,x,sigma)	Returns the one-tailed probability-value of a z-test

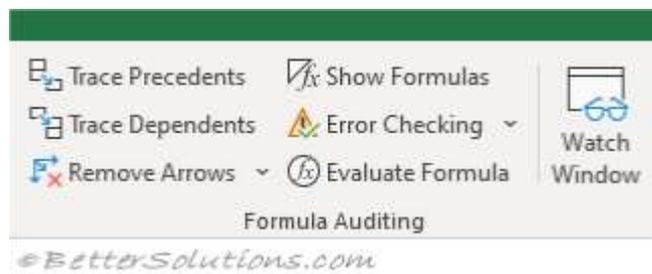
## Defined Names

**Name Manager** - Displays the [Name Manager](#) dialog box.

**Define Name** - Button with Drop-Down. The button displays the "New Name" dialog box. The drop-down contains the commands: Define Names and Apply Names. The Define Names allows you to create workbook and worksheet level named ranges and displays the "New Name" dialog box. The Apply Names displays the "Apply Names" dialog box. **Use in Formula** - Drop-Down. The drop-down contains a list of all the named ranges in the workbook (25 with scrolling) and Paste Names. The Paste Names command displays the "Paste Name" dialog box.

**Create from Selection** - Displays the "Create Names from selection" dialog box. This enables you to name a selected range of cells using a row or column title that you've entered.

## Formula Auditing



**Trace Precedents** - Displays arrows that indicate what cells affect the value of the currently selected cell.

**Trace Dependents** - Displays arrows that indicate what cells are affected by the value in the currently selected cell.

**Remove Arrows** - Button with Drop-Down. The button removes all the arrows drawn by the trace precedents and trace dependents. The drop-down contains the commands:

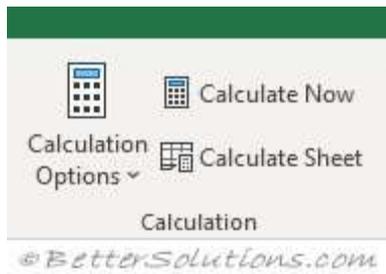
Remove Arrows, Remove Precendent Arrows and Remove Dependent Arrows.

**Show Formulas** - (Ctrl + '). Toggles the display of the formulas rather than the result. **Error Checking** - Button with Drop-Down. The button displays the "Error Checking" dialog box. The drop-down contains the commands: Error Checking, Trace Error and Circular References. The Circular References extension will only be enabled when the active workbook contains at least one circular reference.

**Evaluate Formula** - Displays the "Evaluate Formula" dialog box. This allows you to step through a formula calculation.

**Watch Window** - Displays the [Watch Window](#). Allows you to view the contents of cells and their results as you make changes.

## Calculation



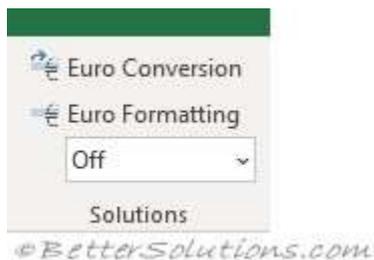
**Calculation Options** - Drop-Down. The drop-down lets you quickly change the calculation setting in the active workbook between Manual, Automatic and Automatic except for Data Tables. This setting is in fact an application setting. For more information please refer to the [Calculation](#) page.

**Calculate Now** - (F9). Provides a shortcut to the (Excel Options)(Calculation tab, "Calc Now"). This option no longer appears on the Excel Options dialog box.

**Calculate Sheet** - (Shift + F9). Provides a shortcut to the (Excel Options)(Calculation tab, "Calc Sheet"). This option no longer appears on the Excel Options dialog box.

## Solutions

This group is only displayed if you have the [Euro Currency Tools](#) add-in loaded.



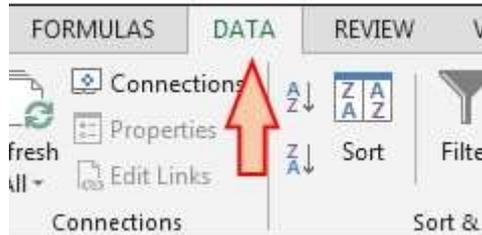
**Euro Conversion** - Launch the Euro Conversion Wizard.

**Euro Formatting** - Apply Euro formatting to the selected cells.

**Quick Conversion** - Perform quick conversions.

# DATA TAB

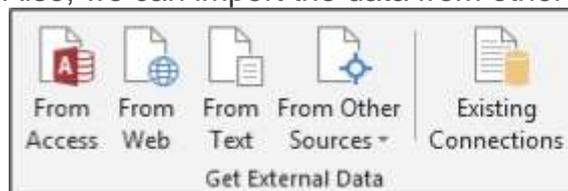
We use Data tab for the large amount of data. It is useful to import the data by connecting with the server, and we can import data automatically from web, MS Access etc. And sort & filter are very helpful options we have in Excel; it makes easy to read vast data.



Data tab contains 5 groups:-



a) **Get External Data:** - In Excel, we can import data from MS Access, Web, Text and other sources. Also, we can import the data from other applications.



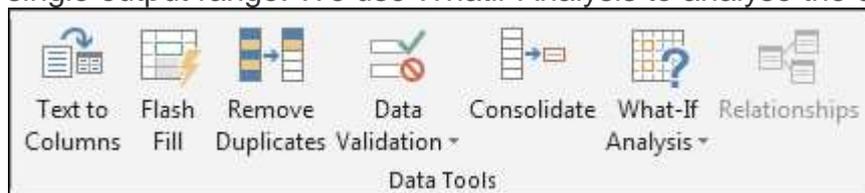
b) **Connections:** - It is used to display the entire data connections for the workbook. Data connections are links to the data outside the workbook which can be updated if the source data changes. And updated data can be obtained by refreshing all sources in workbook.



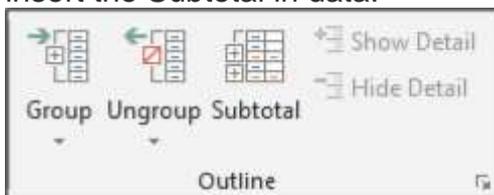
c) **Sort & Filter:** -To set the data in ascending or descending order on the basis of value or as per the first letter of a word, we use Sort option. Also, we can put the basic and advanced filter from here only.



d) **Data Tools:** -This option is very important to make the report interactive; it helps us to make the data authentic, and using this tab, we can restrict or validate the entries if the data is being updated by multiple users. Text to Columns helps us to split the single column into multiple columns as per data. Flash fills the values in the range. We can delete duplicate rows from the data by using Remove Duplicates option. We use Data Validation to provide the list that can be entered in cell, or we can restrict the entries, or we can validate the entries in the cell. We use Consolidate option to summarize data from separate ranges, and consolidate the result in a single output range. We use Whatif-Analysis to analyse the data.



e) **Outline:** -We use this option to make the data more analytical and understandable. We can make group of rows or columns or automatically create an outline. We can ungroup the data; quickly calculate rows of related data by inserting subtotals and totals. We use Show and Hide options when we want to insert the Subtotal in data.



## REVIEW TAB

### Proofing



**Spelling** - (F7). Displays the "Spelling" dialog box. Allows you to check the spelling on the active worksheet.

**Research** - (Removed in 2016). Toggles the display of the [Research Task Pane](#).

**Thesaurus** - Toggles the display of the Research task pane defaulting the research service to the thesaurus.

## Accessibility



**Check Accessibility** - (Added in 2016). Displays the [Accessibility Checker Task Pane](#). This identifies any aspects of your workbook that could be altered to assist people with disabilities.

## Insights



**Smart Lookup** - (Added in 2016). Displays the [Smart Lookup Task Pane](#). This is powered by Bing and provides wiki articles and top related searches from the web.

## Language



**Translate** - (Added in 2010). Toggles the display of the Research task pane defaulting the research service to the translation.

## Comments



**New Comment / Edit Comment** - (Shift + F2). Inserts a comment at the active cell.

**Delete** - Deletes the selected comment.

**Previous Comment** - Moves to the previous comment in the active workbook.

**Next Comment** - Moves to the next comment in the active workbook.

**Show Comments** - Toggles the display of the Comments task pane.

**Show/Hide Comment** - (Removed in 2019). Toggles the display of the comment in the active cell.

**Show All Comments** - (Removed in 2019). Toggles the display of comments in the active workbook (all worksheets).

**Show Ink** - (Removed in 2019). Show or hide ink in the active workbook. This is tablet specific.

## Notes



**Notes** - (Added in 2019). Drop-Down. The drop-down contains the commands: New Note, Previous Note, Next Note, Show/Hide Note, Show All Notes and Convert to Comments.

## Changes

In 2019 this group was removed.

**Protect and Share Workbook** - (Removed in 2019). Displays the "Protect Shared Workbook" dialog box.

**Track Changes** - (Removed in 2019). Drop-Down. The drop-down contains the commands: Highlight Changes and Accept/Reject Changes.

## Protect



**Protect Sheet** - Displays the "Protect Sheet" dialog box.

**Protect Workbook** - The drop-down displays the following commands: Protect Structure and Windows as well other Restrict Permission options. These can only be used if you have IRM [link] installed.

**Allow Edit Ranges** - Allows specific users to edit certain ranges in a workbook or sheet. Before using this option you need to define your security settings using the Protect Sheet command. This command is disabled when the worksheet is protected.

**Unshare Workbook** - This is disabled by default. If you open a workbook that is currently being shared using the legacy "Share Workbook" feature this button will become enabled, allowing you to unshare the workbook. Shared workbooks have been replaced with [Co-Authoring](#). Press the 'Share' button in the top right corner to display the [Share Task Pane](#). Workbooks must be saved to an online location.

**Share Workbook** - (Removed in 2019) (Added in 2016). Allows multiple users to work in a workbook at the same time. The workbook should be saved to a shared drive. Workbooks containing tables cannot be shared. Displays the "Share Workbook" dialog box.

## Ink



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**Hide Ink** - Drop-Down. The drop-down contains the commands: Hide Ink, Delete All Ink on Sheet and Delete All Ink on Workbook.

## VIEW TAB

The commands for hiding and showing worksheets are on the [Home Tab](#) under (Format > Unhide).

The commands for hiding and showing workbooks (and windows) can be found on this tab.

## Sheet View

Lets you create different views of the same worksheet when you are collaborating with others.

Only enabled in Excel online or on the Desktop when your workbook has been saved in OneDrive.

### Switch Sheet View -

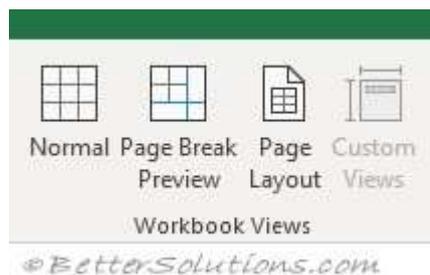
**Keep** -

**Exit** -

**New** -

**Options** - Displays sheet view options.

## Workbook Views



**Normal** - Displays the worksheet in the normal view. There is also a shortcut to this view in the bottom right corner of the status bar.

**Page Break Preview** - (Moved in 2013). Used for adjusting page breaks. There is also a shortcut to this view in the bottom right corner of the status bar.

**Page Layout** - Displays the worksheet as it will appear on a printed page. Displays a very useful horizontal and vertical ruler plus you can add/change headers and footers, check margins, row/column headings and scaling options. Not to be confused with Print Preview. There is also a shortcut to this view in the bottom right corner of the status bar.

**Custom Views** - Displays the "Custom Views" dialog box.

**Full Screen** - (Removed in 2013). Displays the workbook in full screen mode. Press Esc to return to the normal screen.

## Show

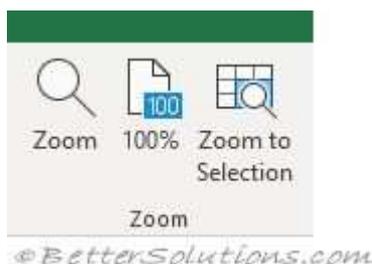


**Ruler** - Toggles the display of the horizontal and vertical rulers. This is only available when you are in Page Layout view. You can change the units displayed from the (Excel Options, Advanced tab)(Display, Ruler Units). By default the ruler displays the default units that are specified in the control panel, regional settings. These units can be either inches, centimeters or millimeters.

**Gridlines** - Toggles the display of gridlines on the active worksheet. Provides a shortcut to (Excel Options, Advanced tab)(Display options for this worksheet, show gridlines). **Formula Bar** - Toggles the display of the formula bar. Provides a shortcut to (Excel Options)(Advanced tab, Show formula bar).

**Headings** - Toggles the display of the heading rows. Provides a shortcut to (Excel Options)(Advanced tab, Show row and column headers).

## Zoom



**Zoom** - Displays the "Zoom" dialog box.

**100%** - Zoom the workbook to 100% of its normal size.

**Zoom to Selection** - Zoom the worksheet to display just the currently selected cells.

## Window



**New Window** - Creates a new window of your current workbook.

**Arrange All** - Tile all open windows side by side on the screen.

**Freeze Panes** - Drop-Down. The drop-down contains the commands: Freeze Panes, Freeze Top Row and Freeze First Column.

**Split** - Splits the window into multiple resizable panes which allow you to have multiple views of the same workbook.

**Hide** - Hides the current workbook or window.

**Unhide** - Displays the "Unhide" dialog box allowing you to unhide a workbook or window.

**View Side by Side** - View two workbooks side by side to allow you to compare their contents.

**Synchronous Scrolling** - Synchronize the scrolling of two windows so they scroll together. The View Side by Side option must be switched on for this command to be enabled.

**Reset Window Position** - Reset the window position of the two windows being compared so that they share the screen equally. The View Side by Side option must be switched on for this command to be enabled.

**Save Workspace** - (Removed in 2013). Displays the "Save Workspace" dialog box. This allows you to save the layout of all the workbooks that are currently open so this layout can be reopened at a later date.

**Switch Windows** - Drop-Down. The drop-down contains a list of all the workbooks/windows that are currently open.

## Macros



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**Macros** - Button with Drop-Down. The button is a shortcut to View Macros which displays the "Macro" dialog box displaying all the available macros. The drop-down contains the commands: View Macros, Record Macro and Use Relative References.