



# Excel Basics

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## Mouse Symbols

When using a spreadsheet it is import to recognize the different symbols that the mouse pointer makes over a selected cell or cells.

Symbol	Description
	The selection cross is used to select single cells and ranges of cells. The first cell selected within a range appears white compared to all of the other selected cells. This is the active cell that entry would happen in if you typed on the keyboard.
	The AutoFill handle is the one of the most important time saving tools in Excel. By grabbing the cell by the bottom right corner it is possible fill in math in corresponding rows or columns. The AutoFill handle can also save data entry as it will complete series like Month, Weekday and Date.
	The four headed arrow represents that the selected cell or cells is about to move if you click and drag your mouse. Careful of this one as it can be confused with the AutoFill handle.

## Inputting Data

There are three types of data that you can insert into a Microsoft spreadsheet.

- Text (often used for labels)
- Numbers
- Math ( Formulas and Functions)

When entering number data, it is suggested to not use symbols like \$ and % as it will be faster and if you only use numbers and decimals. Formatting the number increases the speed of input and the consistency of number formats.

## Enter Keys

After entering text, numbers or formulas it is important to press enter. There are alternate ways of pressing enter with different outcomes

- Enter ( Complete what you are doing and go to the next row)
- Tab (Complete entry and go to the next column)
- Check mark by the formula bar ( Show up when entering data)

Escape key on the keyboard is to cancel the entry.

## Mathematical Formulas

To be able to tell the difference between a formula and data that was typed in it is important to look at the formula bar just below the ribbon (top menu). If a cell contains math it will show you the formula. If the cell contains just data it will show you just the number in the formula bar.

A formula in Excel can be considered regular math with two obvious differences.

**An Excel math formula starts with an equals sign.**

- =1+1  
(The cell would show the answer 2)
- =b2+b3  
(The answer showing in the cell would depend on the data typed B2 & B3)

**Math formulas contain cell references**

- =A1+B1+D1
- =D12 \* 0.05 (A cell reference and a number to calculate tax)

## Math operators in Excel

Operator	Key	Symbol
• Addition	Plus sign	+
• Subtraction	Minus sign	-
• Division	Forward slash	/
• Multiplication	Asterisk	*
• Exponentiation	Caret	^

## Order of Operations

Excel follows the mathematical protocol of Order of Operations. Order of Operations is also referred to as BEDMAS or PEDMAS depending on the country of origin.

Excel will calculate a formula left to right with priority shown in this list

1. Parentheses
2. Exponents
3. Multiplication and Division
4. Addition and Subtractions

Example.

To add two items together and then multiply them by two

### **Incorrect**

=A1+B1\*2 (This formula would calculate B1 \* 2 and then + A1)

### **Correct**

Use parenthesis to change the order in which the formula calculates

=(A1+B1)\*2

## Functions

Functions are built in Math and Logic that are initiated by the functions name along with a set of parameters to tell the function what data to calculate.

A function has the capability of referencing a group of cells in a row or column by using a semicolon. It would be impossible to add thousands of rows of data using a regular math formula = A1 + B1 + ...

The SUM function can add up thousands of rows of data in a short formula. This adds up rows A1 to A1000

- =SUM(A1:A1000)

With over 400+ Functions Available in Excel 2013 I have listed a few of the popular and noteworthy functions. Explore the different categories found under the Formula tab on the Ribbon. These are examples and quick descriptions intended only to show an overview of Functions.

Function Name	Example	Description
SUM	=SUM(B2:B100)	The most used function in Excel. It has the advantage over an addition formula as it can specify a large range using the semicolon
Average	=AVERAGE(B2:B100)	The average function takes away all of the math steps it takes to average using a formula. Just tell Excel what cells/numbers you want to use in the arguments (parenthesis)

Function Name	Example	Description
Count	=Count(B2:B100)	The count function in this example would look at all 98 cells referenced in the argument and tell you how many cells contain numbers. Can be used instead of manually counting
IF	=IF(A10>100,"High","Low")	The IF function can give the cell it is in the logic to make a decision. This example show the IF statement testing CELL A10 to see if it contains a number greater than 10. If it does it will show the value "High" if not it show the value "Low"
VLOOKUP	=VLOOKUP(A2,DATABASE,COL#)	Vertical Lookup would be the equivalent to using a white pages phone book. Look up a name and return the address that is in column 2.

## AutoFill Handle

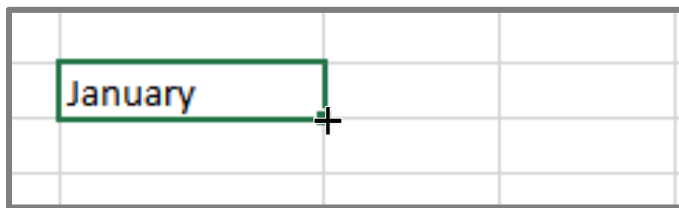
### Autofill Series

The Autofill handle is found in the bottom right corner of the selected cell or cells.

Drag this to Up, Down, Left and Right to fill in Series and Formulas.

If you grab and drag the autofill handle it will complete built in series such as Month, Day or Weekday

Typing January and dragging the autofill handle will complete the following months in the series.



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### Autofill Formulas and Functions

After completing one column or row of formulas or functions use the autofill handle to complete the following rows or columns of formulas/functions.

In this example if the AutoFill is used by dragging the handle in the select cell across the bottom row it will change fill in the answers using i

fx =F2-F3				
F	G	H	I	J
<b>Autofill using a Formula</b>				
150	125	150	223	325
100	54	56	175	200
50				

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## Relative and Absolute References

Relative (unlocked) and Absolute (locked) references are only important when dragging a cell using the AutoFill handle to complete math or functions.

When referencing a cell that should be locked for dragging us the function keyboard shortcut **F4** to save time. **F4** will cycle through various forms of relative and absolute references.

In this example the reference to the Tax Rate in G8 has been locked in with using the \$ symbol. Both the Row 8 and the column G has been locked in. G8 will be referenced in the formulas created by the AutoFill while the reference F10 changes to G10

	E	F	G	H	I	J
		Tax Rate	5%			
Total		250	179	206	398	525
Tax		12.5				

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After using the AutoFill handle the reference to the \$G\$8 stays the same.

	E	F	G	H	I	J
		Tax Rate	5%			
Total		250	179	206	398	525
Tax		12.5	8.95	10.3	19.9	26.25

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## Sorting

Sorting data alphabetically or from greatest to smallest is an essential capability that help present and analyze data.

Data can be sorted using different tools

- Sort A to Z button
- Custom Sort
- Filters using sort
- Tables (Filter sort)

**This example uses Sort Smallest to Largest**

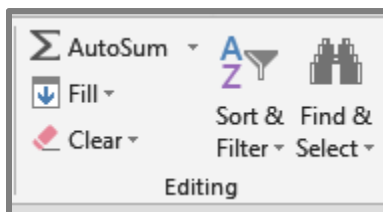
Click in the column you want to sort by. This example uses the Cost column

Date	Name	Cost
1/1/2015	McTavish	10.55
1/2/2015	Zander	22.25
1/3/2015	Bryte	20.15
1/4/2015	Connol	12.45
1/5/2015	Borrnin	8.56
1/6/2015	Malic	9.19

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Press the AZ Sort & Filter button located on the far right of the home tab on the Ribbon.

Sort A to Z Smallest to Largest



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The result is the cost column has been sorted smallest to largest

Date	Name	Cost
1/5/2015	Borrnin	8.56
1/6/2015	Malic	9.19
1/1/2015	McTavish	10.55
1/4/2015	Connol	12.45
1/3/2015	Bryte	20.15
1/2/2015	Zander	22.25

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## Formatting Numbers

With an exhaustive set of built in formats Excel saves time by allowing you to select data and format it to the best suit the data. Numbers might need two decimal places or possibly money format such as currency. Dates can also be formatted if they have been properly entered using a simple date format.

**The home tab has quick access to a small number of popular formats:**

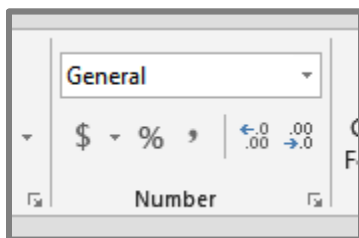
Currency

Accounting

Long date

Percentage

Comma separators for Thousands



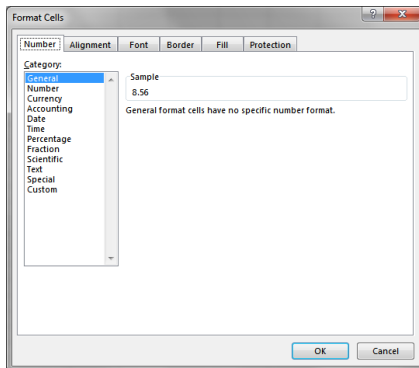
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**All of the formats can be found in the Format Cells dialogue.**

There are several ways to get to Format Cells:

- Right click on the selected cell/s and choose Format Cells
- Click the tiny dialogue launcher button found in the number group
- Select the cells you want to format use the k/b shortcut CTRL + 1

You will be presented with this dialogue. Make sure to click on the Number Tab to explore the different formats.



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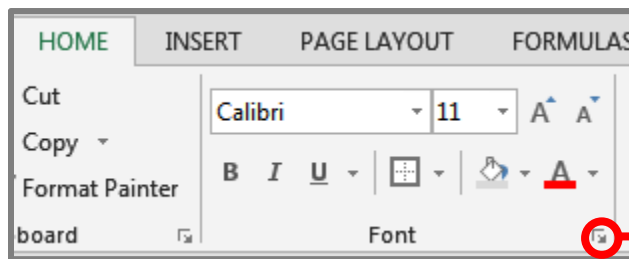
*\*Date formats stick around in a cell even after you have deleted a date. Deleting a date with the k/b does not delete the format from that cell. Use the eraser found on the Home tab of the Ribbon to erase both date and cell colour formats.*

## Borders and Shading

Formatting data with cell fill colour, font colour and cell borders will make data more understandable. Cell fill and style will help the headings in the data stand out. Borders and double border can be used to show totals for both print out and on screen display.

## Using the Home Tab Font Group

The Home tab has a group called Font where you can quickly set many common borders and cell fill colour (shading). By selecting cell/s cells and choosing the quick presets colours and borders, data can be quickly formatted.



Dialogue launcher

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After using the home tabs Font group format tools

Date	Name	Cost
1/1/2015	McTavish	\$ 10.55
1/2/2015	Zander	\$ 22.25
1/3/2015	Bryte	\$ 20.15
1/4/2015	Connol	\$ 12.45
1/5/2015	Borrnin	\$ 8.56
1/6/2015	Malic	\$ 9.19
		\$ 83.15

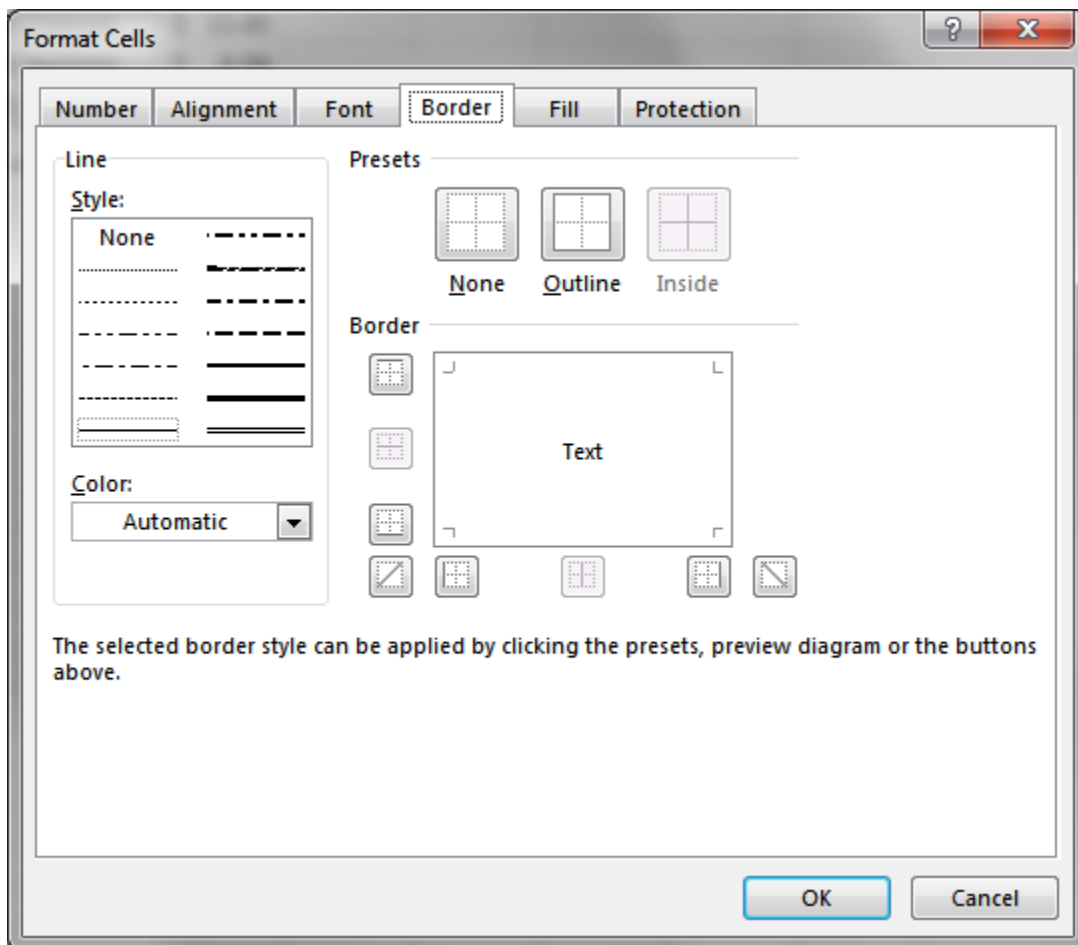
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Deleting both borders and shading can be done the same way it was added. Look for the No Outline and the No Colour to remove formats from a cell.

## Format Cells Dialogue

The Format Cells Dialogue has all of the different options for formatting data if the option needed is not on the Ribbon. This is the same dialogue that was referenced in formatting numbers.

- Right click on the selected cell/s and choose Format Cells
- Click the tiny dialogue launcher button found in the Font/Alignment/Number group
- Select the cells you want to format use the k/b shortcut CTRL + 1
- Be sure to explore this dialogue



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## Tables

Tables bring together several features found in other areas Excel along with table specific features

- Format the data quickly with alternating rows colors
- Filters show up on the header row by default to sort and find data
- Filter is aware of column contents such as date showing date specific filters
- Total row can be enabled with options to use functions such as SUM and Average

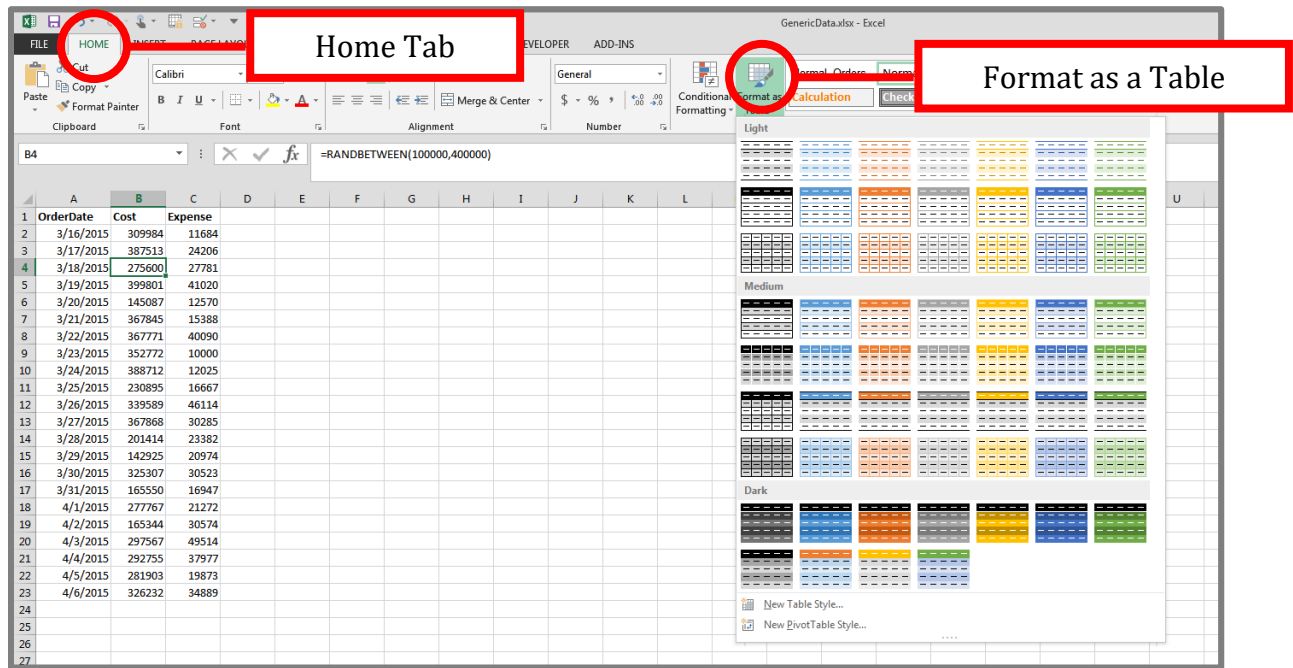
### Table considerations

- Take note if the data has headings at the top of the columns
- If the data has blank rows select all of the highlight all of the data before creating a the table
- If the data has no blank row it is possible to select only one cell with in the data set before creating the table

### Sample data before the table design is applied

OrderDate	Cost	Expense
3/16/2015	309984	11684
3/17/2015	387513	24206
3/18/2015	275600	27781
3/19/2015	399801	41020
3/20/2015	145087	12570
3/21/2015	367845	15388
3/22/2015	367771	40090
3/23/2015	352772	10000
3/24/2015	388712	12025
3/25/2015	230895	16667
3/26/2015	339589	46114
3/27/2015	367868	30285

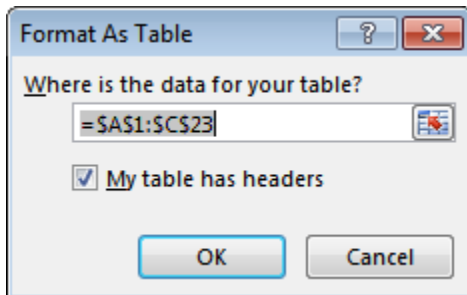
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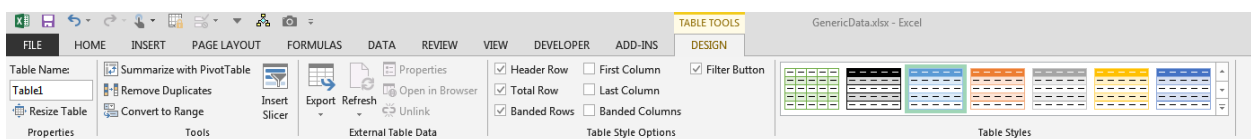
After selecting a design style confirm if there are headers at the top of each column.

If not Excel will provide the generic names Column1, Column 2....



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When a table is selected the table tools will show up on the top right of the ribbon



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The options for the Filters that show up when using Tables are found in the Ribbon under the Data tab.

## Data formatted as an Excel Table

Filters show at the top in the header row and the Total row enable at the bottom.

OrderDate	Cost	Expense
3/16/2015	334657	43166
3/17/2015	108305	15015
3/18/2015	199884	22883
3/19/2015	346100	34170
3/20/2015	191323	1992
3/21/2015	270135	3413
3/22/2015	195901	49355
3/23/2015	397155	11610
3/24/2015	361151	4884
3/25/2015	245303	1726
3/26/2015	301031	2935
3/27/2015	174893	41196
3/28/2015	168487	45899
3/29/2015	302586	45048
3/30/2015	224452	3643
3/31/2015	326873	22445
4/1/2015	176832	16658
4/2/2015	336256	25383
4/3/2015	303290	1138
4/4/2015	246369	33399
4/5/2015	300971	19306
4/6/2015	247635	23996
<b>Total</b>		<b>469260</b>

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## VLOOKUP

### Exact and Approx. Match

The VLOOKUP function will match the item you're looking for and return results from that items column.

#### The function needs to know 4 arguments

- What are you looking up-Cell that contains text or number
- Where is the database to lookup?
  - Use Absolute references-\$H\$23:\$K\$32
- What column do you want the answer from?
  - Count from the left most column
- Do you want an exact match?
  - FALSE is correct setting
  - Full names, Job ID's, Product numbers would need an exact match
  
- Mixing up Approx and Exact can give you incorrect answers

#### Syntax

**=VLOOKUP(what,where,column#,type)**

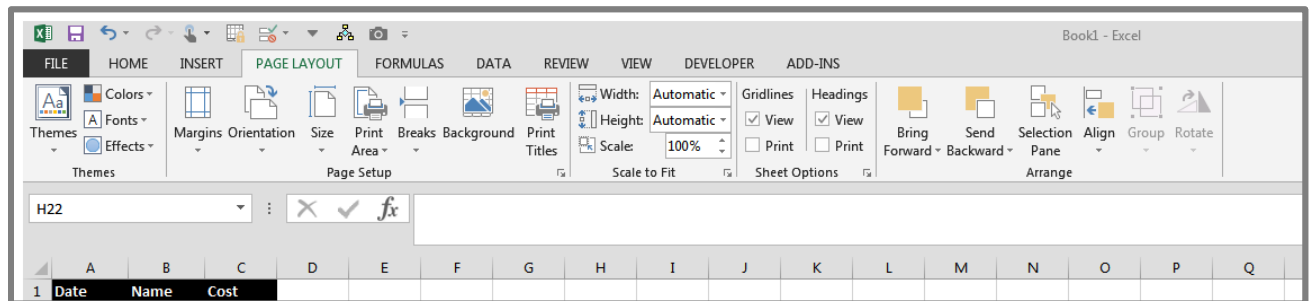
#### Example

**=Vlookup(A5,\$H\$23:\$K\$32,3,FALSE)**

## Printing and PDF Output

Options for printing and PDF output can be located under File→Print or the Page Layout Tab on the Ribbon.

## Page Layout Tab



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## Important Page Layout Tools

- Print Titles- Repeat the header row or column for a print out
- Print Area- Select a custom print range

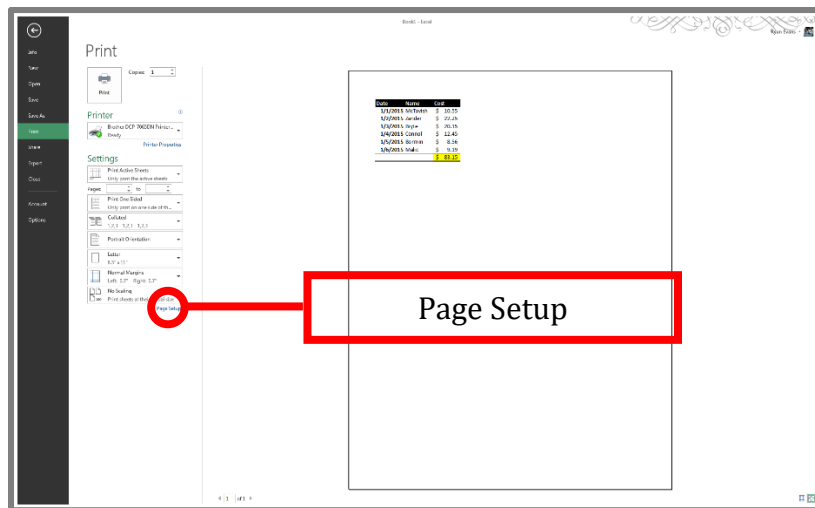
Both Print Titles and Print Area have to be completed using the Page Layout tab because cells have to be selected for both operations.

## Page Setup

### Important Page Setup print/output settings

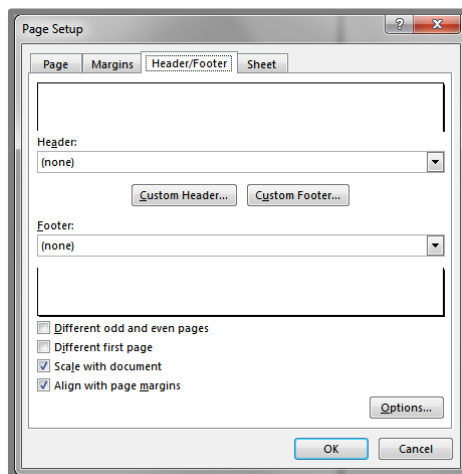
- Portrait/Landscape
- Fit to: Fit the data to the page
- Margins- Size and center on page
- Headers and Footers including page numbers
- Printable gridlines and row and column headings
- **File→Print→Page Setup**

### Print Dialogue



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### Page Setup Dialogue

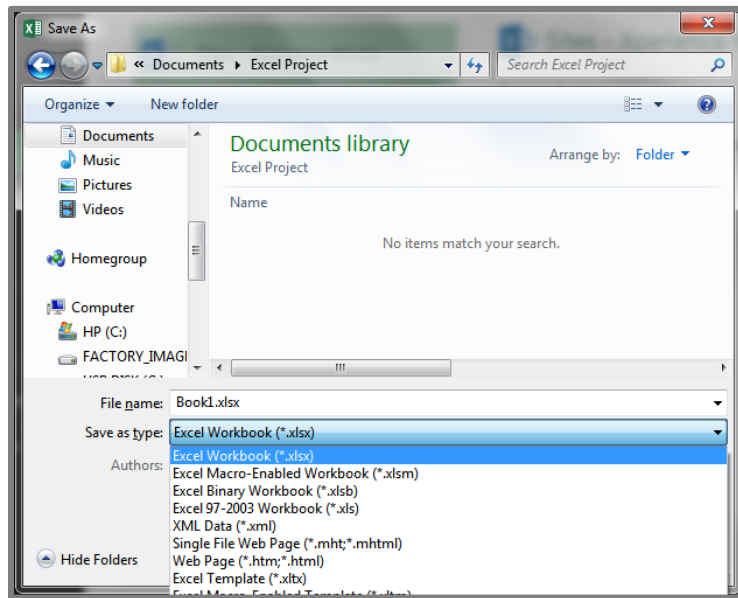


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## Save As

### File→Save As dialogue capability

- Save a copy
- Save a copy to a combatable with a previous version of Excel
- Export to PDF and other formats
- Password protect (Options→General)

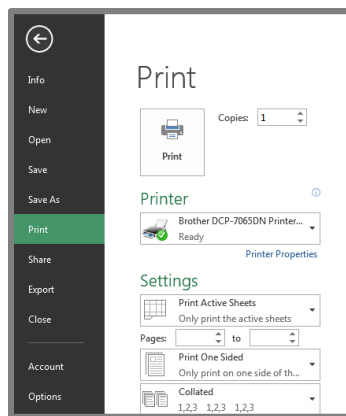


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## Print

### File→Print dialogue capability

- Number of copies
- Print one sheet or whole workbook
- Double sided printout

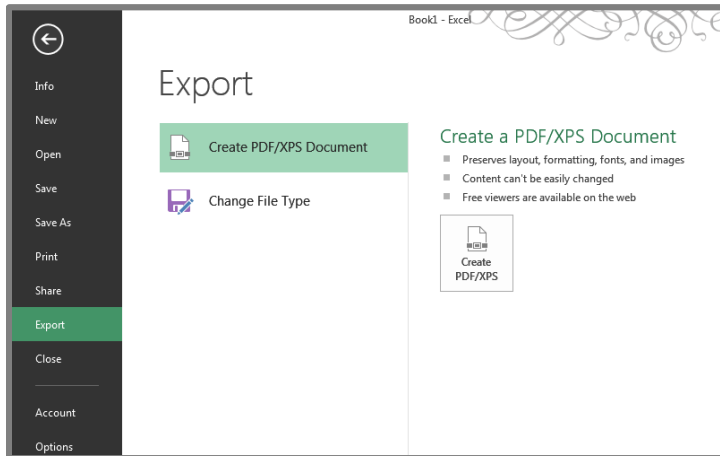


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## Export

### Export dialogue capability

- Create Export a PDF
- Save a copy to a combatable with a previous version of Excel



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