

Prepared by Eng. Eman Hamdy

Introduction to Information Systems – IT111
Excel

Lecture 5 (Practical)



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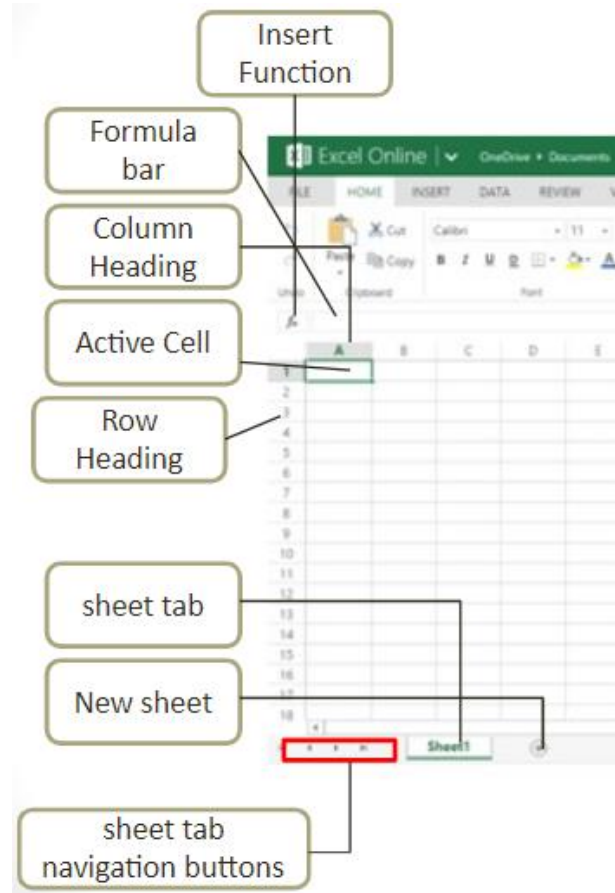
05

Introduction to Spreadsheets

- ❖ A spreadsheet is an electronic file used to organize related data and perform calculations.
- ❖ A worksheet is a single spreadsheet that contains formulas, values, text, and graphical representations of data. Each worksheet is identified by a sheet tab
- ❖ A workbook is a file containing related worksheets. By default, new workbooks have one worksheet
- ❖ A cell address or cell reference names a cell and it is made up from the column letter and row number

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Excel Window



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Worksheets

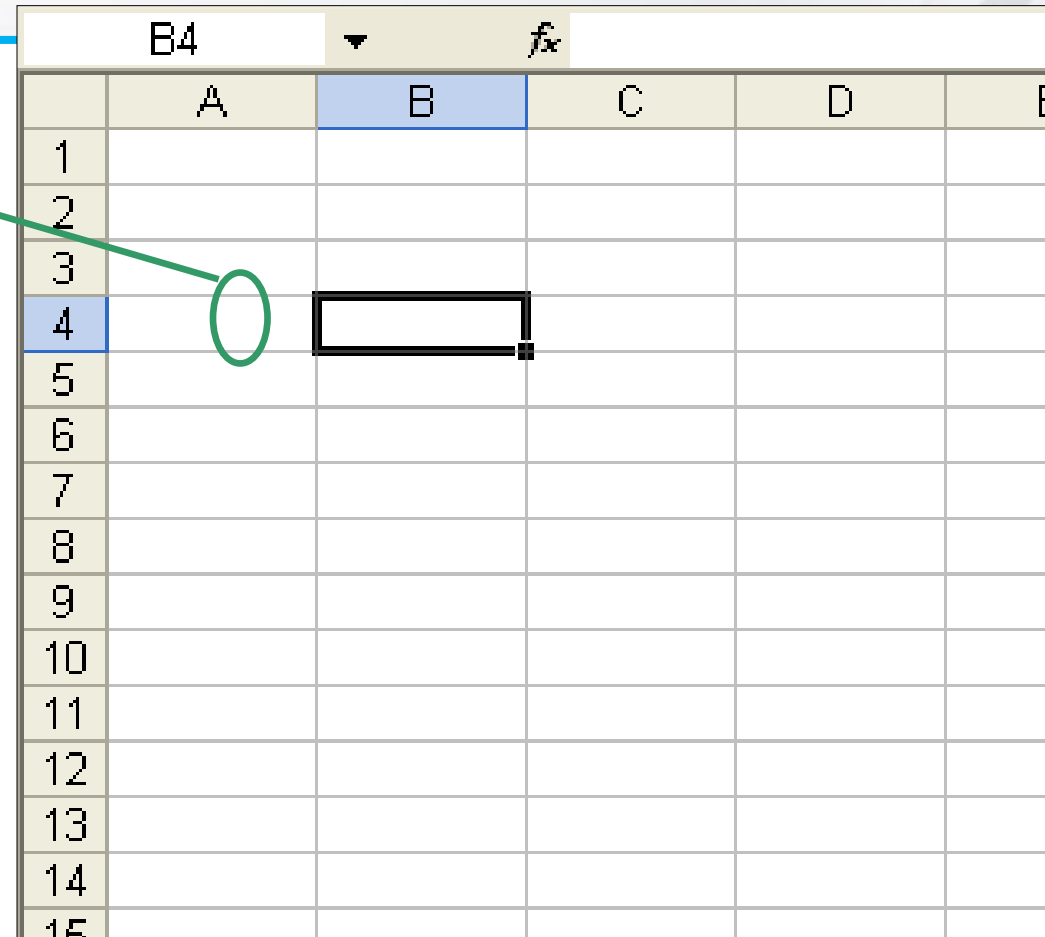
- Excel's main screen is called a "**worksheet**".
- Each worksheet is comprised of many boxes, called "**cells**".

	A1				
	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

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Selecting a Cell

- “**Select**” a cell by clicking on it once (don’t double click).
- You can **move** from cell to cell with the **arrow keys**.



The image shows an Excel spreadsheet with columns A through E and rows 1 through 15. The active cell is B4, which is highlighted with a blue background. A green circle is drawn around the cell B4, and a green arrow points from the text 'Select a cell by clicking on it once' to the circle. A black rectangular box is drawn around the cell B4, and a black arrow points from the text 'You can move from cell to cell with the arrow keys' to the box.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

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Entering Information / The Formula Bar

- To enter information in a cell, just start typing.
- When you are done either
 - Press the **Enter Key**
 - Press an **arrow key**
- The information in the selected cell is also displayed in the “**formula bar**” above the worksheet.

The screenshot shows an Excel worksheet with the following structure:

	A	B	C	D	E
1					
2					
3					
4		hi there			
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Annotations in the image:

- A blue line points from the text "The information in the selected cell is also displayed in the 'formula bar'" to the formula bar.
- An orange line points from the text "When you are done either Press an arrow key" to the cell B4.
- The formula bar is circled in orange and contains the text "hi there".

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Double Click to Modify a Cell

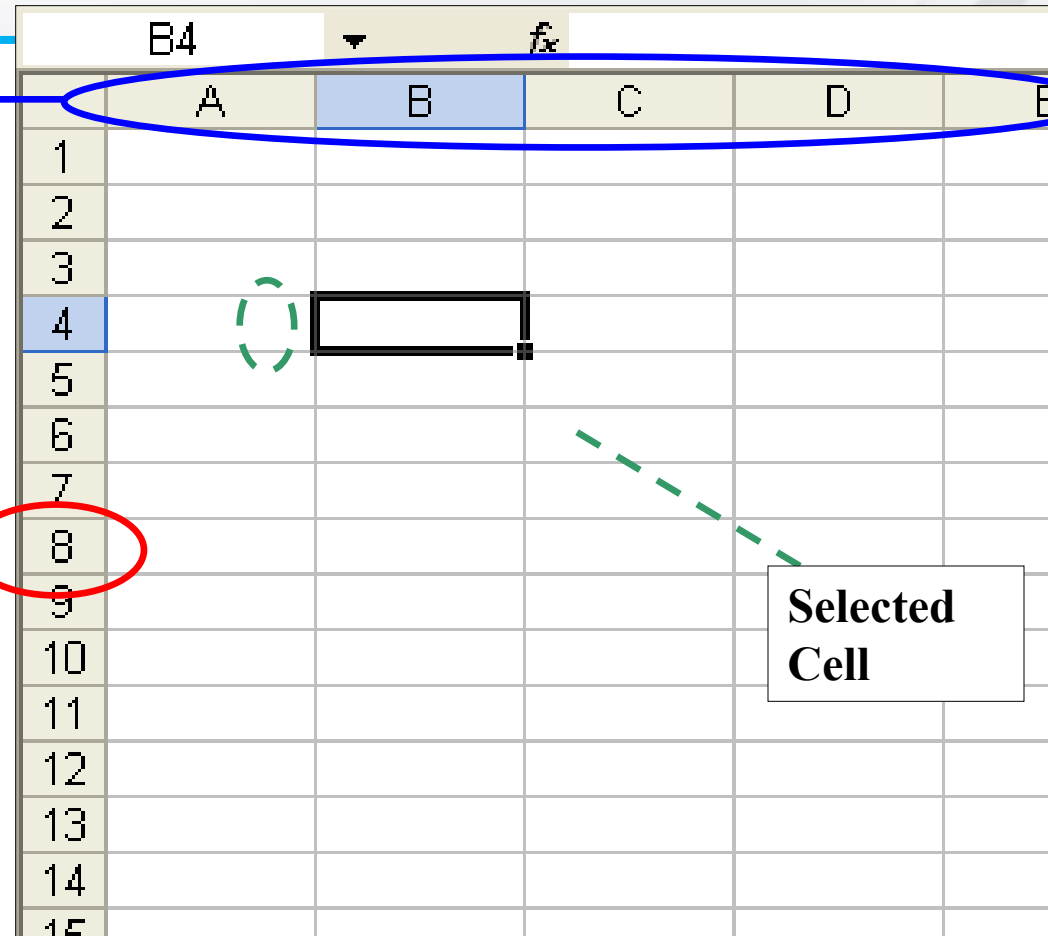
	B4 ▼ ✕ ✓ fx hello there				
	A	B	C	D	E
1					
2					
3					
4		hello there			
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Double click to
change “hi there”
to “hello there”

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Column Names (letters) & Row Names (numbers)

- The **columns** of the worksheet are named with letters
- The **rows** are named with numbers

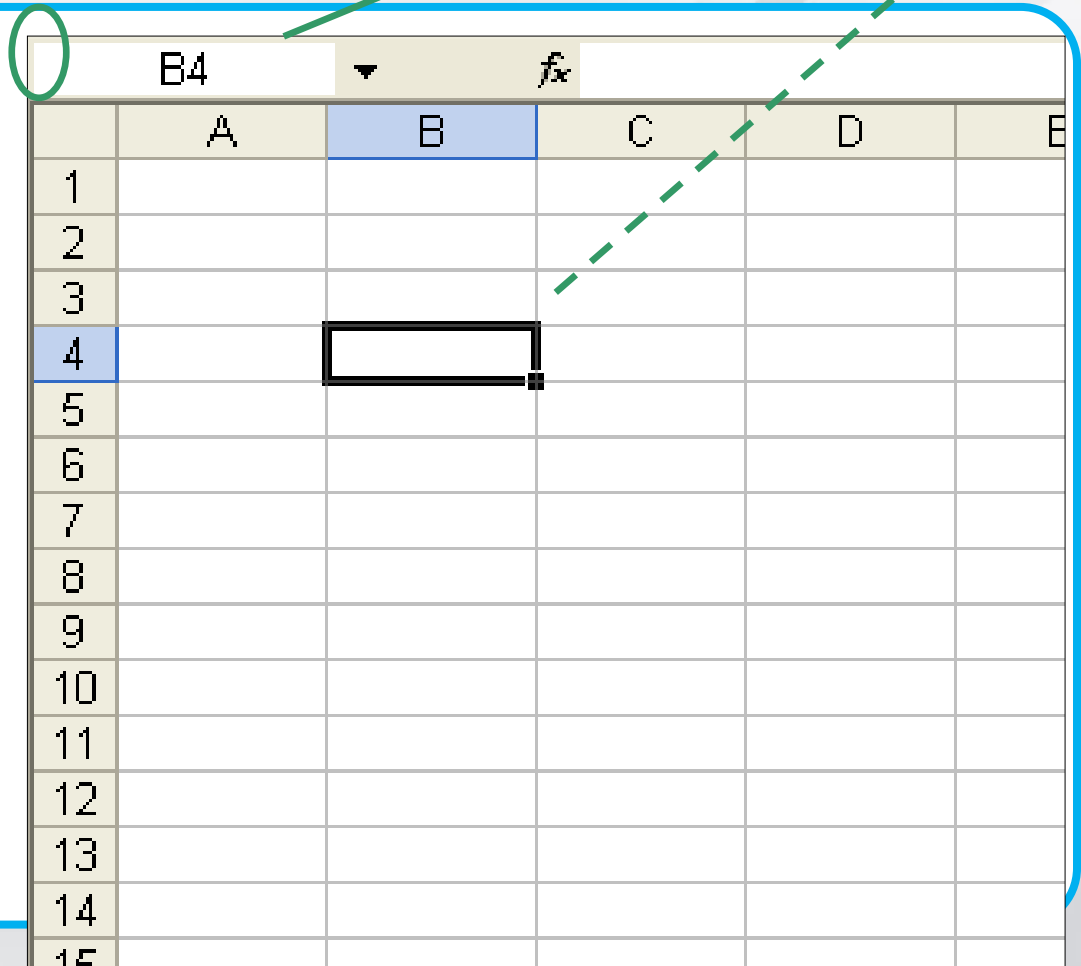


	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

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Word Interface

- The name of a cell is a combination of the **Letter Of The Column** that the cell is in followed by the **Number Of The Row** that the cell is in.
- Example: the selected cell in the picture is named **B4** (NOT 4B)
- Excel automatically shows the the name of the **currently selected cell** in the “**name box**” (located above the worksheet).



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Excel Window

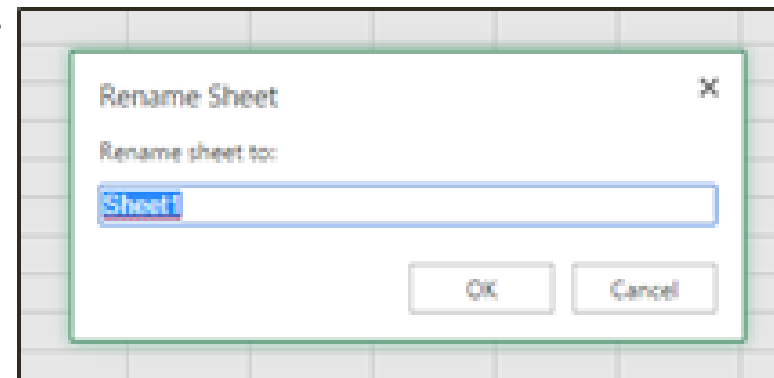
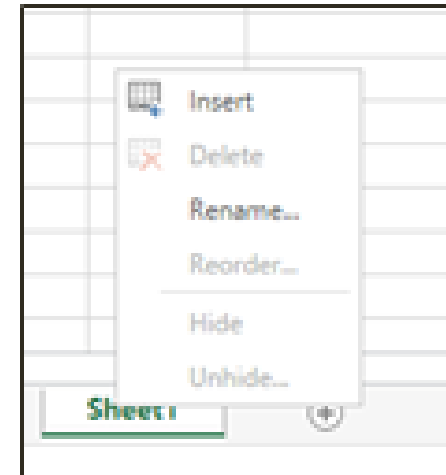
- ❖ Text is any combination of letters, numbers, symbols, and spaces not used in calculations.

A	B	C	D
Mishael Abdullah Company			
Incoming	Amount	Outgoing	Amount
Year 2012 profit	50000	Staf Salaries	45000
2011 year balance	20000	Bills	5000
Bank Balance	15500	Rent	30000
Total Income		Car	550
		Travel	2000
		Total Expenses	
Amount Remaining			

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Rename A Worksheet

- **Double-click a sheet tab**, type the new name, and then press OK.
- OR
- **Right-click the sheet tab**, select Rename from the shortcut menu, type the new sheet name, and then press OK.



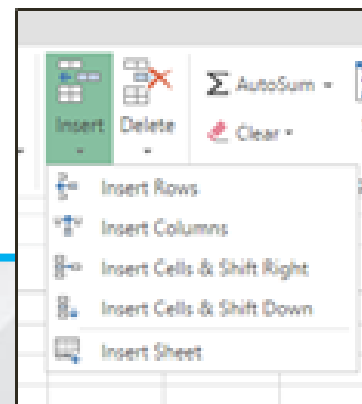
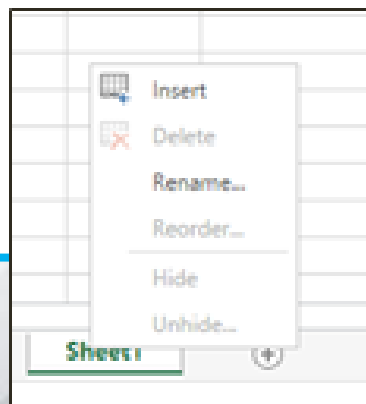
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Excel Window

To **insert a new worksheet**, do **one** of the following:

1. Click **New sheet** to the right of the last **worksheet tab**.
2. Click the **Insert** arrow—either to the right or below Insert—in the Cells group on the **HOME** tab and select **Insert Sheet**.
3. **Right-click** any sheet tab, select Insert from the shortcut menu, click Worksheet in the Insert

dialog box,

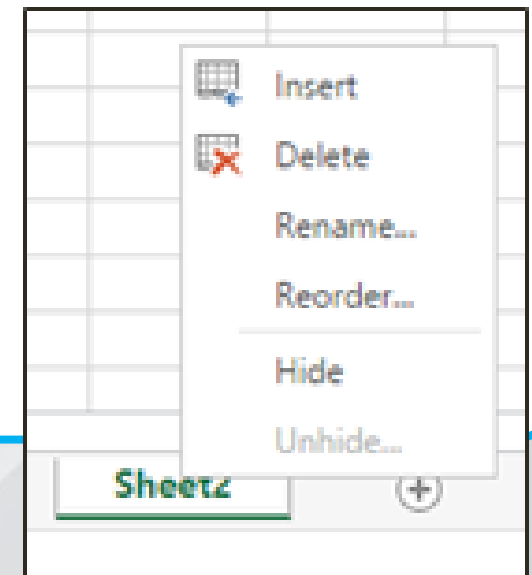
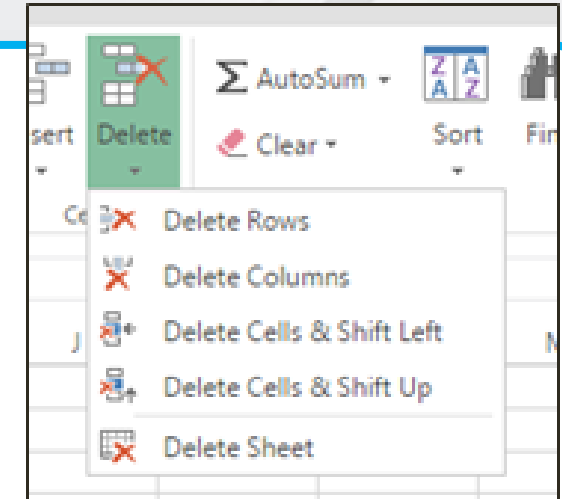


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Delete a Worksheet

To **delete a worksheet in a workbook**, do one of the following:

1. Click the Delete arrow—either to the right or below Delete—in the Cells group on the HOME tab and select Delete Sheet.
2. Right-click any sheet tab and select Delete from the shortcut menu



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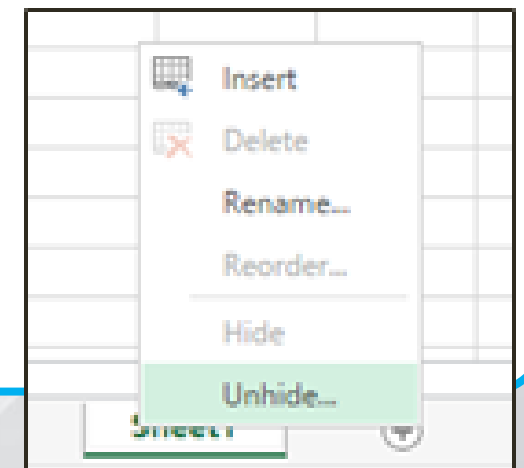
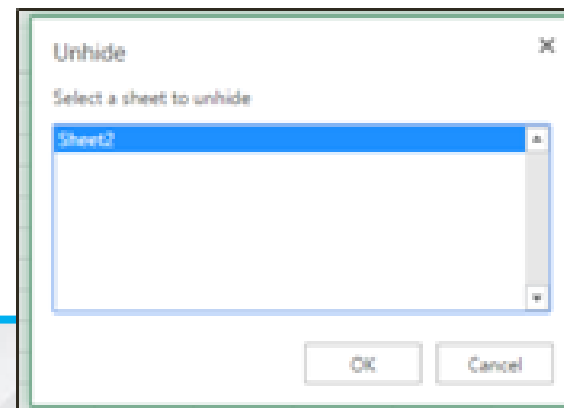
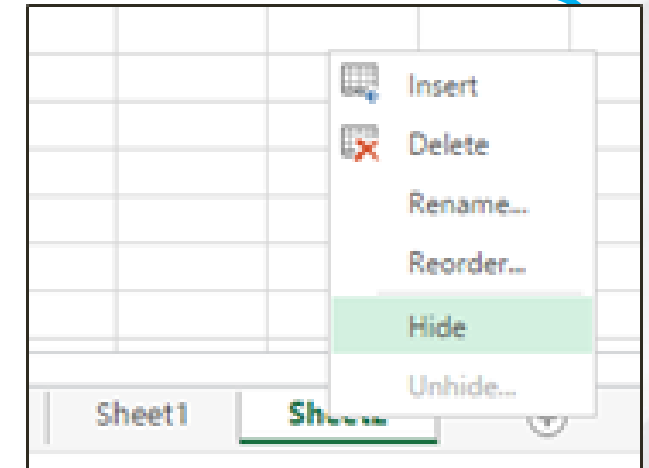
Hide and Unhide a Worksheet

To hide a worksheet in a workbook, do the following:

- Right-Click the sheet tab and select hide from the shortcut menu.

To unhide a worksheet in a workbook, do the following:

1. Right-click any sheet tab and select unhide from the shortcut menu
2. Then select the sheet you need to unhide

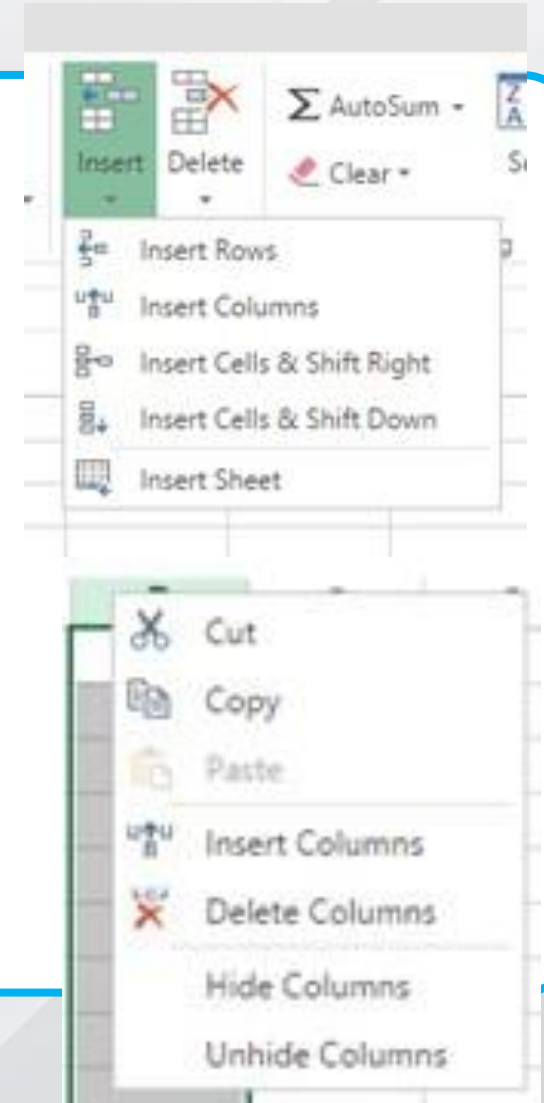


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Inserting Rows and Columns

To insert a new column or row, do one of the following:

1. Click in the column or row for which you want to insert a new column to the left or a new row above, respectively. Click the Insert arrow in the Cells group on the HOME tab and select Insert Sheet Columns or Insert Sheet Rows.
2. Right-click the column (letter) or row (number) heading for which you want to insert a new column to the left or a new row above, respectively, and select Insert from the shortcut menu.

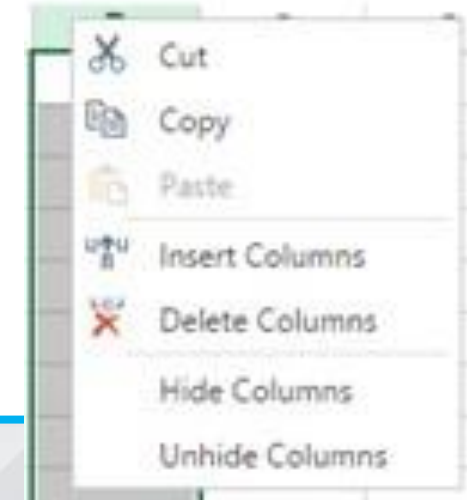


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Deleting Rows and Columns

To delete a column or row, do one of the following:

1. Click the column or row heading for the column or row you want to delete, then click Delete in the Cells group on the HOME tab.
2. Right-click the column letter or row number for the column or row you want to delete and select Delete from the shortcut menu.



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Insert or delete rows and columns

insert or delete a column:

- Select any cell within the column, then go to **Home > Insert > Insert Sheet Columns** or **Delete Sheet Columns**.
- Alternatively, right-click the top of the column, and then select **Insert** or **Delete**.

Insert or delete a row

- Select any cell within the row, then go to **Home > Insert > Insert Sheet Rows** or **Delete Sheet Rows**.
- Alternatively, right-click the row number, and then select **Insert** or **Delete**.

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Adjusting Column Width

To widen a column to accommodate the longest label or value in a column, do one of the following:

1. Position the pointer on the vertical border between the current column heading and the next column heading. When the pointer displays as a two-headed arrow, double click the border.
2. Drag the vertical border to the left to decrease the column width or to the right to increase the column width.

A	B	C	D	E
Mishaal Abdullah Company				
Incoming	Amount	Outgoing	Amount	
Year 2012 pro	50000	Staf Salaries	45000	
2011 year bal	20000	Bills	5000	
Bank Balance	15500	Rent	30000	
Total Income		Car	550	
		Travel	2000	
		Total Expenses		
Amount Remaining				

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Formatting

The following figure shows different formatting options such as wrap text, merge, applying alignment options, borders and fill color.

The figure illustrates various Excel formatting options with callouts pointing to specific elements in a financial statement template:

- Wrap Text:** Points to the 'Wrap Text' button in the 'Alignment' group of the ribbon.
- Vertical alignment:** Points to the vertical alignment icons in the 'Alignment' group.
- Horizontal alignment:** Points to the horizontal alignment icons in the 'Alignment' group.
- Merge & Center:** Points to the 'Merge & Center' button in the 'Alignment' group.
- Main title merged and centered over columns:** Points to the title 'Mishaal Abdullah Company' which spans columns D, E, and F.
- Fill color applied to cells:** Points to the blue fill color of the header row containing 'Incoming', 'Amount', 'Outgoing', and 'Amount'.
- Boarder surrounding a range:** Points to the black border around the 'Amount Remaining' cell.

Mishaal Abdullah Company			
Incoming	Amount	Outgoing	Amount
Year 2012 profit	50000	Staf Salaries	45000
2011 year balance	20000	Bills	5000
Bank Balance	15500	Rent	30000
Total Income		Car	550
		Travel	2000
		Total Expenses	
Amount Remaining			

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Function Basics

An Excel function is a predefined formula that performs a calculation.

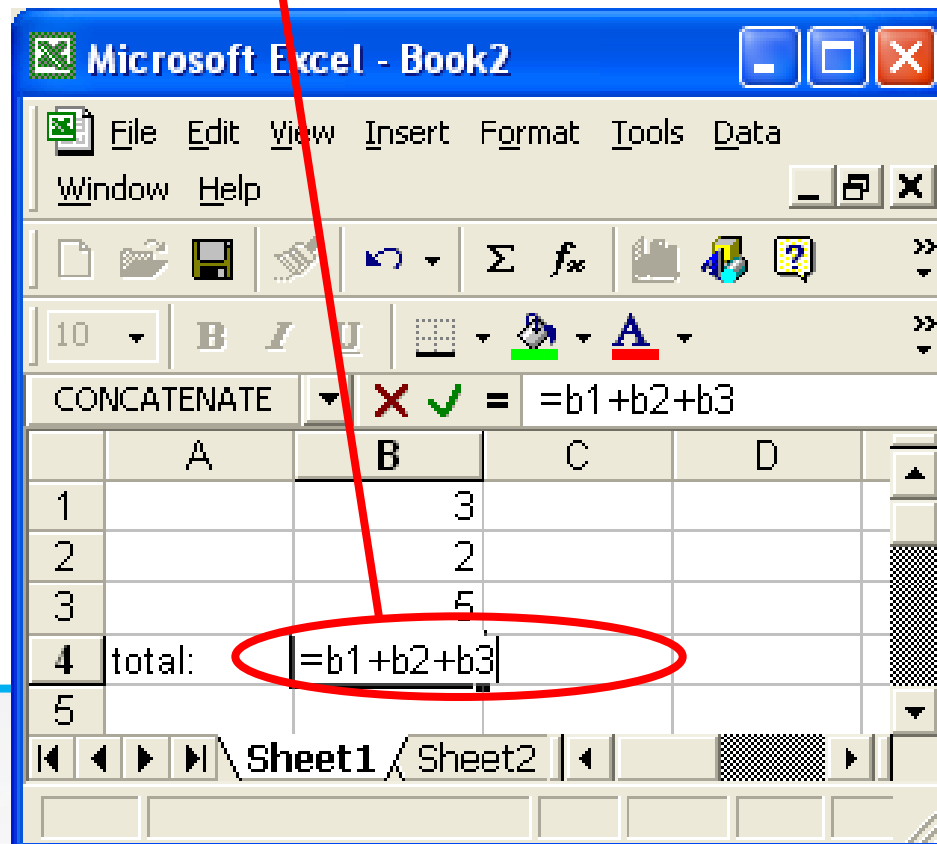
A function begins with the equal sign (=) followed by the function name and arguments in parentheses.

Example:=SUM(A1:A3)

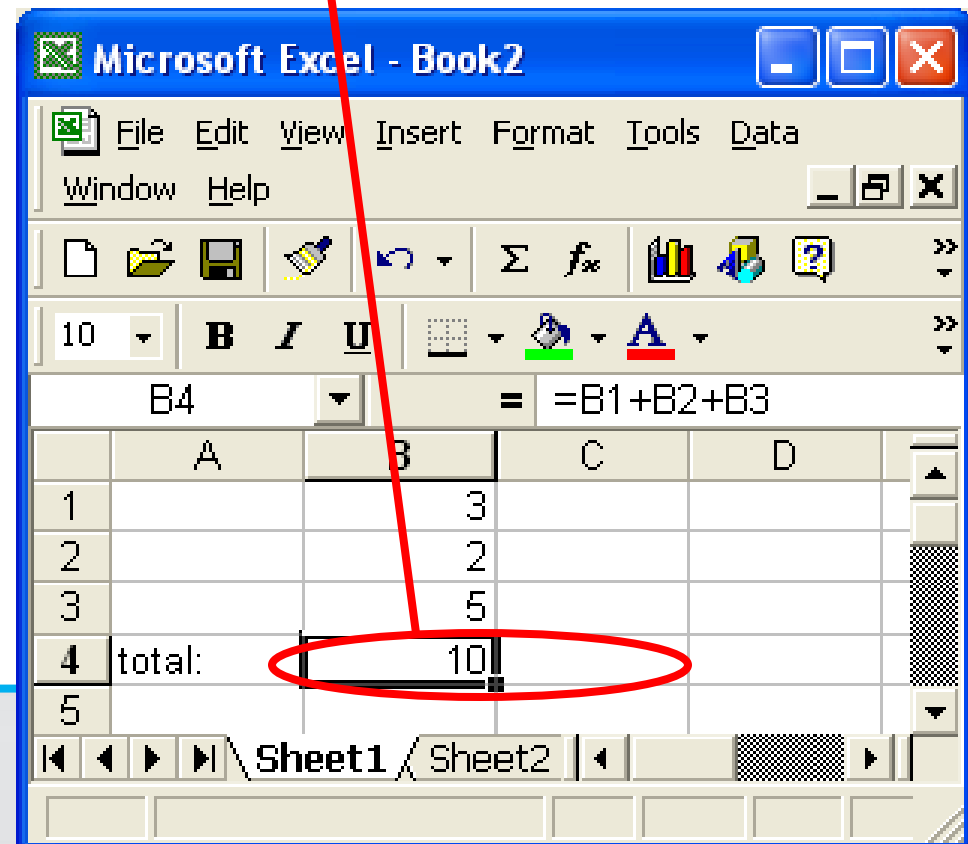
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Formulas - correct

formula with = sign



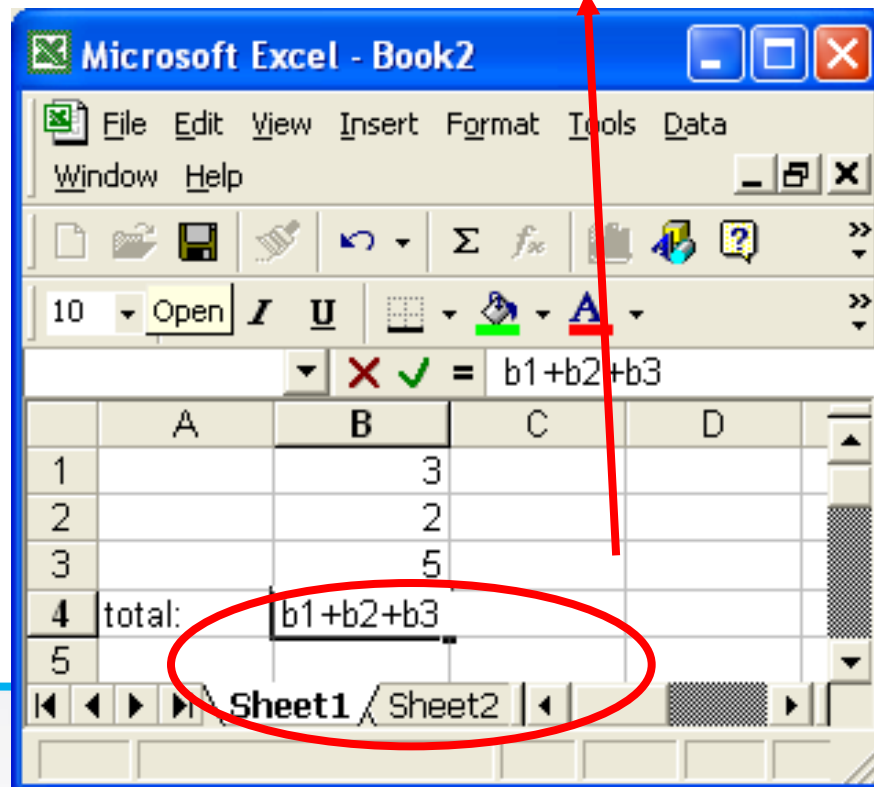
After pressing ENTER



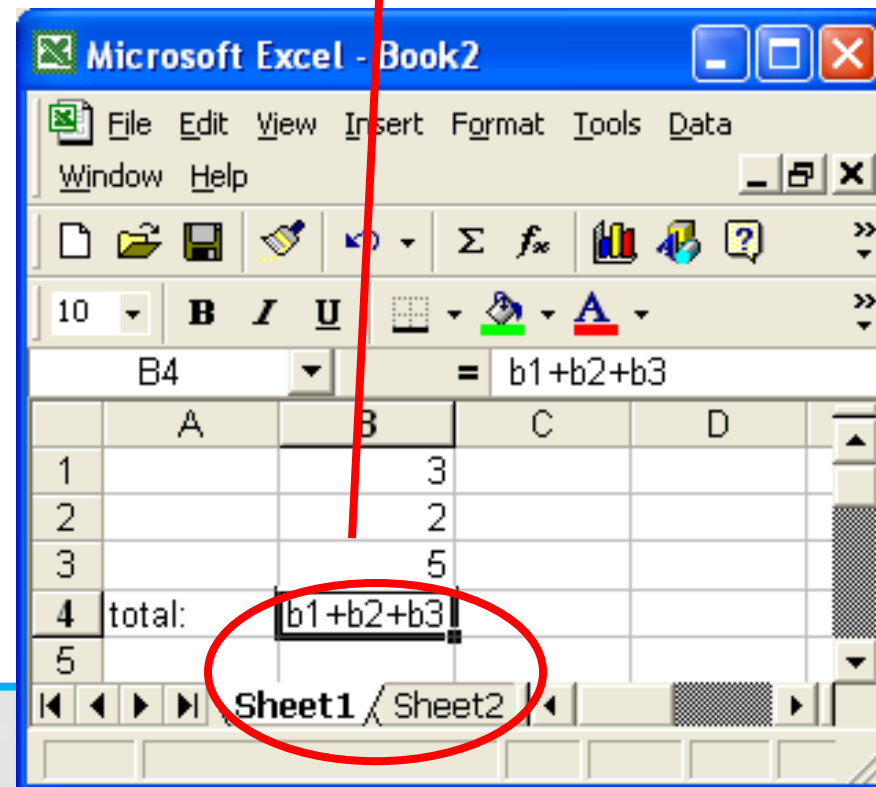
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Word Interface

Missing = sign!
Before pressing enter



After pressing ENTER
(no change - not a formula)

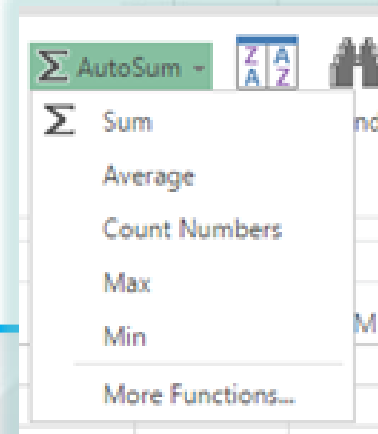
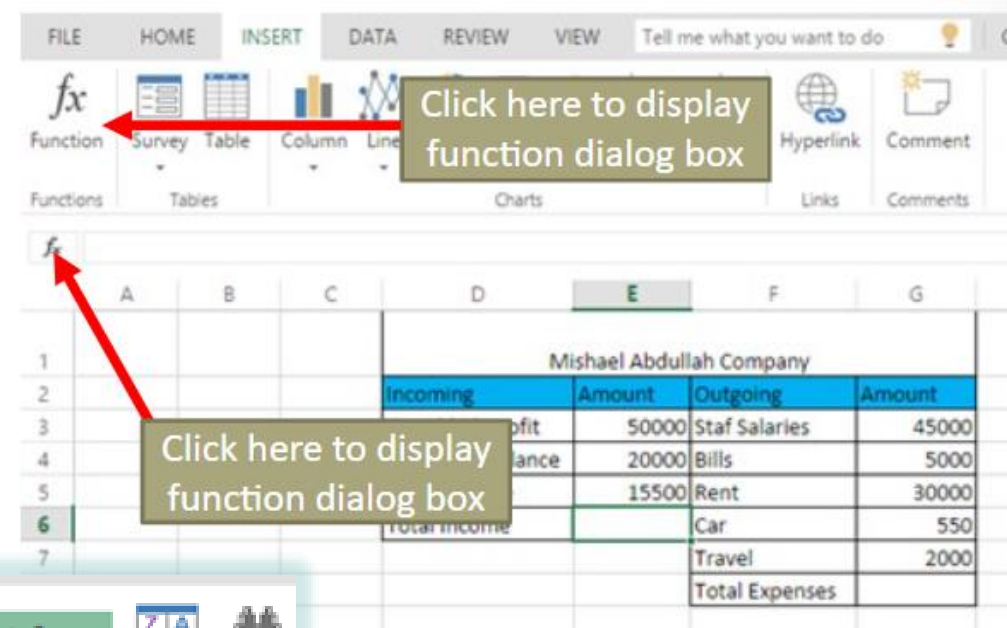


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Basic Functions

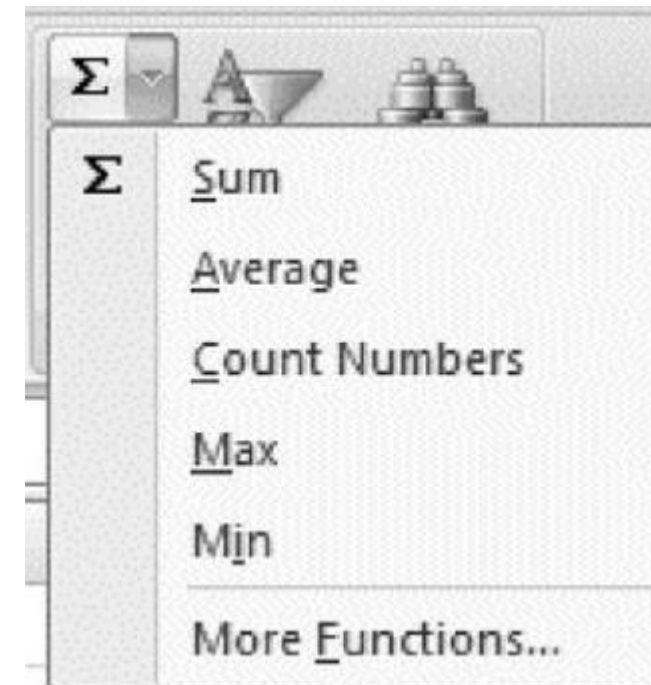
- **Common functions include:**

- 1) AVERAGE arithmetic mean
- 2) MIN minimum value
- 3) MAX maximum value
- 4) COUNT number of values in range
- 5) SUM calculates a total
- 6) IF logical function



Common Functions

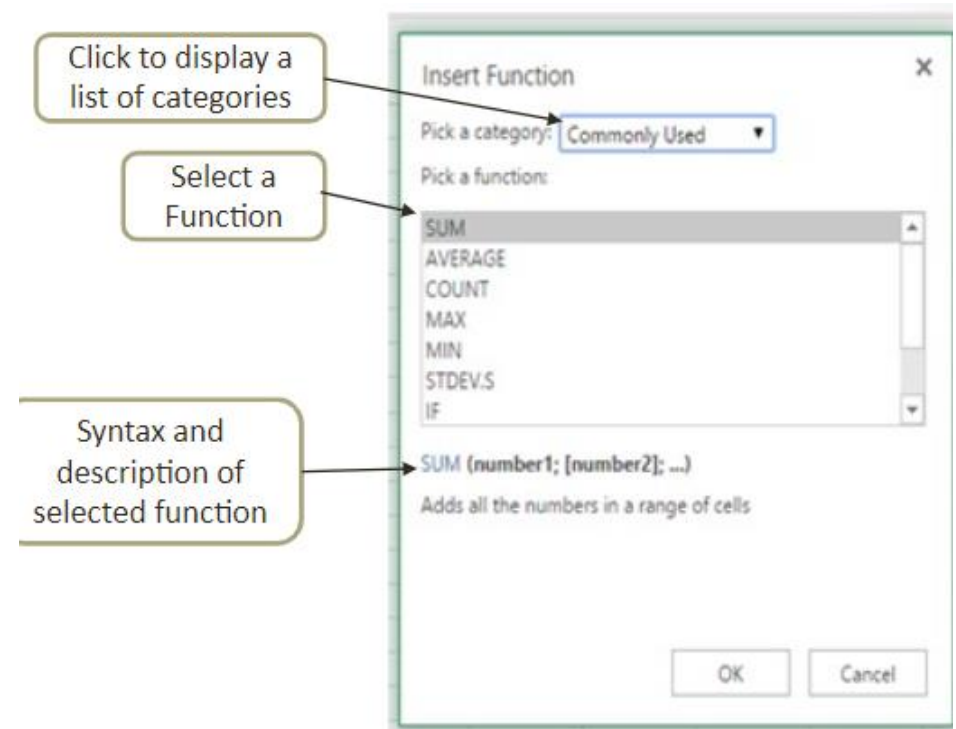
- **SUM**
 - Calculates the sum of a range of cells
- **MAX**
 - Displays the largest value in a range of cells
- **MIN**
 - Displays the smallest value in a range of cells
- **COUNT**
 - Calculates the number of values in a range of cells
- **AVERAGE**
 - Calculates the average of values in a range of cells



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Insert Function

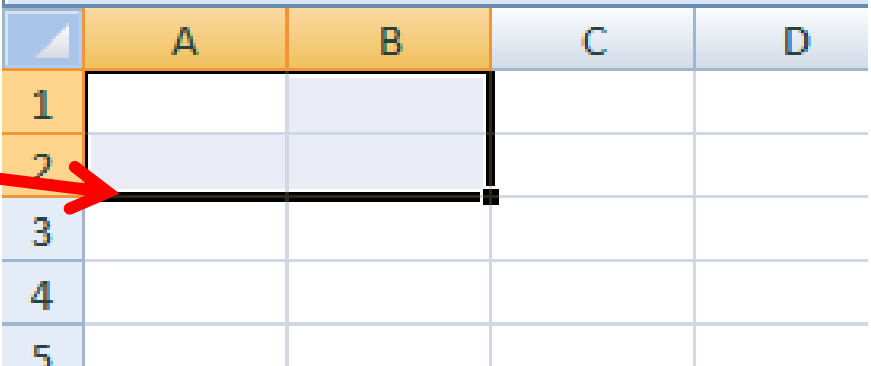
- From within the dialog box, **select a function** category, such as Most Recently Used, and **select a function to display** the syntax and a brief description of that function.



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Ranges

- A rectangular box of cells is called a “range”.
- The name of a range is
 - the name of the upper left cell of the range
 - Followed by a colon :
 - Followed by the lower right cell of the range
- Example: A1:B2 is shorthand for A1,A2,B1,B2
 - See next slide for more examples

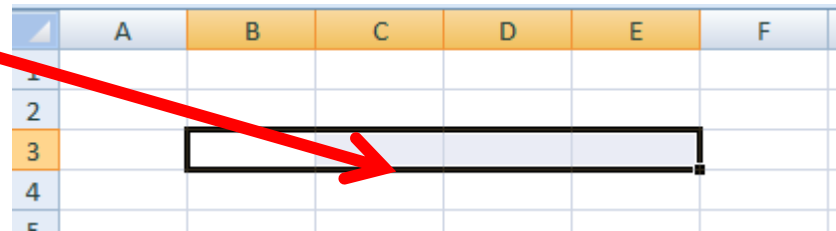
A1:B2

	A	B	C	D
1				
2				
3				
4				
5				

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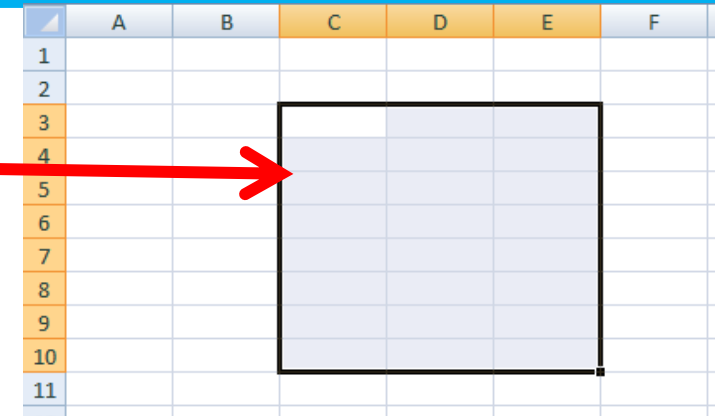
Examples of Range Names

B3:E3



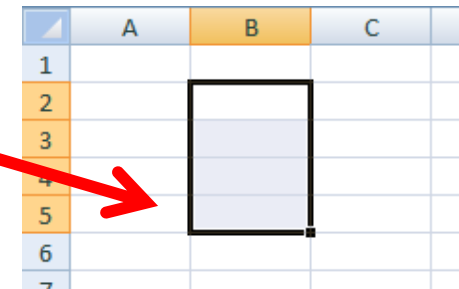
	A	B	C	D	E	F
1						
2						
3						
4						
5						

C3:E10



	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

B2:B5



	A	B	C
1			
2			
3			
4			
5			
6			
7			

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Types of operations

You can use any of the following operations in a formula:

operation	symbol	example
addition:	+	=a1+3
subtraction:	-	=100-b3
multiplication:	*	=a1*b1
division:	/	=d1/100
exponentiation	^	=a2^2

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The Order of Operator Precedence in Excel Formulas

The order of operations for Excel is as follows:

- Evaluate items in parentheses.
- Perform negation (-).
- Perform exponentiation (^).
- Perform multiplication (*) and division (/), which are of equal precedence.
- Perform addition (+) and subtraction (-), which are of equal precedence.

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Summing a range(Addition)

Both of the following function calls produce the same result as
 $=a1+b1+c1+a2+b2+c2+a3+b3+c3+a4+b4+c4$
however, the 2nd version uses a range and is much shorter.

without a range

`=SUM(a1,b1,c1,a2,b2,c2,a3,b3,c3,a4,b4,c4)`

with a range

`=SUM(a1:c4)`

	A	B	C	D	E	F
1	Sum	=SUM(C1:F1)	1	3	5	8

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Subtract Formula

To do simple subtraction, use the - (minus sign) arithmetic operator. For example, if you enter the formula **=10-5** into a cell, the cell will display 5 as the result.

	A	B	C	D	E
1	Sum	17	1	3	5
2	subtract	=E2-D2-C2	1	3	5

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Multiply numbers in a cell

Multiplying and dividing in Excel is easy, but you need to create a simple formula to do it. Just remember that all formulas in Excel begin with an equal sign (=), and you can use the formula bar to create them.

To do this task, use the * (asterisk) arithmetic operator.
For example, if you type **=5*10** in a cell, the cell displays the result, **50**.

3	Multiply	=C3*D3	2	3
---	----------	--------	---	---

3	Multiply	6
---	----------	---

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Divide numbers in a cell

To do this task, use the / (forward slash) arithmetic operator.

For example, if you type =10/5 in a cell, the cell displays 2.

Note: There is no DIVIDE function in Excel.

	A	B	C
1	Data	Formula	Description (Result)
2	15000	=A2/A3	Divides 15000 by 12 (1250)
3	12		

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AVERAGE function

Returns the average (arithmetic mean) of the arguments. For example, if the range B1:B7 contains numbers, the formula =AVERAGE(B1:B7) returns the average of those numbers.

	A	B
1	Sum	17
2	subtract	-9
3	Multiply	6
4	Divide	3
5	min	1
6	max	6
7	count	11
8	Average	=AVERAGE(B1:B7)

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Sum , average functions

- **SUM** function adds values. You can add individual values, cell references or ranges or a mix of all three.

For example: **=SUM(A2:A10)** Adds the values in cells A2:10.

- **AVERAGE** function returns the average (arithmetic mean) of the arguments. For example, if the range A1:A20 contains numbers, the formula **=AVERAGE(A1:A20)** returns the average of those numbers.

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MAX function

Returns the largest value in a set of values.

Syntax

MAX(number1, [number2], ...)

Data		
10		
7		
9		
27		
2		
Formula	Description	Result
=MAX(A2:A6)	Largest value in the range A2:A6.	27
=MAX(A2:A6, 30)	Largest value in the range A2:A6 and the value 30.	30

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MIN function

Returns the smallest number in a set of values.

Syntax

MIN(number1, [number2], ...)

Data

10

7

9

27

2

Formula

Description

Result

=MIN(A2:A6)

Smallest of the numbers in the range A2:A6.

2

=MIN(A2:A6,0)

Smallest of the numbers in the range A2:A6 and 0.

0

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COUNT function

Returns the smallest number in a set of values.

Syntax:

The COUNT function counts the number of cells that contain numbers and counts numbers within the list of arguments.

For example, you can enter the following formula to count the numbers in the range B1:C6: =COUNT(B1:C6). In this example, if 11 of the cells in the range contain numbers, the result is 11.

	A	B	C
1	Sum	17	1
2	subtract	-9	1
3	Multiply	6	2
4	Divide	3	9
5	min	1	3
6	max	6	
7	count	=COUNT(B1:C6)	

7 **count**

11

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Combine data using the CONCAT function

10	concatenate	=CONCAT(C10,D10)	EMAN	Hamdy	10	concatenate	EMANHamdy
----	--------------------	------------------	------	-------	----	--------------------	-----------

Select the cell where you want to put the combined data.

1. Type =CONCAT(.
2. Select the cell you want to combine first.
3. Use commas to separate the cells you are combining and use quotation marks to add spaces, commas, or other text.
4. Close the formula with a parenthesis and press Enter. An example formula might be =CONCAT(A2, " Family").

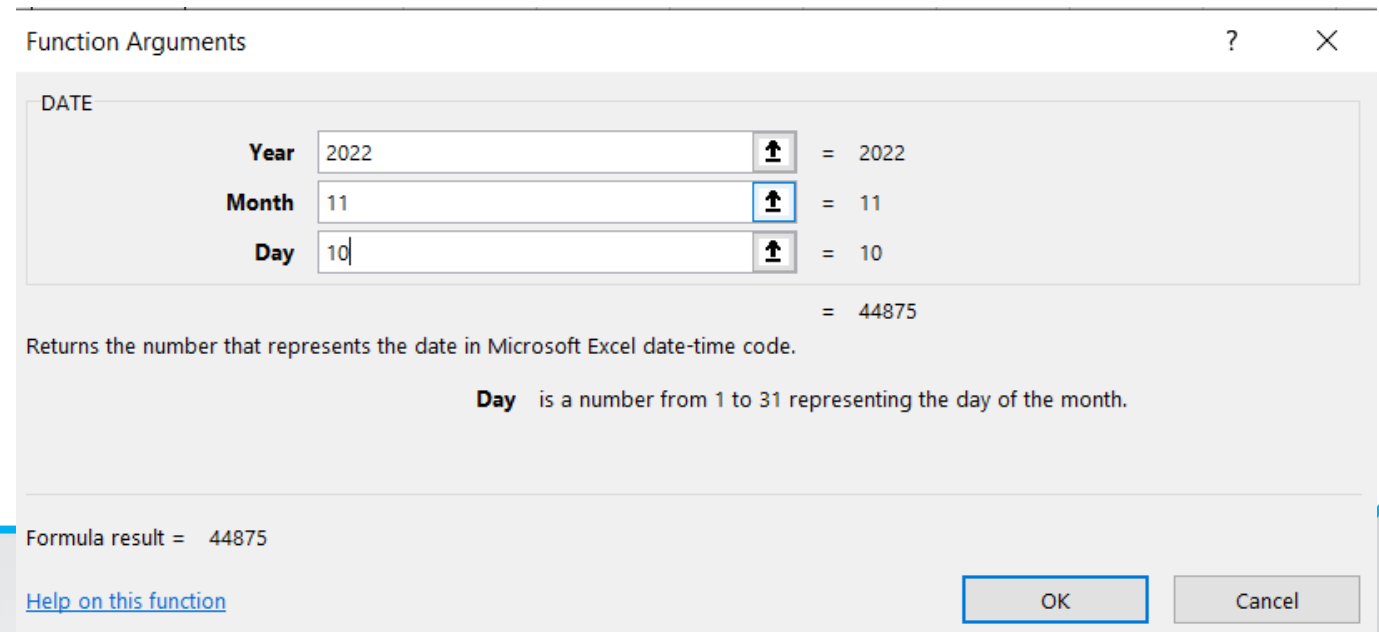
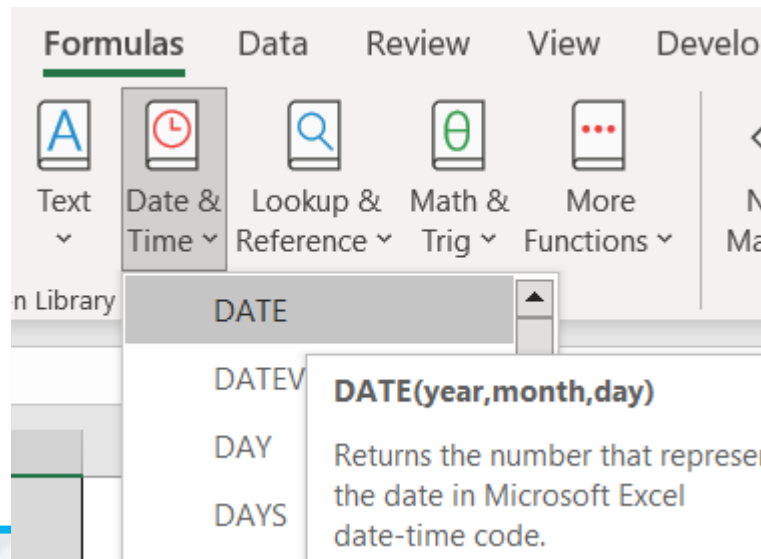
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Today, Function

Day

11/10/2022

- The Excel TODAY function returns the current date, updated continuously when a worksheet is changed or opened. The TODAY function takes no arguments.



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Time Function

- From Formula
- Select Date & Time choose Time

Function Arguments

TIME

Hour	3	↑	= 3
Minute	20	↑	= 20
Second	11	↑	= 11

= 0.139016204

Converts hours, minutes, and seconds given as numbers to an Excel serial number, formatted with a time format.

Second is a number from 0 to 59 representing the second.

Formula result = 0.139016204

[Help on this function](#)

OK Cancel

formulas.xlsx

Formulas Data Review View Developer

Date & Time Lookup & Reference Math & Trig More Functions

DATE
DATEVALUE
DAY
DAYS
DAYS360
EDATE
EOMONTH
HOUR
ISOWEEKNUM
MINUTE
MONTH
NETWORKDAYS
NETWORKDAYS.INTL
NOW
SECOND
TIME
TIMEVALUE
TODAY
WORKDAY
WORKDAY.INTL
WEEKDAY
WEEKEND
WEEKNUM

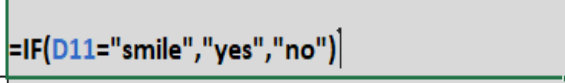
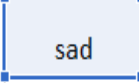
TIME(hour,minute,second)
Converts hours, minutes, and seconds given as numbers to an Excel serial number, formatted with a time format.

[Tell me more](#)

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IF function

- The IF function runs a logical test and returns one value for a TRUE result, and another for a FALSE result. For example,

=IF(D11="smile","yes","no") if  

- If D11(sad)= “Smile” is true return Yes if this condition false return No

11	if	no	sad
----	----	----	-----

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IF function

- The IF function runs a logical test and returns one value for a TRUE result, and another for a FALSE result. For example, to "pass" scores above 70: `=IF(A1>70,"Pass","Fail")`.

D6 `=IF(C6>=70,"Pass","Fail")`

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

IF function
Run a test. Return one result if TRUE, another if FALSE.

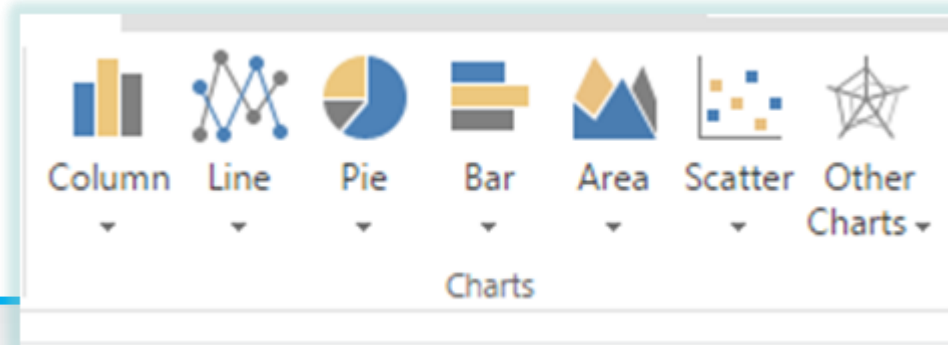
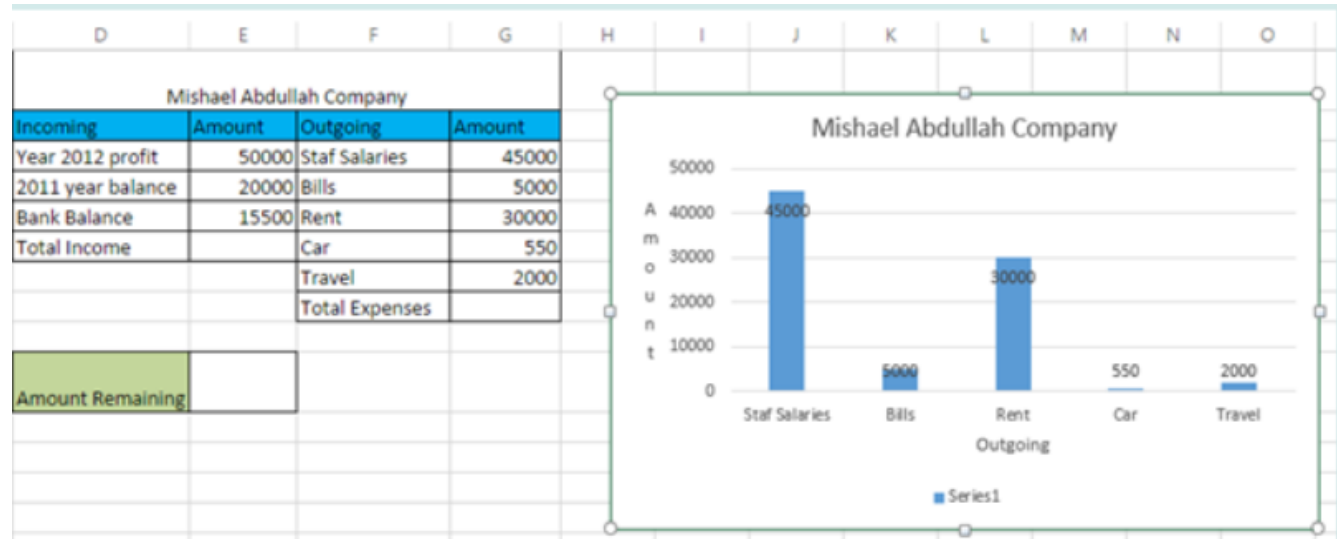
Name	Score	Result
Anderson	92	Pass
Bautista	85	Pass
Block	65	Fail
Burrows	79	Pass
Chandler	69	Fail
Colby	95	Pass
Crosby	90	Pass
Dove	70	Pass
Frantz	96	Pass
Gonzalez	93	Pass
Humphrey	75	Pass

Passing score: 70

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Chart Basics

- A chart is a visual representation of numeric data
- **Choosing a Chart type**



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Changing the Chart Type

- Using the Chart Tools contextual tab: In Change Chart Type group Select the desired chart type

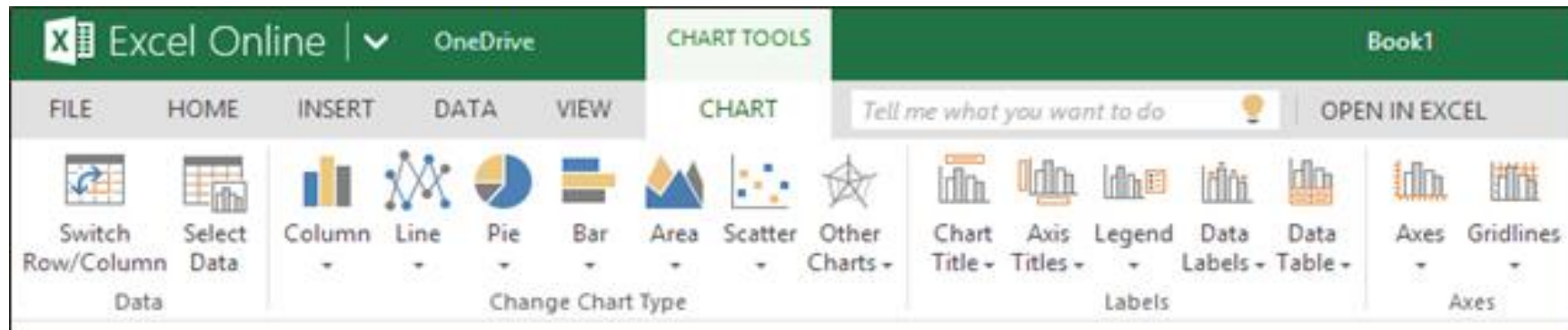


Chart Titles and Legend

- A **chart title** is the label that describes the entire chart.
- An **axis title** is a label that describes either the category or value axis.
- A **legend** is used to distinguish data points in a pie chart or data series in a multiple series chart.



Thank You