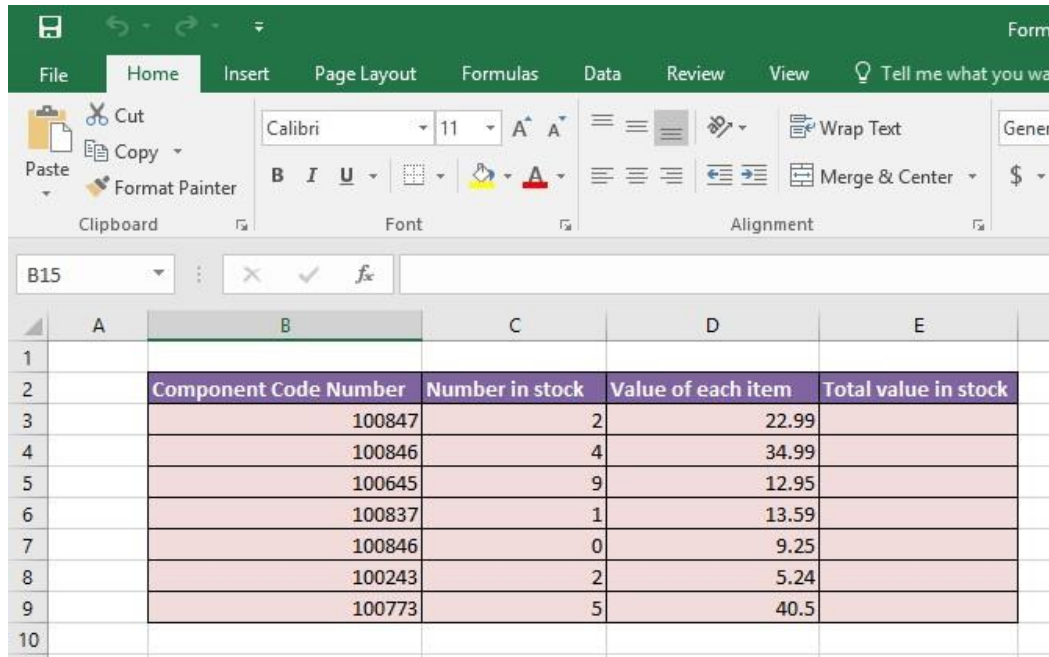


Excel Formulas

Creating formulas

- Open a workbook called **Formulas**. Click on cell **E3**.



	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	
4		100846	4	34.99	
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	
10					

In cell **E3** we need to create a formula that will calculate the value of the stock for that particular component. To do this we need to multiply the contents of cell **C3** by the content of cell **D3**.

- All formulas within Excel start with the 'equals' symbol.

Type in the following formula.

=C3*D3

TIP: the * symbol means 'times'.

Press the **Enter** key and you will see the result of the calculation in cell **E3**.

- Click on cell **E3** and you will see the formula displayed in the bar above the worksheet.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

The easy way to create formulas

- Click on cell **E4** and type in the equals sign.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

- Click on cell **C4** and you see this.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=C4
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	
10					

- Type in the * symbol, you see this.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=C4*
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

- Click on cell **D4** and you will see this.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=C4*D4
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

- Press the **Enter** key and you see the result of the calculation.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	139.96
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

- This method may seem more complicated at first but when you are creating complex formulas, you will find this method is actually easier and helps to reduce errors, such as typing incorrect cell references.

Copying formulas

- Click on cell **E4**.
- Move the mouse pointer to the bottom-right border of this cell and you will notice that the mouse pointer changes to the shape of a small, solid black cross. When you see this shape change press the mouse button and while keeping the mouse button depressed, drag down to cell **E9**. Release the mouse button and you will see the formula copied down this range. If you look at the formula in each cell of the range the cell references are automatically adjusted to match each row, i.e. row 8 contains the formula **=C8*D8**, while row 9 contains the formula **=C9*D9**.

Your screen will now look like this.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	139.96
5		100645	9	12.95	116.55
6		100837	1	13.59	13.59
7		100846	0	9.25	0
8		100243	2	5.24	10.48
9		100773	5	40.5	202.5
10					

- Save your changes and close the workbook.

Operators

□ Operators sound complicated. In reality they are items such as:

- + (plus)
- (minus)
- / (divide)
- * (multiply)

You use operators as part of your formulas. There are other operators but these are the commonly used ones.

Using operators in formulas

- Open a workbook called **Formula operators**.
- Click on cell **C3** and enter the following which will add the number **3** and **7**:

=3+7

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C4** and enter the following which will subtract the number **4** from the number **18**:

=18-4

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C5** and enter the following which will divide the number **20** by the number **4**:

=20/4

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C6** and enter the following which will multiply the number **4** by the number **9**:

=4*9

Press the **Enter** key and you will see the result displayed in the cell.

- Save your changes and close the workbook.

Formula error messages

- When writing formulas, it is easy to make a mistake: listed below are some common error messages.

#####

The contents of the cell cannot be displayed correctly as the column is too narrow.

#REF!

Indicates that a cell reference is invalid. This is often displayed when you delete cells which are involved in a formula.

#NAME?

Excel does not recognise text contained within a formula.

#DIV/0!

This indicates that you have tried to divide a number by zero (0).

Relative cell referencing within formulas

- Open a workbook called **Cell referencing**.
- The first worksheet within the workbook lets us look at relative addressing.
- Click on cell **E4**. We need to insert the formula for multiplying items in column C by the items in columns D. Type in the following formula:

=C4*D4

- Press the **Enter** key and you will see the result of the calculation in cell **E4**.
- Click on cell **E4**, and move the mouse pointer to the bottom-right corner of cell **E4**, and when the pointer changes to the shape of a

small black cross, press the mouse button, and keep it pressed down. Drag down the page to cell **E12** and then release the mouse button.

- If you click on cell **E5** you will see the following **=C5*D5**.
 - If you click on cell **E6** you will see the following **=C6*D6**.
 - If you click on cell **E7** you will see the following **=C7*D7**.
 - If you click on cell **E8** you will see the following **=C8*D8**.
 - If you click on cell **E9** you will see the following **=C9*D9**.
 - If you click on cell **E10** you will see the following **=C10*D10**.
 - If you click on cell **E11** you will see the following **=C11*D11**.
 - If you click on cell **E12** you will see the following **=C12*D12**.
- As you can see the referencing is completely relative. This will become clearer when you have worked through the rest of this section.

Absolute cell referencing within formulas

- Click on the **Absolute** tab at the bottom of the worksheet.
- Click on cell **D4**. We need to enter a formula that will take the price and then add 5% to the price to give a total value.

The 5% figure has been entered into cell **C15**.

- Type in the following formula into cell **D4**.

=C4*C15

If you do the sums, you will find that this formula displays the correct delivery charge price in cell **D4**.

- Click on cell **D4**, and move the mouse pointer to the bottom-right corner of cell **D4**, and when the pointer changes to the shape of a small black cross, press the mouse button, and keep it pressed down. Drag down the page to cell **D12** and then release the mouse button. The data will look something like this.

	A	B	C	D	E
1					
2					
3		Part Number	Price (excluding delivery)	Cost of delivery	Price (including delivery)
4		100837	22.99	1.15	
5		100263	10.95	0.00	
6		100937	20.50	0.00	
7		100234	10.50	0.00	
8		100375	12.95	0.00	
9		100746	29.84	0.00	
10		100387	23.43	0.00	
11		100883	9.48	0.00	
12		100338	20.50	0.00	

As you can see something has gone very wrong, as the 5% delivery charge appears to be 0 for most of the items.

- Click on cell **D5** and you can see what the problem is. The formula contained within this cell is:

=C5*C16

Part of the cell reference points to cell **C16** (which if you check is empty). The problem is that because of the relative nature of the formula, the component that should always refer to the contents of the cell in **C15** (i.e. the delivery charge percentage), in fact moves down as you drag down the screen to extend your calculations.

- Select the range **D4:D12** and press the **Del** key to delete the cell contents.
- Click on cell **D4** and we will try again. This time type in the following formula.

=C4*\$C\$15

The dollar signs make the reference to cell **C15** absolute.

- Try extending the formula to fill the range down to **D12**. This time you should find that the delivery charges are calculated correctly.

	A	B	C	D
1				
2				
3		Part Number	Price (excluding delivery)	Cost of delivery
4		100837	22.99	1.15
5		100263	10.95	0.55
6		100937	20.50	1.03
7		100234	10.50	0.53
8		100375	12.95	0.65
9		100746	29.84	1.49
10		100387	23.43	1.17
11		100883	9.48	0.47
12		100338	20.50	1.03

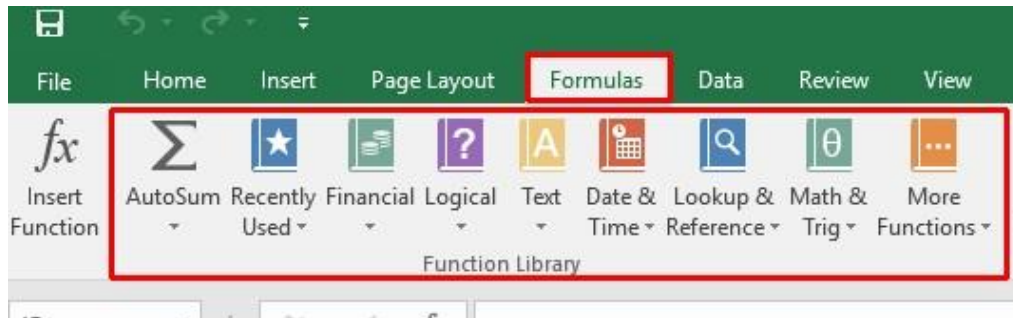
TIP: You have seen relative and absolute referencing. You can also have mixed references, which contain an absolute and a relative reference.

- Save your changes and close the workbook.

Excel Functions

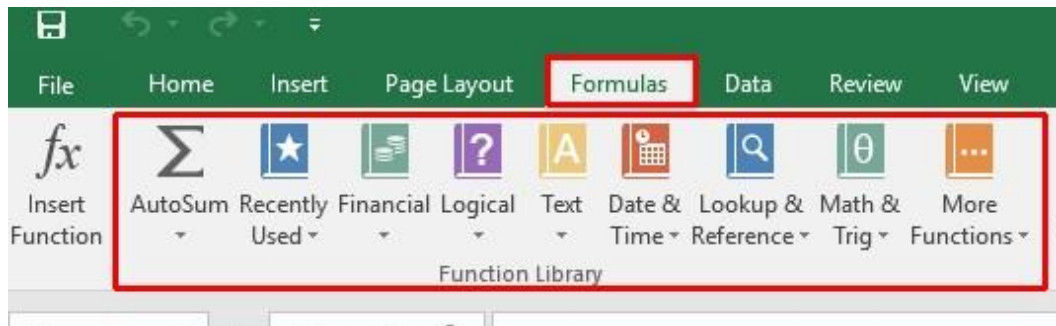
What are functions?

- A function allows you to calculate a result such as adding numbers together, or finding the average of a range of numbers. Functions are located under the **Formulas** tab.



Common functions

- Some commonly used functions include:



AVERAGE: Used to determine the average value of the selected cells contents.

COLUMNS: Used to return the number of columns within a reference.

COUNT: Used to count how many numbers are in the list.

COUNTA: Used to count the number of cells that are not empty and the values within the list of arguments.

COUNTBLANK: Used to count empty cells within a cell range.

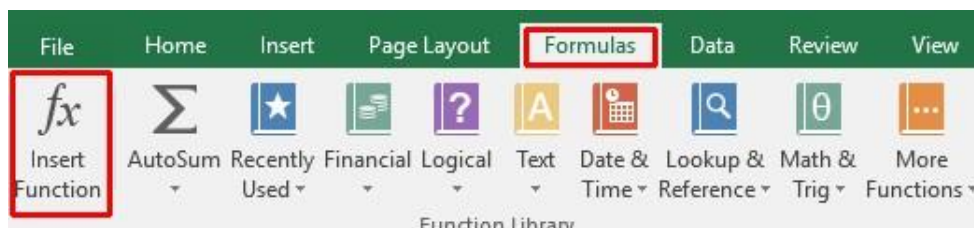
MAX: Used to return the maximum number from a list.

MIN: Used to return the minimum number from a list.

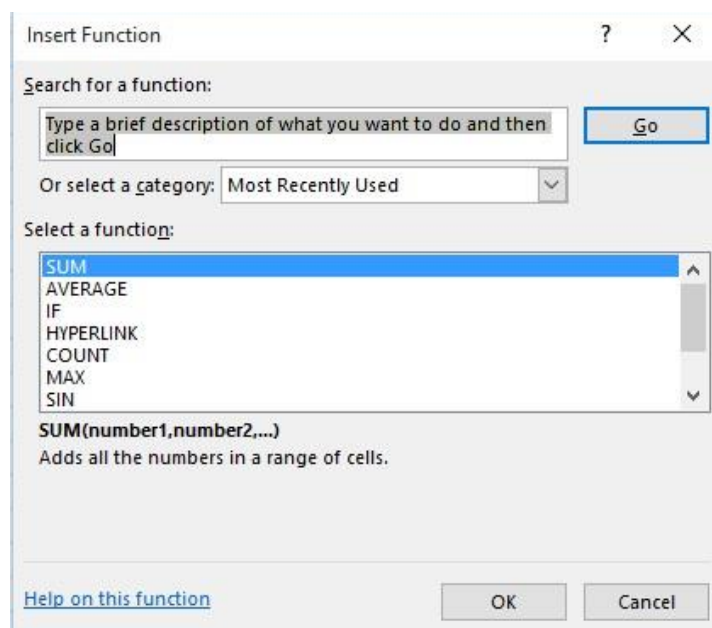
ROUND: Used to round off numbers to a specified number of decimal points.

SUM: Used to add the contents of selected cells.

To display the available functions, press **Ctrl+N** to display a blank workbook and then click on the **Formulas** tab and within the **Function Library** group click on the **Insert Function** icon.



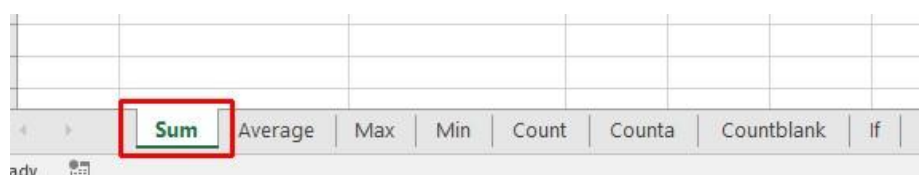
This will display the **Insert Function** dialog box.



□ Scroll down the list which as you will see is extensive.

Sum function

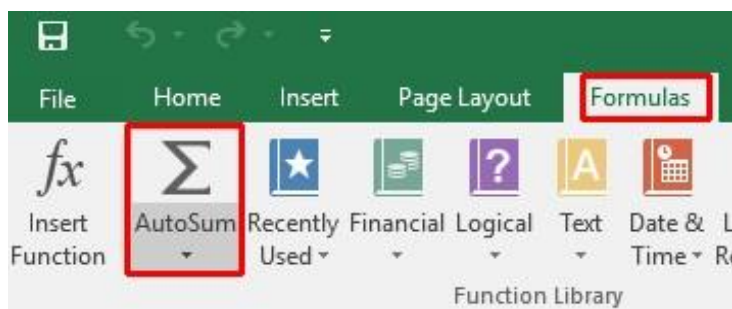
- Open a workbook called **Functions**.
- If necessary, click on the **Sum** worksheet tab.



- Click on cell **C8**.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		TOTAL	
9			

- In this cell we need to sum the values in the column above.
- Click on the **Formulas** tab and within the **Function Library** group click on the **AutoSum** icon.



TIP: Click on the **AutoSum** icon, not the **down arrow** under or beside the icon.

- You will see the following displayed on your screen.

	A	B	C	D
1				
2				
3		Sales Region	No of sales	
4		North	34	
5		South	11	
6		East	84	
7		West	38	
8		TOTAL	=SUM(C4:C7)	
9			SUM(number1, [number2], ...)	

- Press the **Enter** key and you will see the AutoSum result in cell **C8**.

	A	B	C	D
1				
2				
3		Sales Region	No of sales	
4		North	34	
5		South	11	
6		East	84	
7		West	38	
8		TOTAL	167	
9				

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		TOTAL	167
9			

As you can see the function is:

=SUM(C4:C7)

- This function tells Excel to sum the values in the range **C4:C7**.

Average function

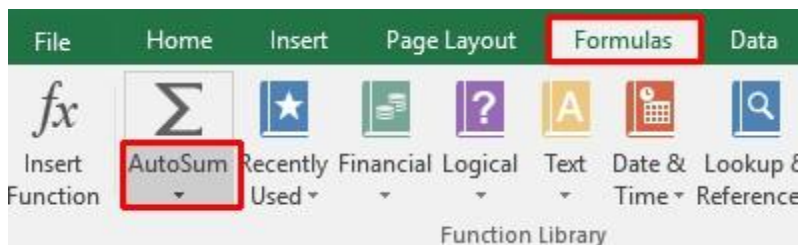
- Click on the **Average** worksheet tab.



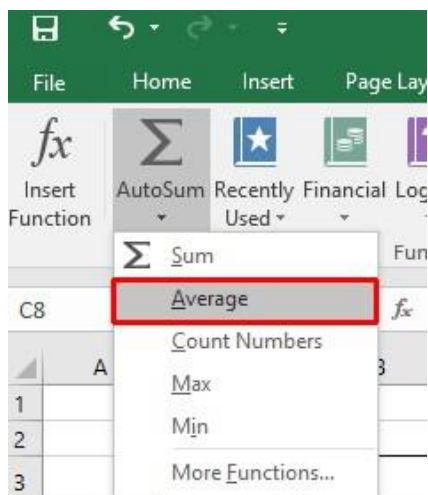
- Click on cell **C8**.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		Average no. of sales per region	
9			
10			

- In this cell we want to display the average number of sales within the regions.
- Click on the **Formulas** tab and within the **Function Library** group click on the **arrow** under (or next to) the **AutoSum** icon.



- You will see a drop down list displayed. Click on the **Average** command.



- You will see the following displayed on your screen.

	A	B	C	D
1				
2				
3		Sales Region	No of sales	
4		North	34	
5		South	11	
6		East	84	
7		West	38	
8		Average no. of sales per region	=AVERAGE(C4:C7)	

- Press the **Enter** key and you will see the average value displayed in cell **C8**.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		Average no. of sales per region	41.75

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.

The screenshot shows the Excel interface with the **Formulas** tab selected. The **Function Library** is visible, and the **Formula Bar** displays the function `=AVERAGE(C4:C7)`. Below the formula bar, the worksheet grid shows the same data as the previous table, with the result **41.75** displayed in cell **C8**.

As you can see the function is:

=AVERAGE(C4:C7)

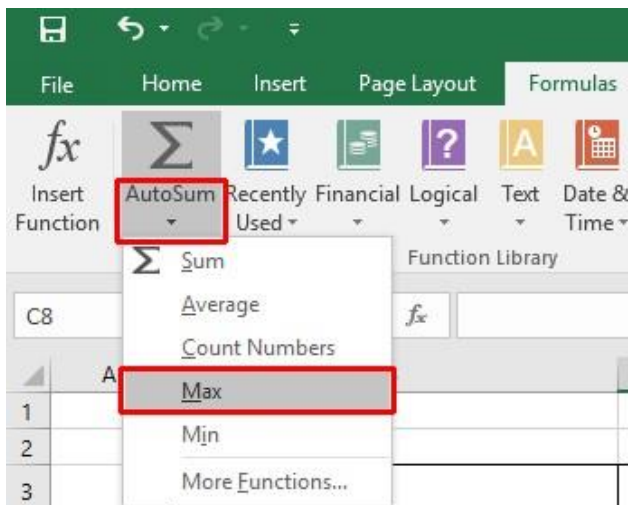
- This function tells Excel to sum the average in the range **C4:C7**.

Max function

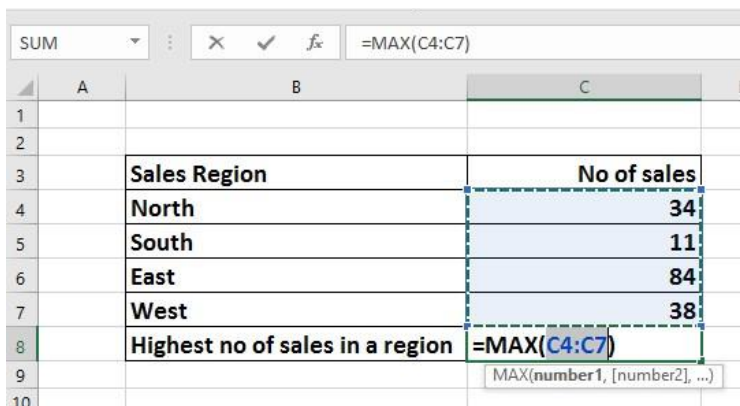
- Click on the **Max** worksheet tab.



- Click on cell **C8**. In this cell we want to display the highest number of sales within a region.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Max** command.



- You will see the following displayed on your screen.



	A	B	C	D
1				
2				
3		Sales Region	No of sales	
4		North	34	
5		South	11	
6		East	84	
7		West	38	
8		Highest no of sales in a region	=MAX(C4:C7)	
9			MAX(number1, [number2], ...)	
10				

- Press the **Enter** key and you will see the maximum value displayed in cell **C8**.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		Highest no of sales in a region	84
9			

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.

The screenshot shows the Excel interface with the **Formulas** ribbon selected. The function bar above the worksheet displays the formula `=MAX(C4:C7)`. The worksheet below shows the same data table as in the previous image, with cell C8 highlighted and containing the value 84.

As you can see the function is:

=MAX(C4:C7)

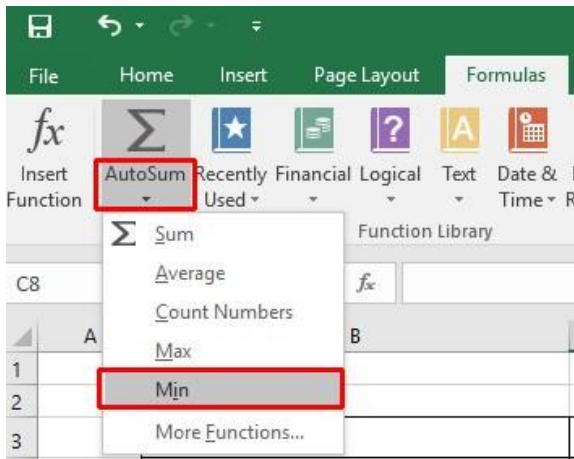
- This function tells Excel to display the maximum value within the range **C4:C7**.

Min function

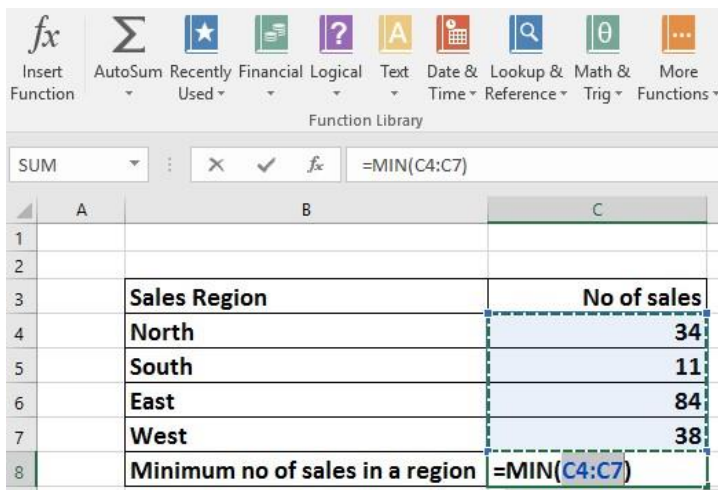
- The MIN function will display the minimum number within a range.
- Click on the **Min** worksheet tab.



- Click on cell **C8**. In this cell we want to display the lowest number of sales within a region.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Min** command.



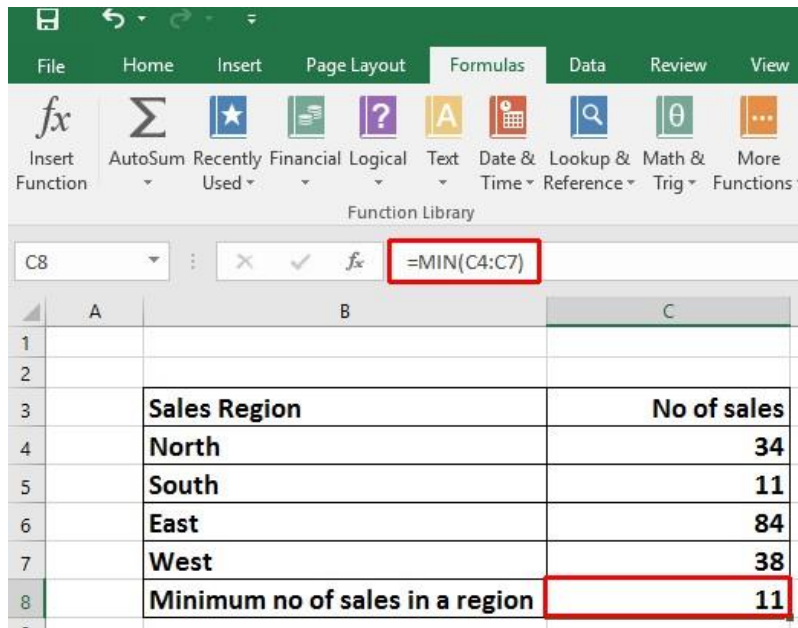
- You will see the following displayed on your screen.



- Press the **Enter** key and you will see the minimum value displayed in cell **C8**.

	A	B	C
1			
2			
3		Sales Region	No of sales
4		North	34
5		South	11
6		East	84
7		West	38
8		Minimum no of sales in a region	11
9			

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.



As you can see the function is:

=MIN(C4:C7)

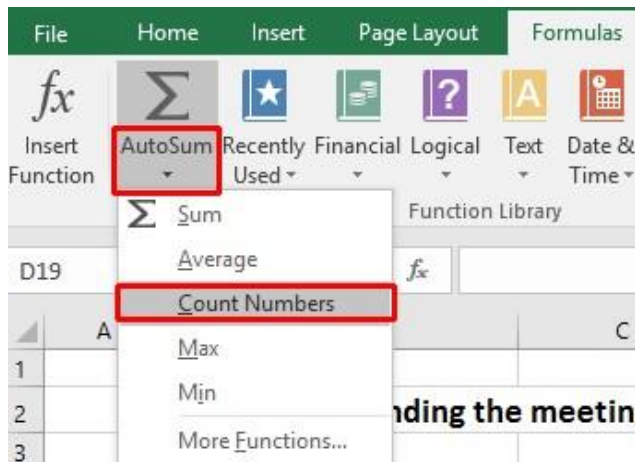
- This function tells Excel to display the minimum value within the range **C4:C7**.

Count function

- The **Count** function will count up the number of cells which contain numbers.
- Click on the **Count** worksheet tab.



- Click on cell **C19**. In this cell we want to display the number of cells in the column above that contain a number.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Count Numbers** command.



- You will see the following displayed on your screen.

Delegates attending the meeting			
	Delegate country	Present	Not present
4	Australia	1	
5	Brazil	1	
6	Canada	1	
7	China		1
8	Cyprus	1	
9	Greece	1	
10	India	1	1
11	Ireland	1	
12	New Zealand	1	
13	Pakistan	1	
14	South Africa	1	
15	Turkey		1
16	UK	1	
17	USA	1	
18		=COUNT(C17:C18)	

- WARNING:** In all the previous examples, there was a column containing values immediately above the cell into which we inserted the function. In this case some of the cells within the column are empty and Excel, as you can see, has only applied the Count function to the range C17:C18. The reason for this is that the next cell up, i.e. cell C16 is empty.

We need to tell Excel that the range we are interested in actually extends from C5:C18.

To do this, click on cell C18 and while holding down the mouse button drag up to cell C5. Then release the mouse button. Your screen should now look like this.

Delegates attending the meeting			
Delegate country	Present	Not present	
Australia	1		
Brazil	1		
Canada	1		
China		1	
Cyprus	1		
Greece	1		
India	1	1	
Ireland	1		
New Zealand	1		
Pakistan	1		
South Africa	1		
Turkey		1	
UK	1		
USA	1		
=COUNT(C5:C18)			

- Press the **Enter** key and you will see the count value displayed in cell **C19**.

Delegate country	Present	Not present	
Australia	1		
Brazil	1		
Canada	1		
China		1	
Cyprus	1		
Greece	1		
India	1	1	
Ireland	1		
New Zealand	1		
Pakistan	1		
South Africa	1		
Turkey		1	
UK	1		
USA	1		
Totals	12		

- Click on cell **C19**, and you will see the function displayed in the bar just above your worksheet.

	A	B	C	D
3				
4		Delegate country	Present	Not present
5		Australia	1	
6		Brazil	1	
7		Canada	1	
8		China		1
9		Cyprus	1	
10		Greece	1	
11		India	1	1
12		Ireland	1	
13		New Zealand	1	
14		Pakistan	1	
15		South Africa	1	
16		Turkey		1
17		UK	1	
18		USA	1	
19		Totals	12	

As you can see the function is:

=COUNT(C5:C18)

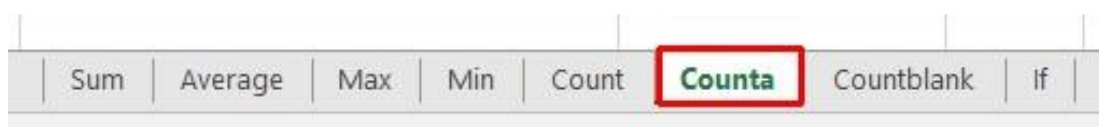
- This function tells Excel to display the number of cells containing a value within the range **C5:C18**.

NOTE: If you made a mistake, click on cell **C19** and press the **Del** key. Then try again.

- Use the same technique to count up the number of people who could not attend, and display the value in cell **D19**.

The COUNTA function

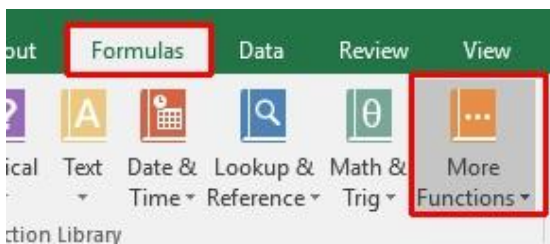
- Used to count the number of cells within a range that are not empty.
- Click on the **Counta** worksheet tab.



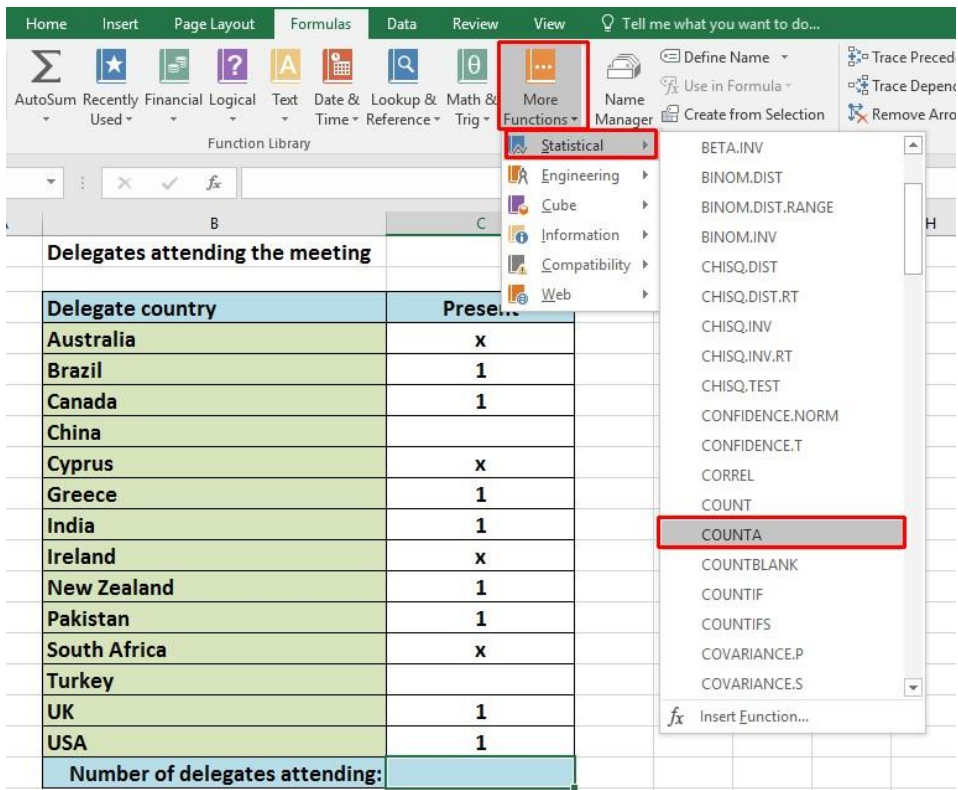
- You will see data that contains a mixture of numbers (1) and letters (x).

	A	B	C
2		Delegates attending the meeting	
3			
4		Delegate country	Present
5		Australia	x
6		Brazil	1
7		Canada	1
8		China	
9		Cyprus	x
10		Greece	1
11		India	1
12		Ireland	x
13		New Zealand	1
14		Pakistan	1
15		South Africa	x
16		Turkey	
17		UK	1
18		USA	1
19		Number of delegates attending:	
20			

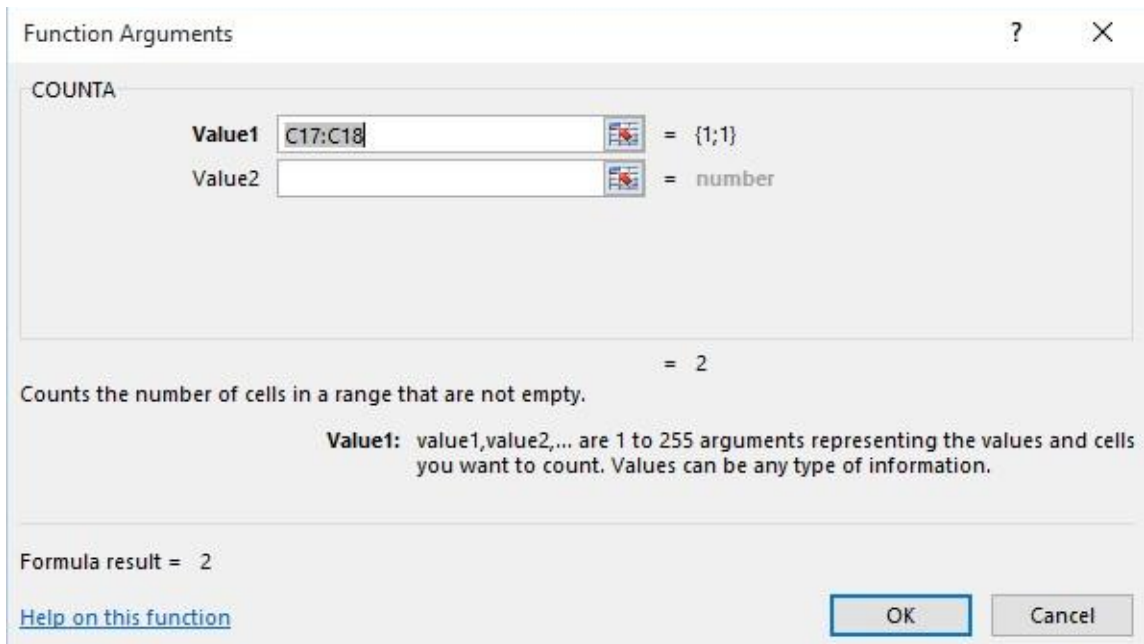
- The Count function would only count up the number of cells containing numbers, whereas Counta will count the number of cells containing numbers and letters.
- Click on cell **C19**.
- Click on the **More Functions** icon (contained within the **Function Library** section of the **Formulas** tab).



- From the drop down displayed, select **Statistical**. From the submenu select **Counta**.



- This will display the **Function Arguments** dialog box, as illustrated.



- If necessary move the dialog box to one side and then select the cell range **C5:C18**, as illustrated.

The screenshot shows an Excel spreadsheet with the following data:

Delegates attending the meeting	
Delegate country	Present
Australia	x
Brazil	1
Canada	1
China	
Cyprus	x
Greece	1
India	1
Ireland	x
New Zealand	1
Pakistan	1
South Africa	x
Turkey	
UK	1
USA	1
Number of delegates attending:	=COUNTA(C5:C18)

The 'Function Arguments' dialog box for the COUNTA function is open, showing:

- Function: COUNTA
- Value1: C5:C18
- Value2: (empty)
- Formula result: = 12

- The **Function Argument** dialog box will look like this.

This is a close-up of the 'Function Arguments' dialog box for the COUNTA function. It shows the following details:

- Function: COUNTA
- Value1: C5:C18
- Value2: (empty)
- Formula result: = 12
- Description: Counts the number of cells in a range that are not empty.
- Value1 description: value1,value2,... are 1 to 255 arguments representing the values and cells you want to count. Values can be any type of information.
- Buttons: OK, Cancel

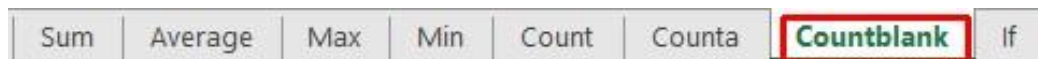
- Click on the **OK** button and you will see the following.

	A	B	C
2		Delegates attending the meeting	
3			
4		Delegate country	Present
5		Australia	x
6		Brazil	1
7		Canada	1
8		China	
9		Cyprus	x
10		Greece	1
11		India	1
12		Ireland	x
13		New Zealand	1
14		Pakistan	1
15		South Africa	x
16		Turkey	
17		UK	1
18		USA	1
19		Number of delegates attending:	12

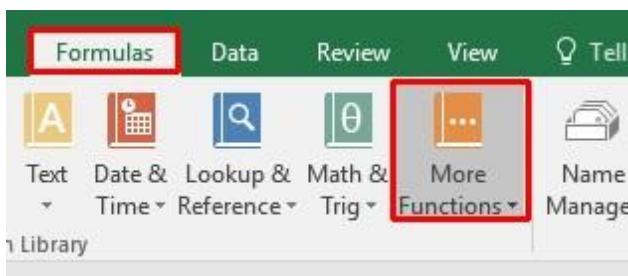
- As you can see the function has counted every instance of a number or letter within the specified cell range.

The COUNTBLANK function

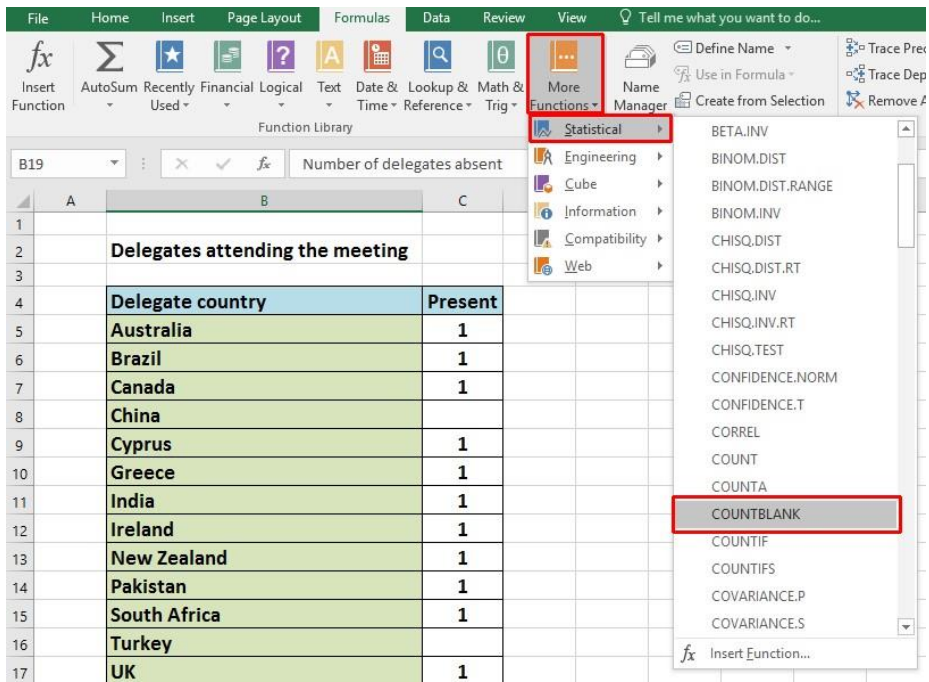
- Used to count empty cells within a cell range.
- Click on the **Countblank** worksheet tab.



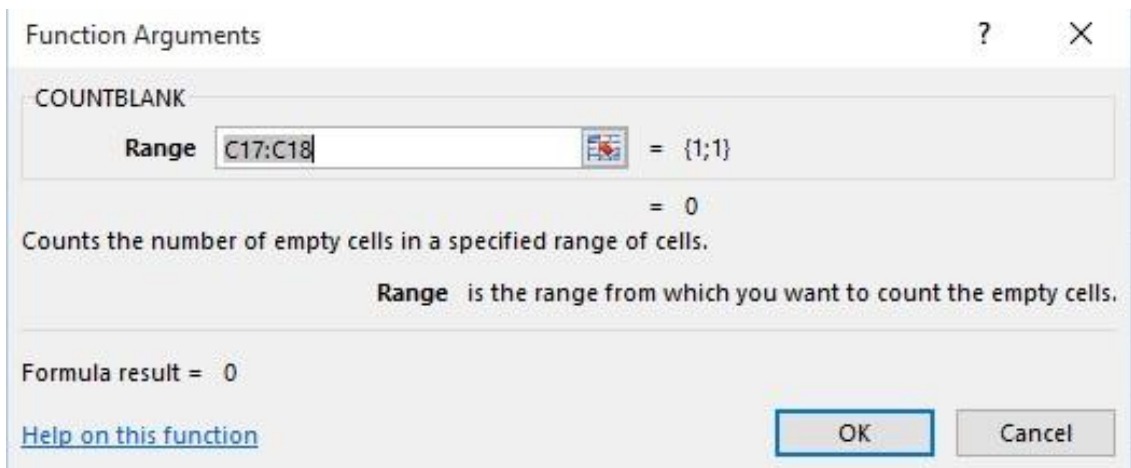
- Click on cell **C19**.
- Click on the **More Functions** icon (contained within the **Function Library** section of the **Formulas** tab).



- From the drop down displayed, select **Statistical**. From the submenu select **Countblank**. You may have to scroll down the list to see this function.

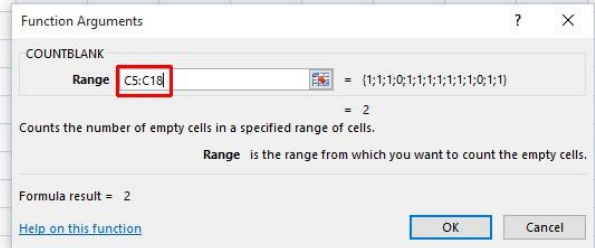


- This will display the **Function Arguments** dialog box, as illustrated.

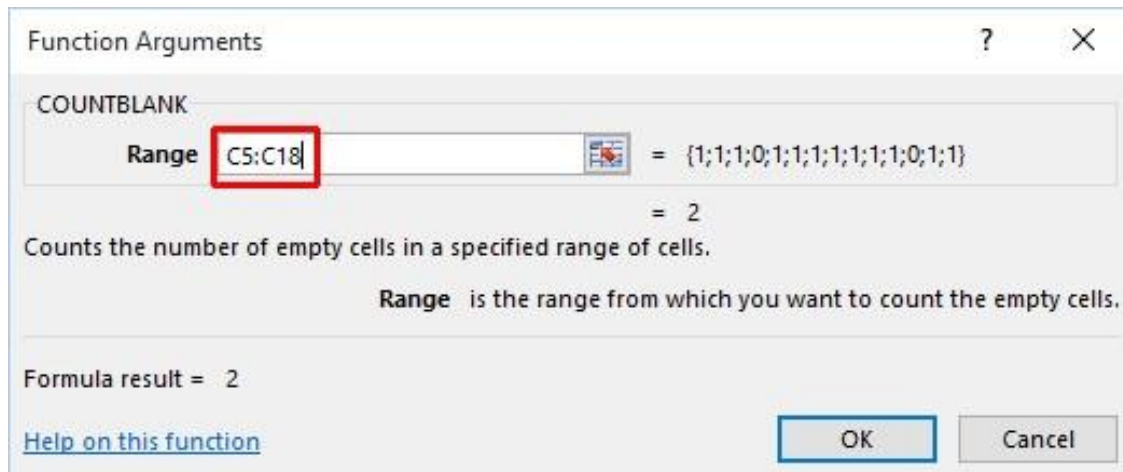


- If necessary move the dialog box to one side and then select the cell range **C5:C18**, as illustrated.

	A	B	C	D	E	F	G	H	I	J	K	L	M
2		Delegates attending the meeting											
3													
4		Delegate country	Present										
5		Australia	1										
6		Brazil	1										
7		Canada	1										
8		China											
9		Cyprus	1										
10		Greece	1										
11		India	1										
12		Ireland	1										
13		New Zealand	1										
14		Pakistan	1										
15		South Africa	1										
16		Turkey											
17		UK	1										
18		USA	1										
19		Number of delegates absent	5:C18)										



- The **Function Argument** dialog box will look like this.



- Click on the **OK** button.
- Click on cell **C18** and you will see the following.

The screenshot shows the Excel interface with the 'Formulas' tab active. The formula bar displays the function `=COUNTBLANK(C5:C18)`. Below the formula bar, a table is visible with the following data:

Delegate country	Present
Australia	1
Brazil	1
Canada	1
China	
Cyprus	1
Greece	1
India	1
Ireland	1
New Zealand	1
Pakistan	1
South Africa	1
Turkey	
UK	1
USA	1
Number of delegates absent	2

- As you can see the function has counted every instance of an empty cell within the specified cell range.

What are 'IF functions'?

- Excel has a number of functions which allow us to evaluate values and make decisions based on the result of the evaluation. The **IF()** FUNCTION is one of these.

IF() SYNTAX

The format (Syntax) of the IF() function is as follows:

IF(LOGICAL_TEST, ACTION_IF_TRUE, ACTION_IF_FALSE)

LOGICAL_TEST

The logical_test evaluates an expression to see if it passes the test, i.e. is TRUE or does not pass the test, i.e. is FALSE

Logical operators		Values for Evaluation		Result
		A=10 C=15	B=5 D=10	
= (Equal to)		A=B		FALSE
		A=D		TRUE
> (Greater than)		A>B		TRUE
		A>C		FALSE
< (Less than)		A<B		FALSE
		A<C		TRUE
>= (Greater than or Equal to)		A>=B		TRUE
		A>=D		TRUE
		A>=C		FALSE
<= (Less than or Equal to)		A<=B		FALSE
		A<=C		TRUE
		A<=D		TRUE

- **ACTION_IF_TRUE**

Action_if_true can be a value or an operation. Whichever, the result is placed in the cell which contains the IF() Function if the logical_test is true.

ACTION_IF_FALSE

Action_if_false can be a value or an operation. Whichever, the result is placed in the cell which contains the IF() Function if the logical_test is false.

Using the IF function

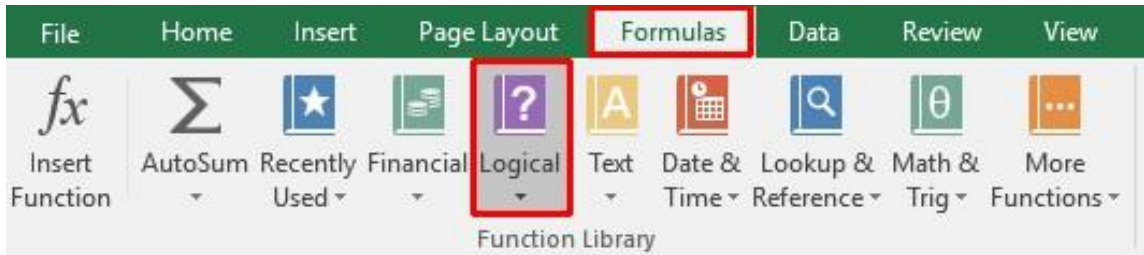
- Click on the **If** worksheet tab.



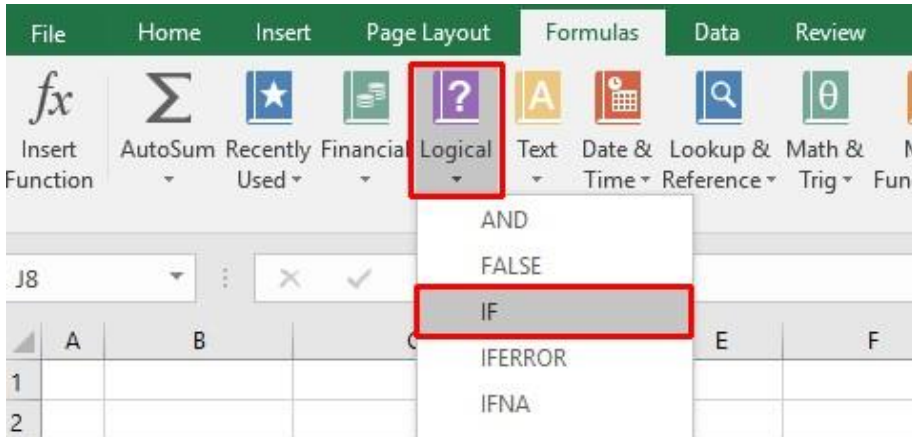
- In cells **J8:J13** we need to display the word **PASS** or **FAIL**, depending on whether the average is over **70%**.

	A	B	C	D	E	F	G	H	I	J	
1											
2											
3											
4											
5											
6			SUBJECTS								
7		STUDENTS	Mathematics	English	History	Geography		Average grades		Passed?	
8		Hadiya	68	78	59	59		66			
9		Dai	69	69	69	67		69			
10		Aaron	76	78	79	87		80			
11		Rowan	67	86	58	65		69			
12		Aaliyah	85	77	87	78		82			
13		Gabriela	59	68	78	89		74			
14											
15											
16			To pass a student needs an average grade of over 70%								

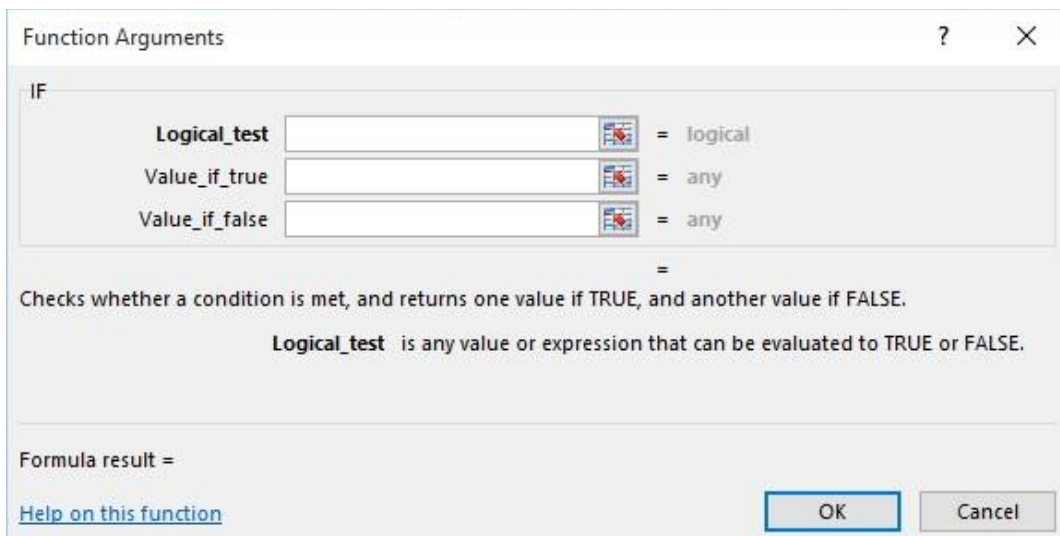
- Click on the cell **J8**.
- Click on the **Logical** icon within the **Function Library** group of the **Formulas** tab.



- This will display a drop down list. Select the **IF** command.



- This will display the **Function Arguments** dialog box.

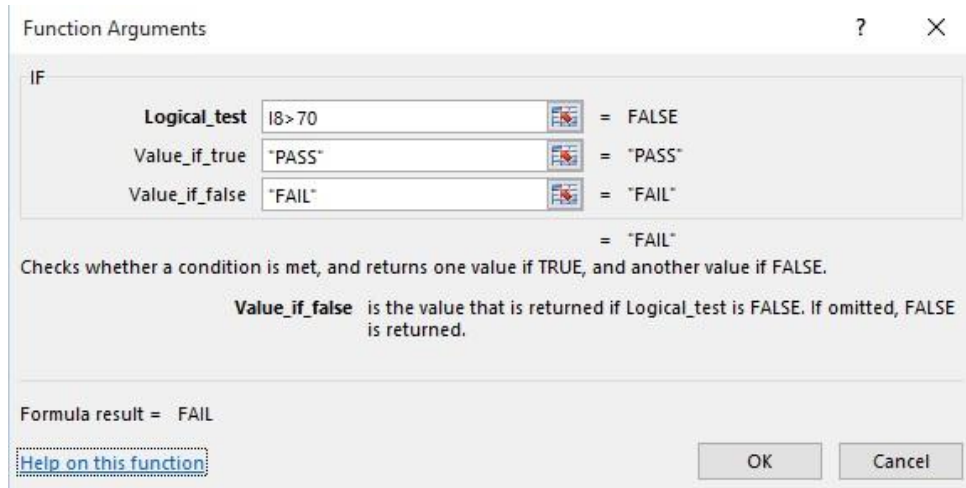


- In the **LOGICAL_TEST** section of the dialog box, we enter the logical test, i.e. **18>70**

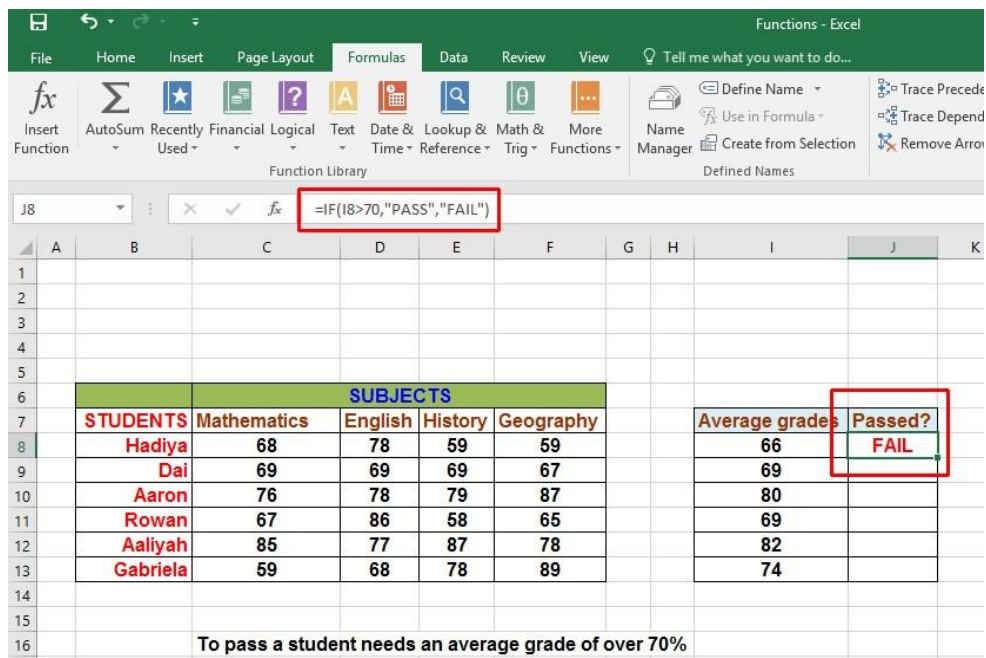
In the **VALUE_IF_TRUE** section of the dialog box, we enter the word **PASS**.

In the **VALUE_IF_FALSE** section of the dialog box, we enter the word **FAIL**.

- Your dialog box will now look like this.



- Click on the **OK** button to continue. Your screen will now look like this.



- Use the normal Excel drag techniques to extend this function to the cells **I9:J13**.
Your screen will now look like this.

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

fx Insert Function AutoSum Recently Used Financial Logical Text Date & Time Lookup & Reference Math & Trig More Functions Name Manager Define Name Use in Formula Create from Selection Defined Names Trace Precedents Trace Dependents Remove Arrows

G20

	A	B	C	D	E	F	G	H	I	J	K	
1												
2												
3												
4												
5												
6			SUBJECTS									
7		STUDENTS	Mathematics	English	History	Geography	Average grades	Passed?				
8		Hadiya	68	78	59	59	66	FAIL				
9		Dai	69	69	69	67	69	FAIL				
10		Aaron	76	78	79	87	80	PASS				
11		Rowan	67	86	58	65	69	FAIL				
12		Aaliyah	85	77	87	78	82	PASS				
13		Gabriela	59	68	78	89	74	PASS				
14												
15												
16			To pass a student needs an average grade of over 70%									

- Save your changes and close the workbook.