

BASIC FORMULAE & FUNCTIONS

Microsoft Excel - school fete

	Estimated number of people		
1	400		
2			
3	INCOME	Cost	No. bought per person
4	Drinks	£2.00	1
5	Tea/coffee	£0.50	1
6	Cakes	£0.25	1
7	Hot dogs/burgers	£1.00	1
8	Slides	£0.75	4
9	Games	£0.40	3
10	Staff	£0.50	2
11	Prizes	£1.50	2
12	Tombola	£0.50	2
13		£5288.00	Total INCOME
14	PAYMENTS		Money out
15	Drinks		£800.00
16	Canteen		£150.00
17	Stocks of tea/coffee/snacks		£44.00
18	Packs of hot dogs/burgers		£150.00
19	Site of fete		£500.00
20	Staff prices		£150.00
21	Games (donated)		£0.00
22	Prizes (donated)		£0.00
23	Tombola prices (donated)		£0.00
24		£1673.00	Total EXPENDITURE
25		£3615.00	Profit/Loss

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Wherever you see this symbol, make sure you remember to save your work!

BASIC FORMULAE

Using formulae Excel can do calculations for you automatically.

To see how the most basic formulae in Excel work, we will use the following symbols:

- + addition
- subtraction
- * multiply
- / divide

You will need to set up your worksheet by doing the following:

Type the text ADD, SUBTRACT, DIVIDE, MULTIPLY in cells A1, C1, E1 and G1 (as below).

Then type all the numbers as shown in the correct cells.

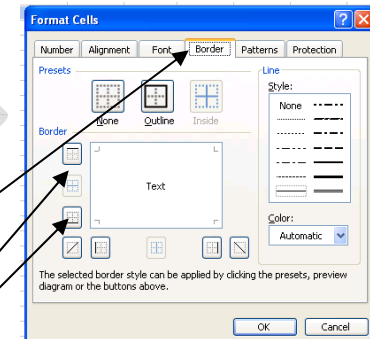
	A	B	C	D	E	F	G	H
1	ADD		SUBTRACT		MULTIPLY		DIVIDE	
2	100		100		100		100	
3	400		400		400		400	
4								

Make your worksheet look better by formatting the cells and changing the font.

Inserting a border

Cells A4, C4, E4 and G4 need a thick top and bottom border. To do this:

- Click on cell A4. Hold down Ctrl while you click on each of the other named cells to select them
- From the main menu, select Format and then Cell s...
- A dialog box should appear. Click on the border tab.
- Select the line style by clicking a thick line in the Style box.
- Click in the border boxes to specify top and bottom borders.
- Click OK.



Entering formulae

Formulae are entered using cell references.

- Click in cell A4
- Type in an equals (=) sign to tell Excel that you are about to enter a formula. (Every formula begins with an =)
- Type a2+a3 so that the formula appears - shown below:

	A	B	C
1	ADD		SUBTRACT
2	100		100
3	400		400
4	=a2+a3		
5			

- As you can see above the formula is also shown in the Formula Bar. It is possible to edit your formulae here if you need to.
- In cell C4, type = C2-C3
- In cell E4, type = E2*E3
- In cell G4, type = G2/G3

Your worksheet should look like this:

	A	B	C	D	E	F	G	H
1	ADD		SUBTRACT		MULTIPLY		DIVIDE	
2	100		100		100		100	
3	400		400		400		400	
4	500		-300		40000		0.25	
5								
6								

Automatic Re-calculation

One of the reasons we use computerised spreadsheets, is that once you have entered the formulae, you can change the contents of the other cells and the answers will still be correct. This is because we use cell references in the formulae and not the values in the cells.

! Try experimenting by changing the values in rows 2 and 3, to see if the answers are still correct.

Q. What is 2.798565 x 4.694937?

Entering Formulae By Pointing

You can enter formulae, such as =a2+a3, by using the mouse to point to the cells in the formula.

Have a go - delete all formula in your spreadsheet.

- In cell A4, type = and then click the mouse in cell A2.
- Type + and then click the mouse in cell A3.
- Press Enter.

! Now try entering other formulae in the same way.



BASIC FUNCTIONS

Functions allow us to perform more complicated calculations. They are pre-programmed into Excel. There are over 200 available!

SUM Function

The SUM function adds up the numbers in a range of cells.

In a blank spreadsheet, enter the details as shown below.

	A	B
1	ICT GRADES	
2		
3	Name	Exam Mark (/100)
4	Peter Smith	70
5	Mary Davenport	69
6	Anthony MacDonald	84
7	Sheila Roberts	98
8	David Jones	32
9	Sarah Collins	78
10		
11		
12	TOTAL	
13		

If we want to add up the total score for everyone in the group for their exam and put the total in cell B12, we can do the following:

- Select cell B12, by clicking in it.
- As with any formula, you should type =SUM([including the opening bracket]
- Now click in cell B4 and hold the left mouse button while you drag down to cell B9. This will select all exam marks to add up.
- After B9 type) to finish to formula.
- Press Enter.
- The formula should look like this =SUM(B4:B9) The values within the brackets are the range of cells that are selected.
- You will also be able to see the formula in the formula bar, shown here. It is possible to edit the formula here.

! In cell C3 type Coursework (/50) enter a mark out of 50 for each pupil.
In cell C12, using the SUM function, work out the total score for everyone in the group.

AVERAGE Function

The average function works in much the same way as the SUM function.

To work out the average mark for the exam results, do the following:

- Click in cell A14 and type AVERAGE.
- Click in cell B14 and type =AVERAGE(
- Click in cell B4 and drag down to cell B9.
- Type) to finish the formula.
- Press Enter.
- The answer appears in the cell.

! Now work out the average mark for coursework.



MAX & MIN Function

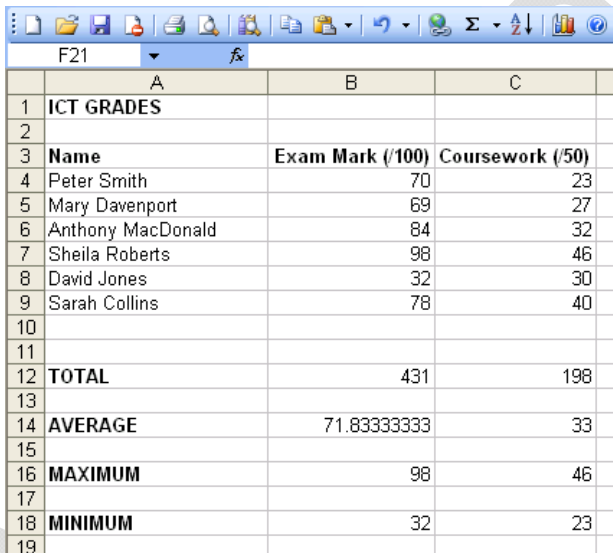
To find the minimum or largest value, you need to use the MAX function.

To find the maximum exam mark, do the following:

- Click in cell A16 and type MAXIMUM
- Click in cell B16 and type =MAX(
- Click in cell B4 and drag down to cell B9.
- Type) to finish the formula.
- Press Enter.
- Enter a formula in cell C16 to work out the maximum coursework mark.

! Now use the MIN function to find the smallest values for the exam marks and coursework marks. Type MINIMUM in cell A18 and enter the MIN function in the appropriate cells.

Your work should now look like this (remember you will have entered different values into the coursework column).



	A	B	C
1	ICT GRADES		
2			
3	Name	Exam Mark (/100)	Coursework (/50)
4	Peter Smith	70	23
5	Mary Davenport	69	27
6	Anthony MacDonald	84	32
7	Sheila Roberts	98	46
8	David Jones	32	30
9	Sarah Collins	78	40
10			
11			
12	TOTAL	431	198
13			
14	AVERAGE	71.83333333	33
15			
16	MAXIMUM	98	46
17			
18	MINIMUM	32	23
19			

COUNT Function

Counts the number of cells that contain numbers, in the selected range.

This example will count the number of results that have been considered. (Although it is quite simple to work this out in this example, the function would be more helpful with a longer list).

- Type Number of Marks in cell A20.
- In cell B20 type =COUNT(
- Click in cell B4 and drag down to cell B9.
- Type) to finish the formula.
- Press Enter
- The answer should be 6.

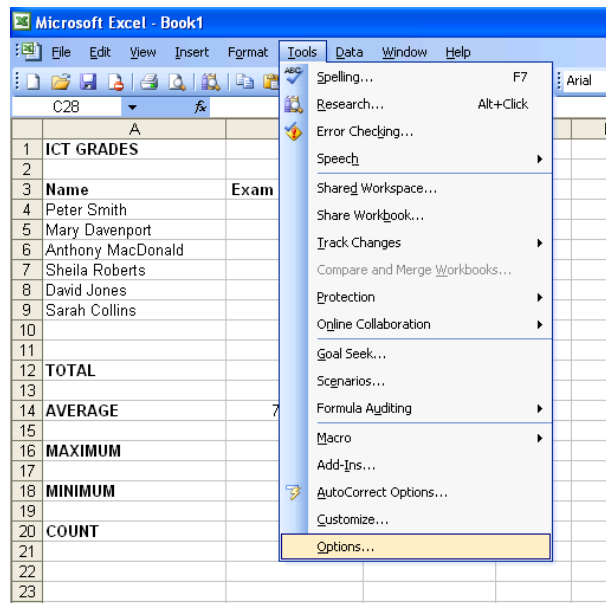
This formula has counted the number of cells that have a number in them (or in this case a mark).

! Experiment with the formula that you have just entered. Try changing the range of cells to include the marks in column C. What happens to the result of the count function?

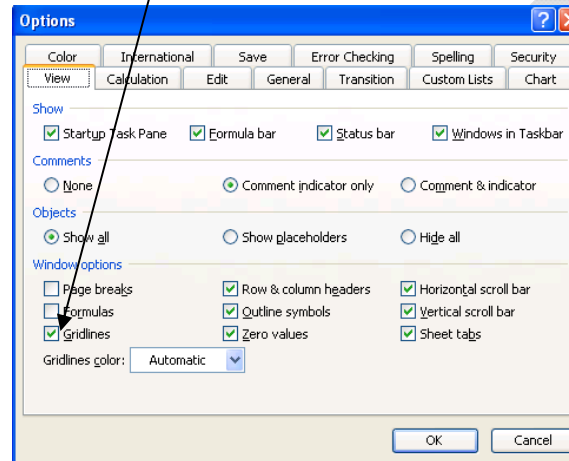
HOW TO DISPLAY FORMULAE

To display the formulae that you have entered, instead of the results, do the following:

- Select Tools from the Main Menu
- Select Options



The following dialogue box will be displayed. You should click in the formula box so that a tick is entered



! Remove the tick to hide the formula.

RESIZING COLUMNS TO DISPLAY DATA

You should always make sure that column widths are wide enough so that all words or numbers fit into each cell.

Position the pointer so that it is on the line between column headers



The pointer will change to a double-headed arrow.

Press the left mouse button and hold it down while you drag to the right. The column will become wider, making it wide enough to fit all its contents.

Alternatively, when you are pointing between the column headers and the pointer has changed to a double-headed arrow, you can double-click. The column automatically widens so that all contents of the cell will fit.

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