Computer Skills
Microsoft Office Excel

Mathematics Department
First Year

Loading Microsoft® Excel®

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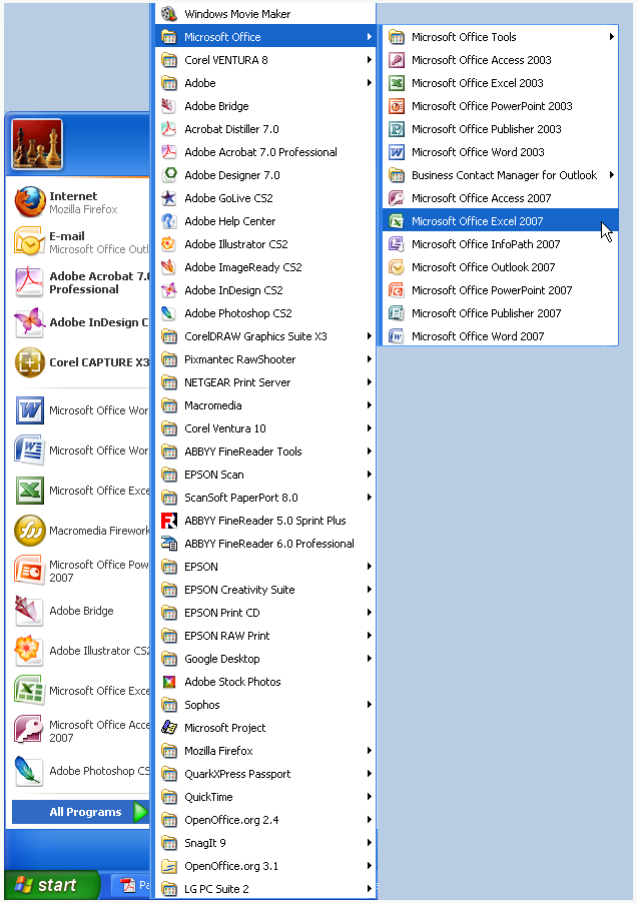
- Either double-click the Excel® icon (if it is on your desktop)

- Or click Start, All Programs, then click Microsoft Office Excel 2010. (Note: depending on how your computer is set up, you might need to click Start, All Programs, Microsoft Office, Microsoft Office Excel 2010.)



The opening screen

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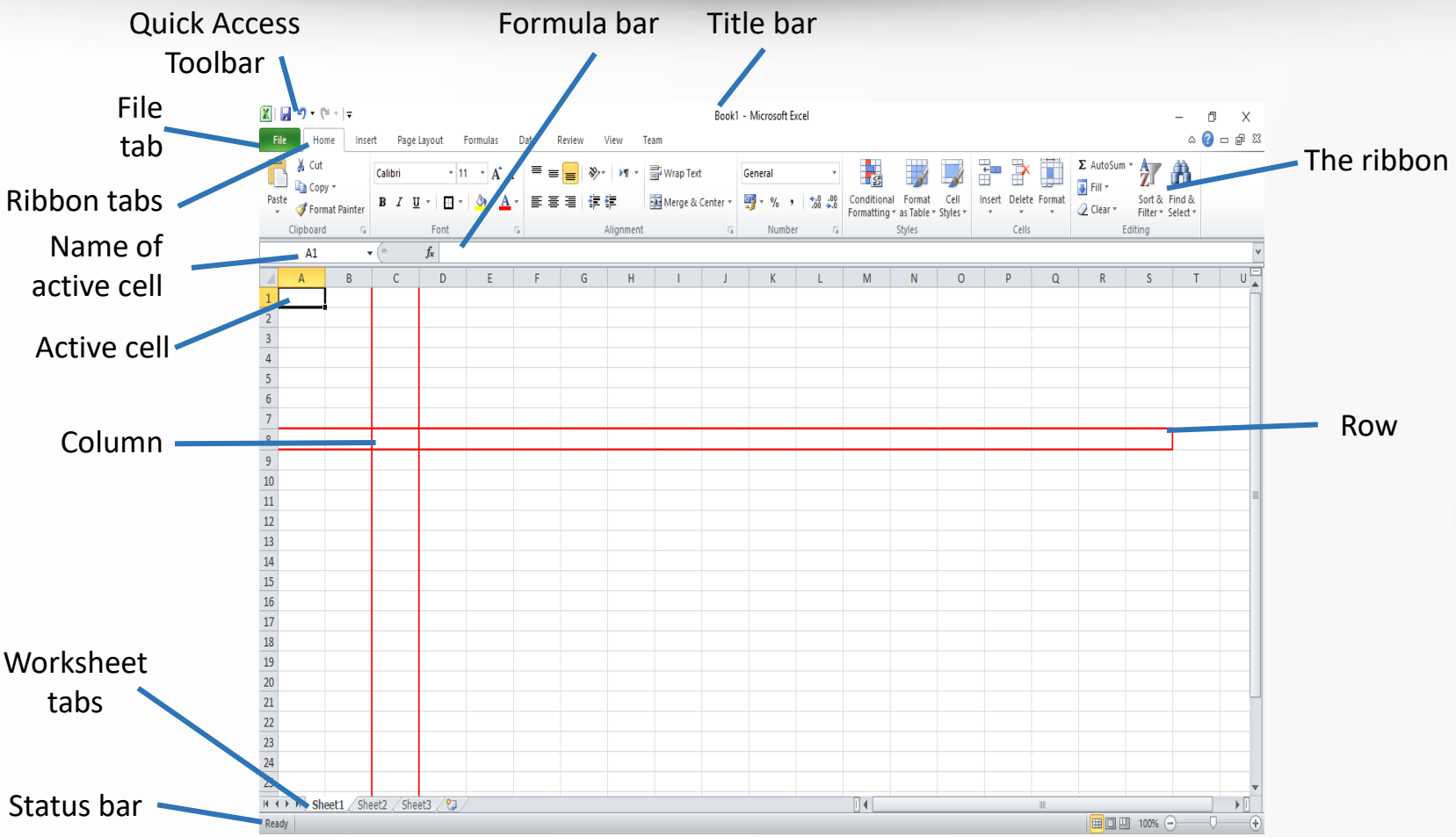

Some spreadsheet terms

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Worksheet	A worksheet contains 16,384 columns and 1,048,576 rows – you can see only a few of these on the screen
Cell	The worksheet is divided into cells in which you can type a number, a label or a formula
Active cells	When you click or type in a cell it is highlighted by a black border to show it is active
Rows and columns	The column and row headers are identified by letters and numbers, respectively – these are used to reference cells
Workbook	A workbook contains several worksheets – these are shown by the worksheet tabs

Moving around the worksheet

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You can move around the worksheet to make a cell active by:

- moving the cross-shaped cursor using the mouse and clicking the left mouse button in the cell you want
- using one of the arrow keys on the keyboard to go up, down, left or right
- using the Page Up or Page Down keys on the keyboard
- pressing the Tab key on the keyboard

Tips

- Press Tab to select the next cell to the right of the current active cell
- Press Shift + Tab to select the next cells to the left of the current active cell

Defaults and preferences

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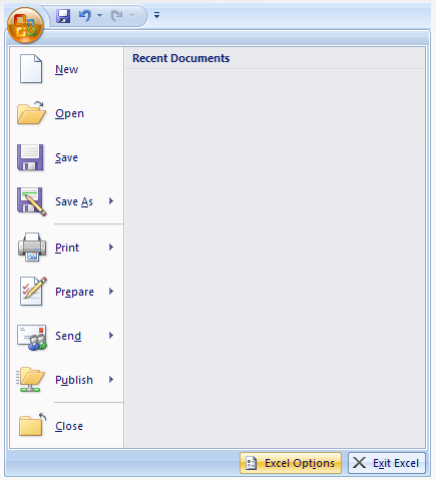
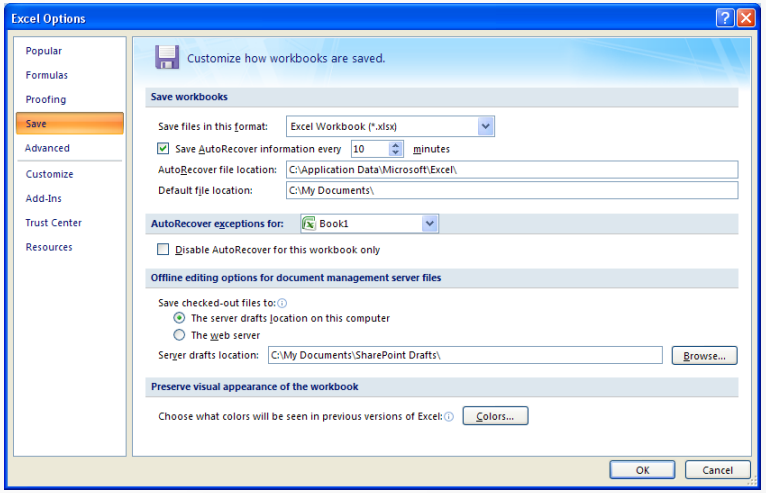
- Click the Office Button or File Button and then click Excel Options on the window that appears
- Click the option you require in the panel on the left-hand side of the Excel Options dialogue box





Entering and deleting data

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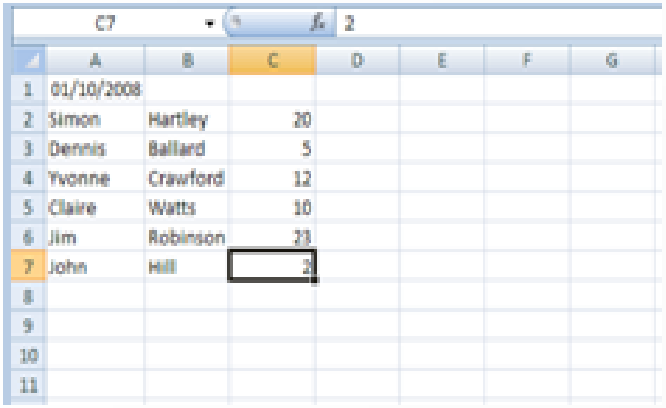
- Click the cell where you want the data to appear
- Type the data



	A	B	C	D	E	F	G
1	01/10/2008						
2	Simon	Hartley	20				
3	Dennis	Ballard	5				
4	Yvonne	Crawford	12				
5	Claire	Watts	10				
6	Jim	Robinson	23				
7	John	Hill	2				
8							
9							
10							
11							

- Press Backspace or Delete to delete the contents of an active cell

Good practice

- Ensure that only a single element of data is in a cell
- Do not leave any blank rows or columns when you enter a data list
- Layout calculations in a similar way as you would on paper
- Ensure that cells bordering a list are left blank so that it is clear what the list comprises

Inserting and deleting rows and columns

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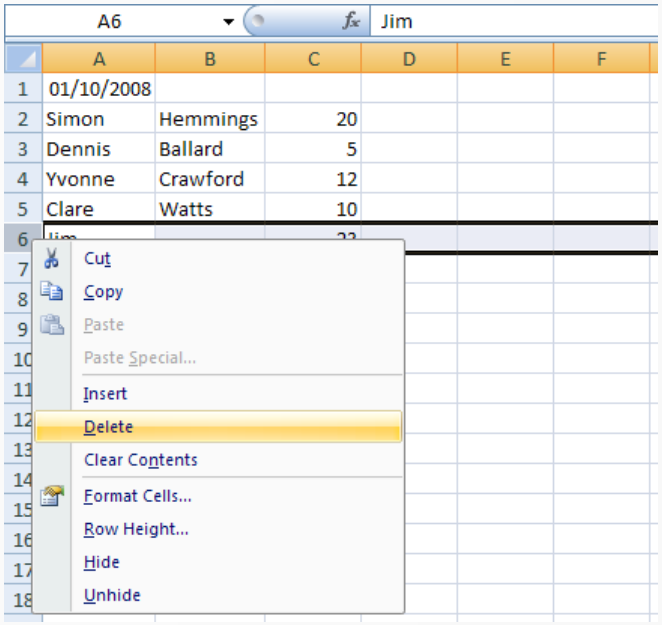
To delete

- Right-click a row or column header
- Click Delete on the shortcut menu which appears

To insert

- Right-click a row or column header
- Select Insert on the shortcut menu which appears



Formatting cell contents

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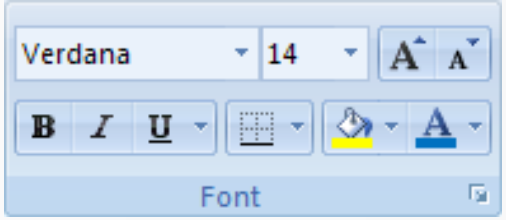
- Select the cells you want to format
- Click the formatting buttons in the Font group on the Home ribbon



Adding borders

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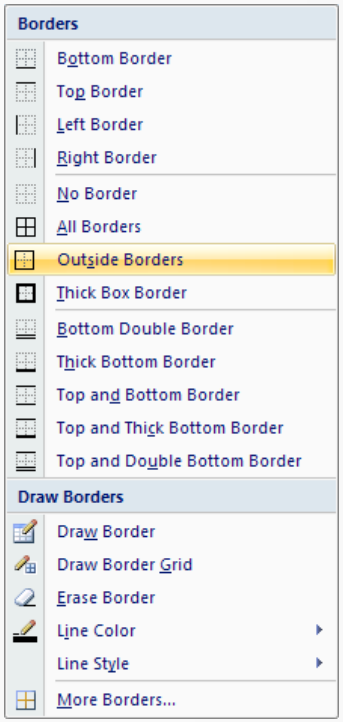
- Select the cells you want to add a border around
- Click the Border button in the Font group on the Home menu – (note that the icon on this button changes depending on the border selection last made, however the button is always located in the same place in the group)
- Click the appropriate menu item to set borders around



Standard error values

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Error value	Meaning
#VALUE!	Excel cannot calculate the formula (e.g. the formula might be typed incorrectly or a cell might contain a non-numeric value)
#DIV/0!	The denominator in a division formula is zero
#NAME?	There is text in the formula
#NUM!	Invalid numeric data is used in the formula
#REF!	A cell referred to by the formula has been deleted
#####	The cell contents cannot be displayed because the column is too narrow

Formulae

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- Formulae are the really useful part of spreadsheets
- Excel uses them to perform calculations automatically
- The result of a calculation is automatically recalculated and displayed if the data in any cell used in the formula is changed
- Excel uses the arithmetical symbols opposite

- = all formulae start with this
- + add
- - subtract
- * multiply
- / divide
- ( ) brackets

Selecting cells

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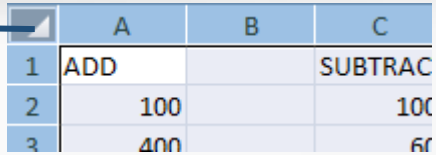
- Click the intersection of the row and column headers to select every cell in the worksheet



- Click a row or column header to select a row or column, respectively
- To select adjacent columns or rows, click the first header and hold down the button while you drag the mouse across adjacent headers
- To select a block of cells, click in the first cell and hold down the button while you drag the mouse across adjacent cells. Alternatively, press the Shift key while you click the last cell in the block
- To select non-adjacent cells, click the first and then hold down the Ctrl key while you click each of the other cells

Entering formulae

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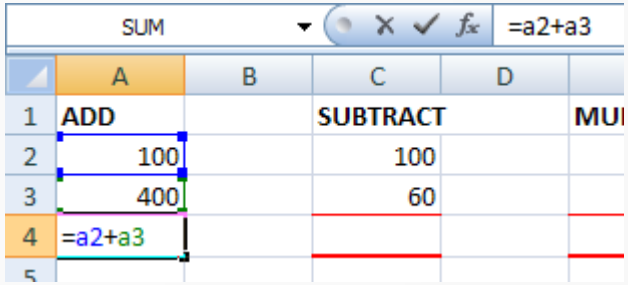
- Formulae are entered using cell references
- They always start with an equals sign (=)
- Press Enter to confirm the formula
- For example =A2+A3 will display the result of adding the contents of cells A2 and A3
- Instead of typing in a formula you can use the mouse to point to the cells in the formula



Formatting numbers

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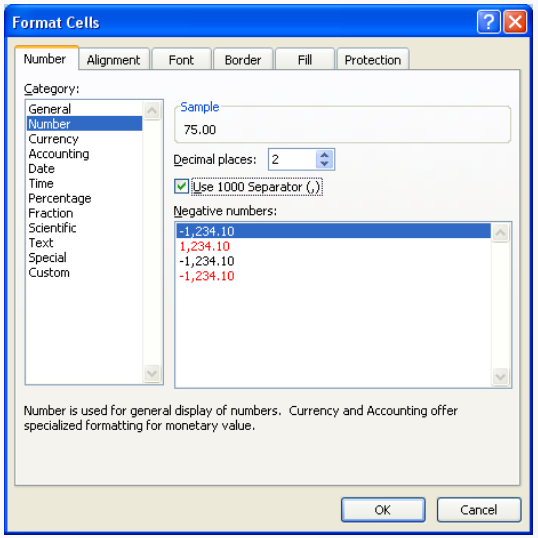
- Right-click the cell(s) you want to format
- Select Format Cells… on the shortcut menu which appears to open the Format Cells dialogue box
- Click the Number tab and select Number from the Category: list
- Set the number of Decimal places and Use 1000 Separator (,) as required
- Click OK to apply the changes22



Changing column widths

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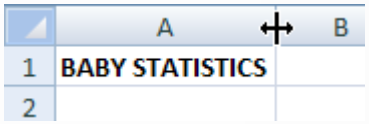
Either

- Position the mouse pointer so that it is on the line between two columns.

  The pointer will change to a double-headed arrow



- Press the left mouse button and hold it down while you drag to the right or left

Or

- Position the mouse pointer between two columns. The pointer will change to a double-headed arrow
- Double-click the left mouse button. The column automatically widens to fit the text of the longest length of text in the column

Formatting decimals

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- Click the Increase Decimal  button in the Number group on the Home ribbon once to show another decimal place
- Use the Decrease Decimal  button to hide the number of decimal places that are shown

Summing a column of numbers

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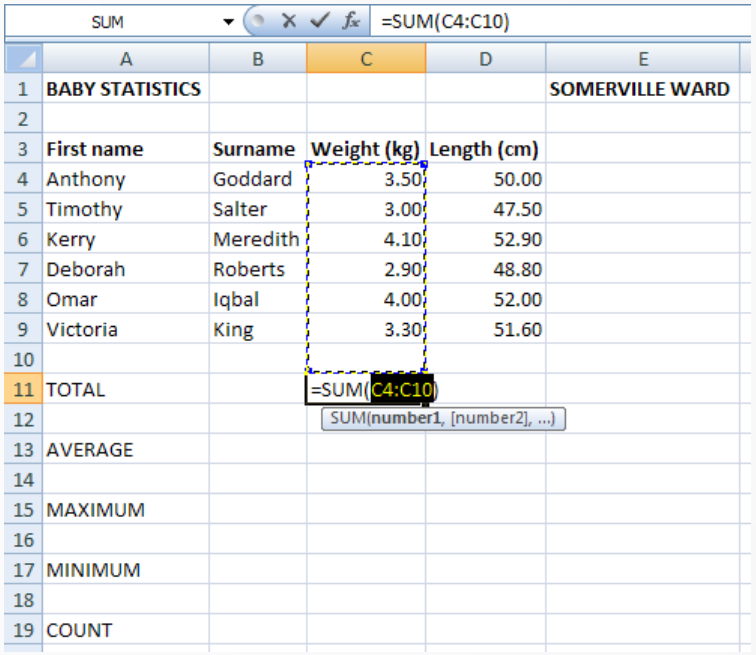
- Click a cell below the column of numbers you want to sum
- Click the AutoSum button in the Editing group on the Home ribbon

- If Excel doesn't select the correct cells to sum, first manually select them or type the function instead of using the ribbon button



Selecting and renaming worksheets

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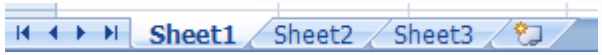
To select a worksheet

- Click the worksheet tab



To rename a worksheet

- Right-click the worksheet tab
- Select Rename from the shortcut menu that appears – the text on the sheet tab is now selected
- Type a new name
- Click away from the worksheet tab when you have finished typing

Inserting and deleting sheets

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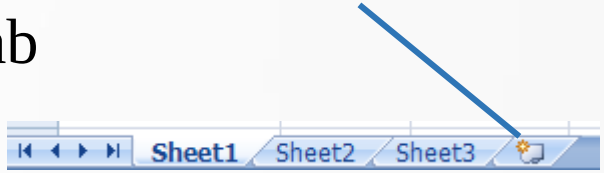
To delete a worksheet

- Right-click the sheet tab then select Delete from the shortcut menu that appears

To insert a worksheet

- Click the Insert Worksheet tab



Moving and copying a worksheet

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Moving within a workbook

- Click the tab for the worksheet you want to move
- Drag and drop it to the new position

Copying within a workbook

- Click the tab for the worksheet you want to move
- Press and hold the Ctrl key as you drag and drop it to the new position

What is a function?

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- A function is a pre-defined formula used in a calculation
- Excel 2010 provides over 300 functions to help with business, scientific and engineering applications

You need to know the following functions:

- SUM
- AVERAGE
- MAX and MIN
- COUNT and COUNTA
- ROUND

The SUM function

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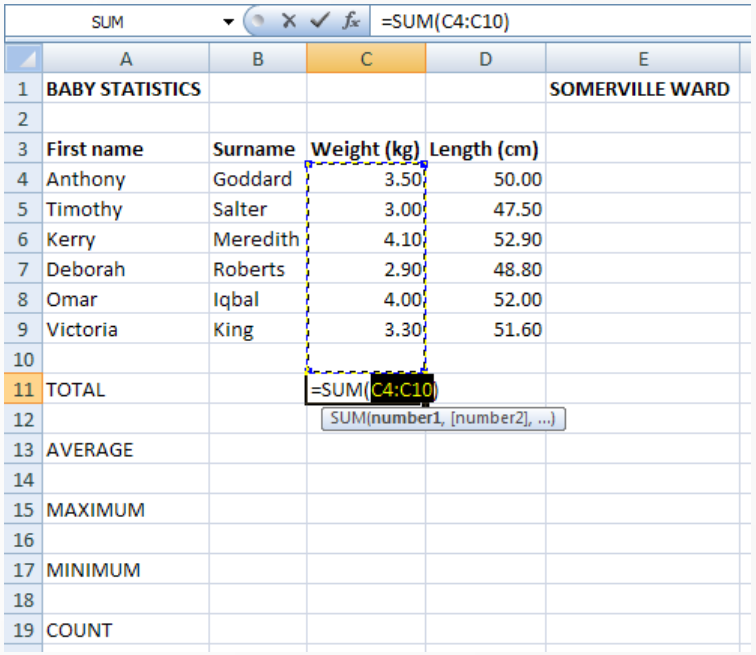
- Click a cell below the column of numbers you want to sum
- Click the AutoSum button in the Editing group on the Home ribbon

- If Excel doesn't select the correct cells to sum, first manually select them or type the function =SUM() instead of using the ribbon button



The AVERAGE function

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Using the AVERAGE function is similar to the SUM function

- Click a cell below the column of data that you want the average of
- Click the arrow on the right-hand side of the AutoSum button in the Editing group on the Home ribbon

- Select Average from the list that is displayed – Excel tries to guess which cells you want to use
- Press Enter

- Correct Excel's guess at the data you want if it has selected the incorrect data
- As with any function, you can type the AVERAGE function =AVERAGE() directly in the cell

The MAX and MIN functions

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Use the MAX and MIN functions to find the maximum and minimum value, respectively, in a selected range of cells

- Click a cell below the column of data that you want the maximum or minimum of
- Click the arrow on the right-hand side of the AutoSum button in the Editing group on the Home ribbon

- Select Max or Min as required from the list that is displayed – Excel tries to guess which cells you want to use
- Press Enter
- Correct Excel's guess at the data you want if it has selected the incorrect data

- As with any function, you can type the MAX =MAX() and MIN =MIN() functions directly in the cell

The COUNT and COUNTA functions

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Use the COUNT function to find the number of entries in a selected range of cells

- Click a cell below the selected range of data
- Click the arrow on the right-hand side of the AutoSum button in the Editing group on the Home ribbon

- Select Count Numbers from the list that is displayed
- Press Enter

- COUNT ignores cells that do not contain numerical data
- If you want to include all cells (other than blank cells), then use the COUNTA function
- As with any function, you can type the COUNT =COUNT() and COUNTA =COUNTA() functions directly in the cell

The ROUND function

The ROUND function rounds the value in a cell

- For example, =round(C11,0) will round the contents of cell C11 to a whole number

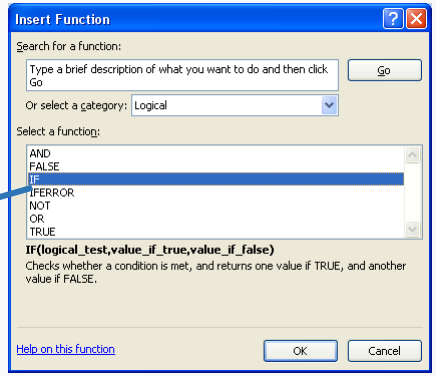
You can include a cell reference, as here, or you can type a number directly in the function

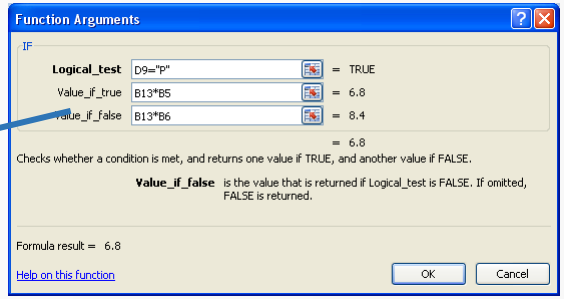
You can change the number of digits the number is rounded to by changing the 0 to another number

IF statements

The result of a calculation can be conditional upon the contents of cells referred to by the calculation

- Click the Insert Function button to the left of the Formula bar to display the Insert Function dialogue box
- Select IF from the Select a function: list
- Click OK to display the Function Arguments dialogue box
- Complete the three IF fields as required
- Click OK





Adding a new record

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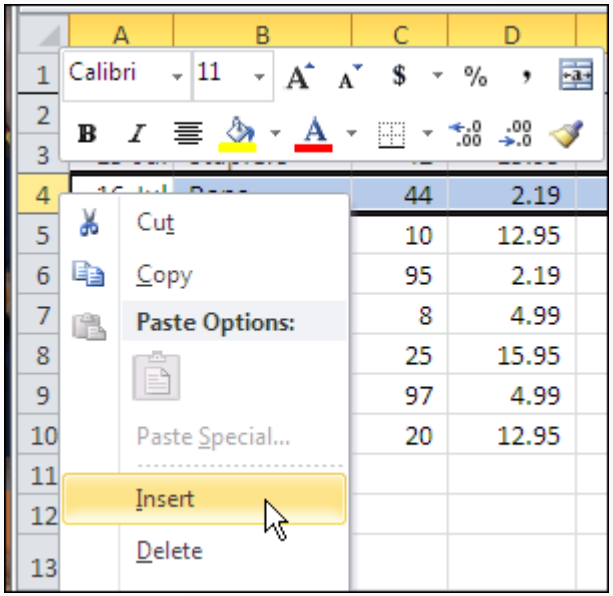
- Right-click the row header where you want a new row to appear
- Click Insert on the shortcut menu that appears



Filling a series

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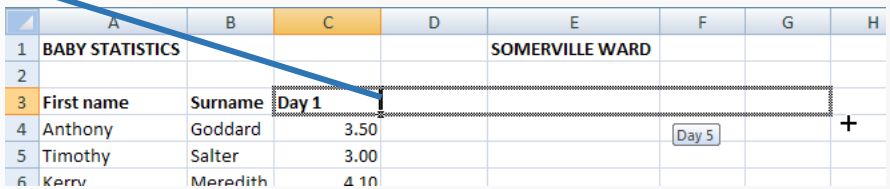
- Click the cell that you want to create a series from
- Click and drag the small black square in the bottom right-hand corner of the cell – this is called the Fill handle
- Release the mouse button when you have reached the end of the series – as you drag the handle a small box appears showing the contents of the cells as you auto-fill them



Freezing row and column titles

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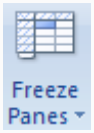
- To freeze the row and column titles, place the cursor in the nearest cell to A1 that you do not want frozen
- Click Freeze Panes in the Window group on the View ribbon
- Select Freeze Panes from the menu that appears
- To unfreeze columns and rows, click Freeze Panes in the Window group on the View ribbon
- Select Unfreeze Panes



	A	B	C	D	E	F	G	H
1	BABY STATISTICS				SOMERVILLE WARD			
2								
3	First name	Surname	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
4	Anthony	Goddard	3.50					
5	Timothy	Salter	3.00					
6	Kerry	Meredith	4.10					
7	Deborah	Roberts	2.90					
8	Omar	Iqbal	4.00					
9	Victoria	King	3.30					
10	Jacob	Walton	3.70					
11	Baby	8						
12	Baby	9						
13	Baby	10						
14	Baby	11						
15	Baby	12						
16	Baby	13						
17	Baby	14						
18	Baby	15						

Switching between open workbooks

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Either

- Select Switch Windows in the Window group on the View ribbon

- Select the workbook you want from the displayed list of open workbooks

Or

- Use the taskbar buttons at the bottom of the desktop

Saving as another file type

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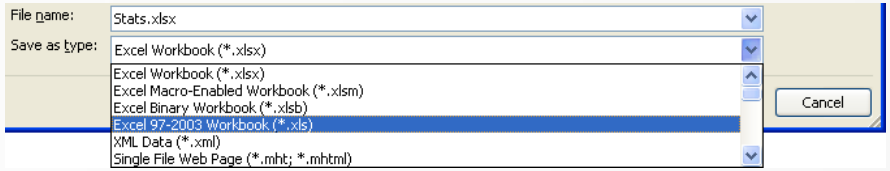
- To save a file in a format other than the Excel default, click Save As on the Office button menu to display the Save As dialogue box
- Click the down-arrow on the right of the Save as type: box, to see options to save a file as another type



Sorting data

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- Before you create a chart, you might want to sort the data in a particular order
- Select the data you want to sort
- Click the Sort A to Z button or Sort Z to A button as appropriate in the Sort & Filter group on the Data ribbon
- Deselect the cells by clicking anywhere on the worksheet

Drawing a bar chart

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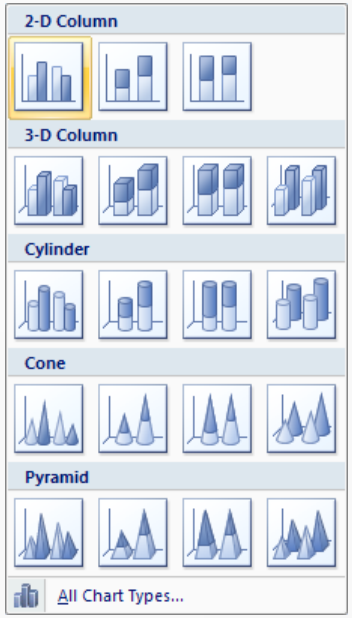
- Select the cells to be charted
- Click the Column button in the Charts group on the Insert ribbon to display a gallery of column chart options
- Click the option you want for your chart

  The chart is placed on your worksheet



Adding a chart title

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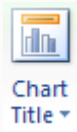
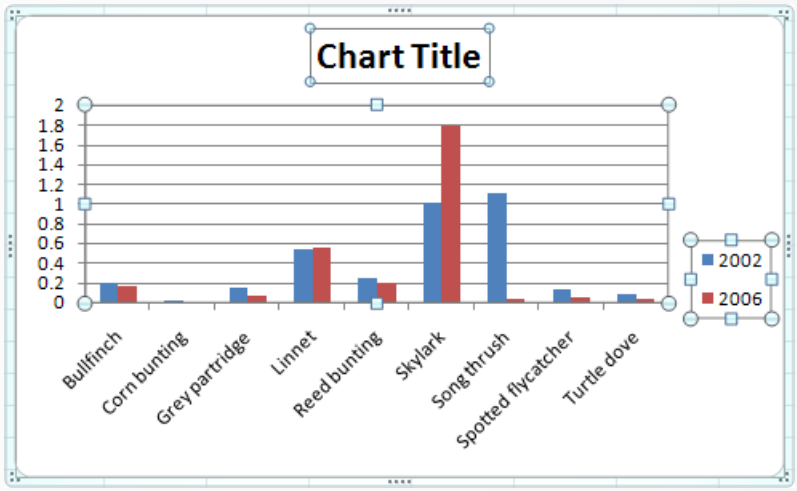
- Select the chart – the Chart Tools ribbon appears
- Click the Chart Tools Layout ribbon tab
- Click the Chart title button in the Labels group, and choose a location for the title from the menu that appears



A char title place holder is displayed on the chart

- Click in the Chart Title text box and type a title



Moving, sizing and deleting a chart

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Moving

- Click in the Chart Area and drag and drop the chart to a new position

Sizing

- Drag the bottom right-hand corner handle of the chart to resize it
- To resize a chart without distorting the shape of the chart, press the Shift key whilst dragging the handle

Deleting

- Select the chart, then press the Delete key

Adding axis titles

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- Select the chart so the Chart Tools ribbon appears
- Click the Chart Tools Layout ribbon tab
- Click the Axis Titles button in the Labels group

- Select the axis type you require from the submenu to show an axis title place holder on the chart
- Click the place holder to select it
- Click the label text to place the text insertion cursor
- Edit the text Axis Title

Changing the background colour

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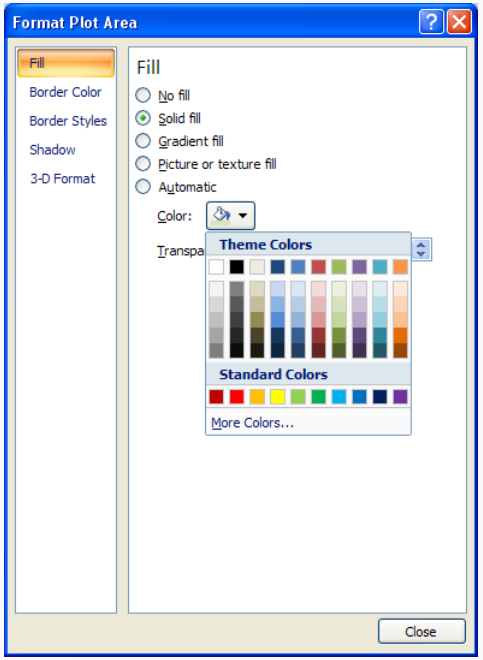
- Right-click the Plot Area
- Select Format Plot Area... from the shortcut menu to open the Format Plot Area window
- Click Fill in the left-hand pane, and click the Solid fill option
- Click the Color: button and choose a colour from the palette that is displayed
- Click Close



Changing the column colours

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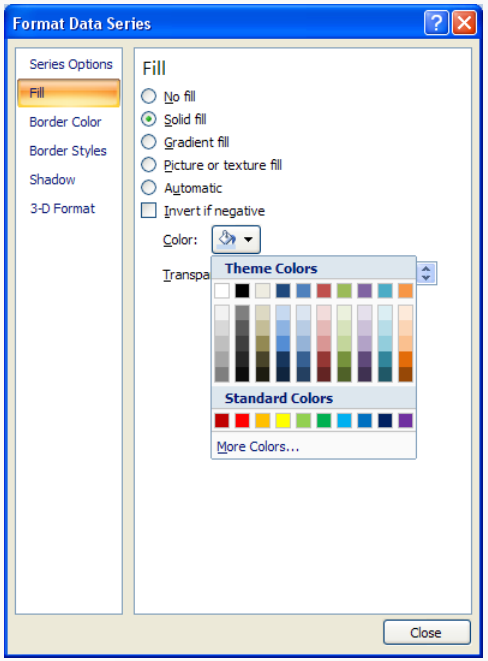
- Right-click a bar to show a shortcut menu, and choose Format Data Series… from the options
- The Format Data Series window appears
- Select a fill colour from the Fill options



Creating a pie chart

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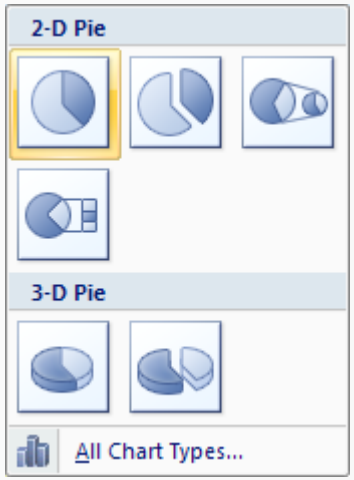
- Click the Pie button in the Charts group on the Insert ribbon to display a gallery of pie chart options

- Click the option you want for your chart



The chart is placed on your worksheet

Changing the chart type

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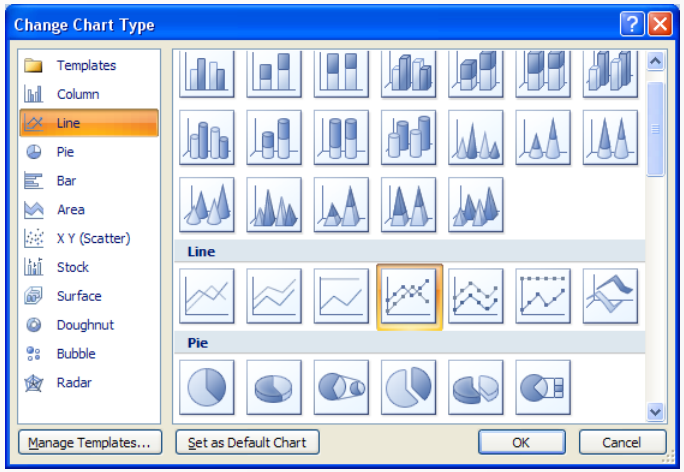
- Right-click the Chart Area to display a shortcut menu
- Select Change Chart Type... to display the Change Chart Type window
- Choose another chart type



Printing an entire worksheet

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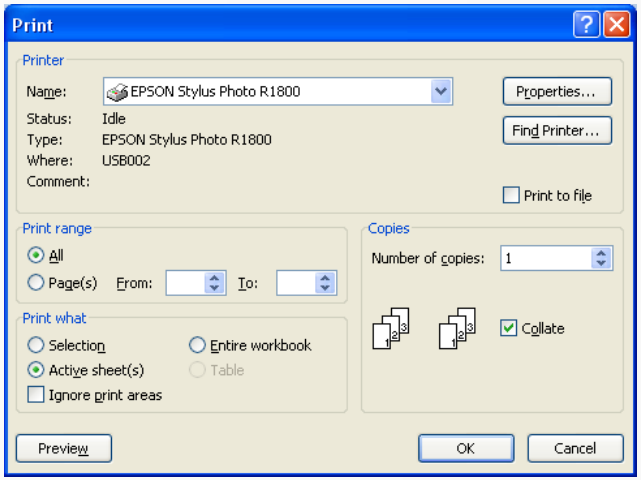
- Click Print on the Office button
- Click Print to display the Print dialogue box

  Here you can change various options such as the number of copies and which printer to use
- Select All for the print range, and Active sheet(s)
- Check and change the other options as necessary, and click OK to print



Printing a selected chart

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- Select the chart you want to print
- Click Print on the Office button
- Click Print to display the Print dialogue box

  The Selected chart option in the Print what section is automatically selected
- Check and change the other options as necessary, and click OK to print

Printing row and column headings

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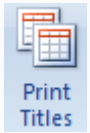
- Select a worksheet
- Click the Print Titles button in the Page Setup group on the Page Layout ribbon to display the Page Setup dialogue box



- Click the Sheet tab
- Select Row and column headings in the Print section
- Click the Print… button to display the Print dialogue box
- Click OK

Printing title rows and columns

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- Open the Page Setup dialogue box on the Sheet tab
- Set the row(s) that you want to appear as the title row by
  - either typing in the Rows to repeat at top: box (e.g. type $1:$1 to specify row 1 as the repeated row)
  - or you can select the cells by clicking the icon on the right of the Rows to repeat at top: box
- Click the Print… button to display the Print dialogue box
- Click OK
- Repeat column in exactly the same way as rows

Fitting worksheet contents onto a specific number of pages

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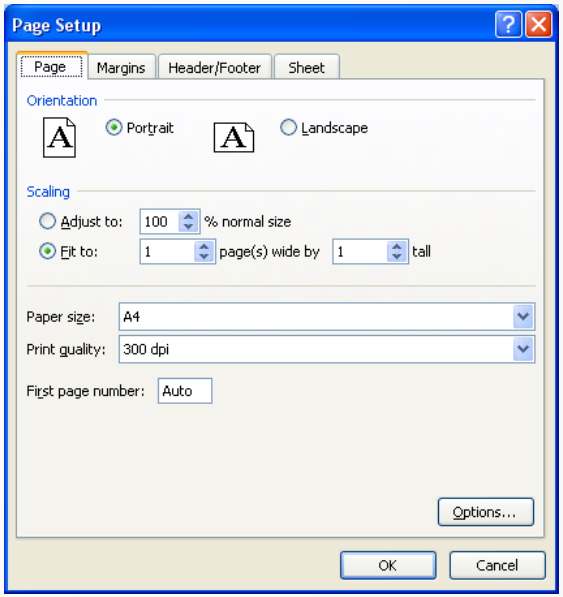
- Open the Page Setup dialogue box and click the Page tab
- Click the Fit to: option in the Scaling section and set the page options
- Click the Print… button to display the Print dialogue box
- Click OK



Hiding/unhiding gridlines on printouts

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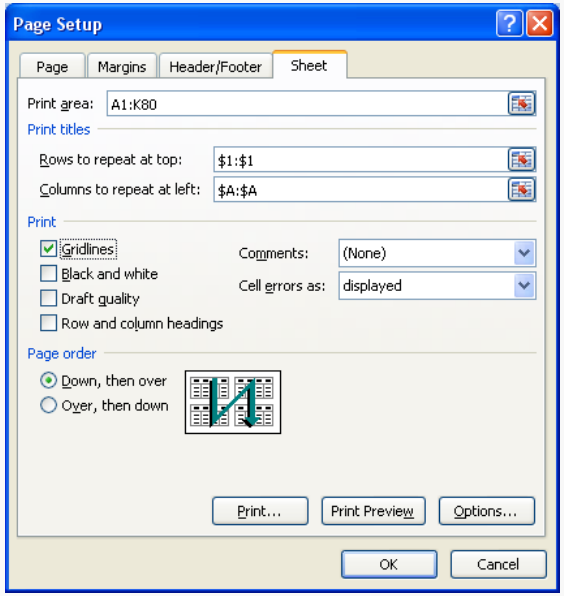
- Open the Page Setup dialogue box and click the Sheet tab
- Click the Gridlines box in the Print section. (You can click it again to remove the tick and turn off gridline printing.)
- Click the Print… button to display the Print dialogue box
- Click OK



Paper orientation, size and margins

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- Click the Orientation button in the Page Setup group on the Page Layout ribbon
- Select Portrait or Landscape from the menu that appears
- Click the Size button in the Page Setup group on the Page Layout ribbon
- Select the paper size you want from the menu that appears

You can also set the orientation and page size on the Page tab of the Page Setup dialogue box

- Click the Margins button in the Page Setup group on the Page Layout ribbon
- Select the margin arrangement you want from the list displayed on the menu that appears

You can set custom margins on the Margins tab of the Page Setup dialogue box

Preparation

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- Always thoroughly check your spreadsheet before printing it – be sure to
  - Print Preview
  - Spell check
  - Make a rough check that the calculations are as you intended
  - Check for formula errors

Formula error checking

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- If you want to check for formula errors, or if you see an error, click the Error Checking button in the Formula Auditing group on the Formulas ribbon

- You can trace and correct errors in the Error Checking dialogue box that is displayed

Calculating a percentage

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- Enter a formula for working out the ratio of two variables
- Adjust the cell formatting to show two decimal places
- Click the Percent Style button in the Number group on the Home ribbon – this changes the answers into percentages

Formatting currency

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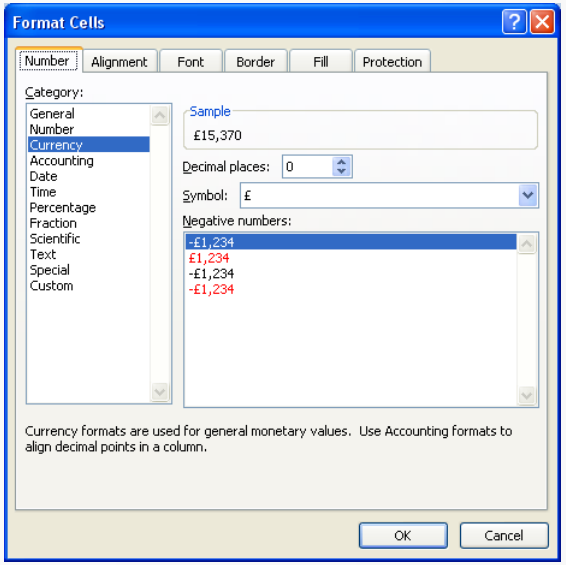
- Select the cells you want to format and right-click to bring up a shortcut menu
- Select Format Cells…
- Select the Number tab
- Select Currency from the Category: list
- Set the decimal places you want
- Set the currency symbol you want
- Click OK



Merge and centre cell contents

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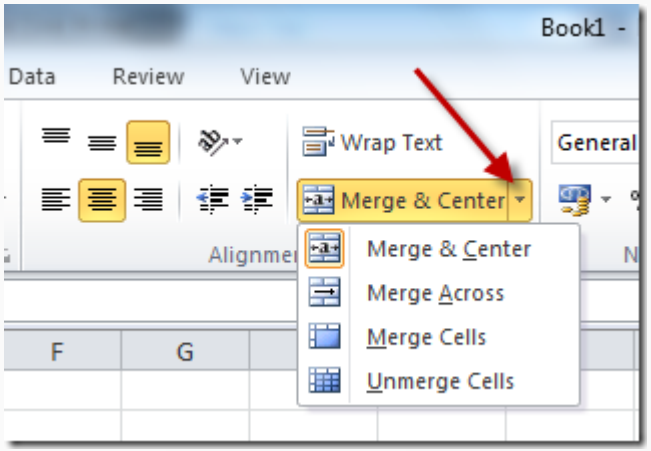
- Select the cells you want to merge
- Click the Merge & Center button in the Alignment group on the Home ribbon



Adding a date field

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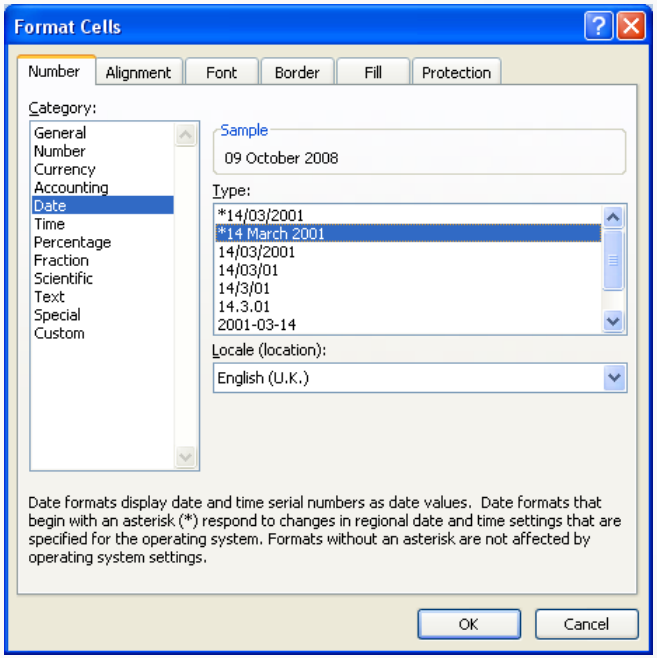
A quick way to enter today's date is to press Ctrl+;

Alternatively you can type a date (separated with either hyphens or slashes) into a cell and then format it

- Right-click in the date field, and select Format Cells... from the shortcut menu that appears
- Excel has guessed that you want the Date category – pick a date Type from the



Wrapping cell content

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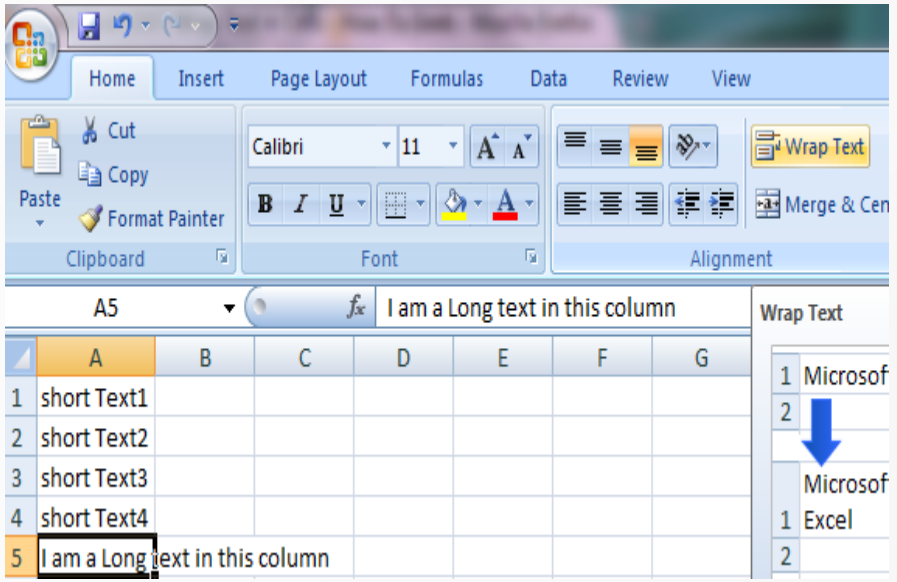
Sometimes the text in a cell can be quite long – it would look neater if the longer descriptions ran onto two lines, rather than making the column extra wide to fit them

- Select the cell and click the Wrap Text button in the Alignment group on the Home ribbon



Find and replace

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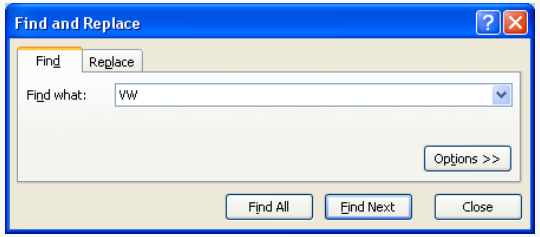
Finding a word or value

- Click Find & Select in the Editing group on the Home ribbon
- Select the Find... option on the menu to display the Find and Replace dialogue box on the Find tab
- Type the characters you are searching for in the Find what: box
- Click the Find Next button

Excel makes the cell containing the characters you want the active cell



- Click Find Next again to search for another occurrence of the characters
- Click Close when you have finished

Find and replace

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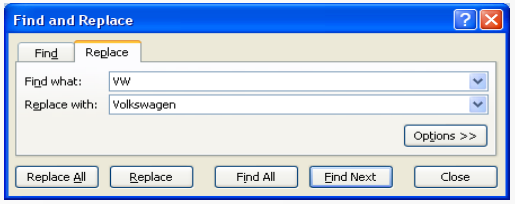
Replacing a word or value

- Click Find & Select in the Editing group on the Home ribbon
- Select the Replace... option on the menu to display the Find and Replace dialogue box on the Replace tab
- Type the characters you want to change in the Find what: box
- Type the new characters you want in the Replace with: box.
- Click the Replace All button
- Click Close



Copying data between sheets

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- Select the worksheet that contains the data you want to copy
- Select the range of data you want to copy
- Click Copy in the Clipboard group on the Home ribbon

- Click the tab for the worksheet you want to copy to
- Click a cell to make it the active cell
- Click Paste in the Clipboard group on the Home ribbon

Adding headers and footers

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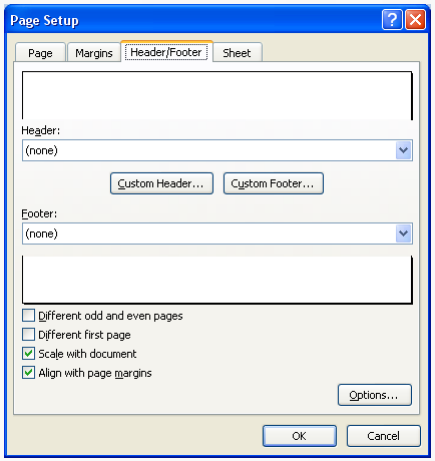
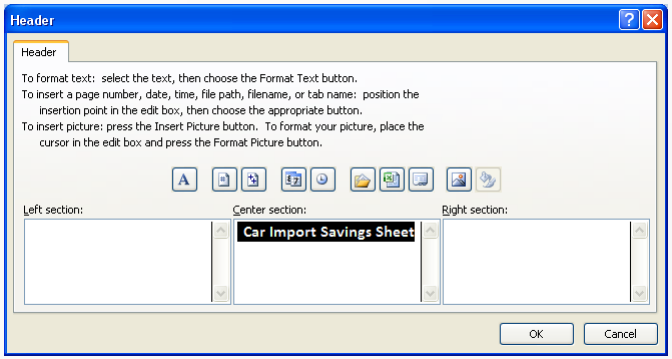
Headers and footers are useful for automatically inserting information such as the current date and page numbers on large documents

- Open the Page Setup dialogue box and select the Header/Footer tab
- Click the Custom Header... or the Custom Footer… button
- Type text or add a field in a Section: box
- Click OK to close the dialogue box





Aligning cell content

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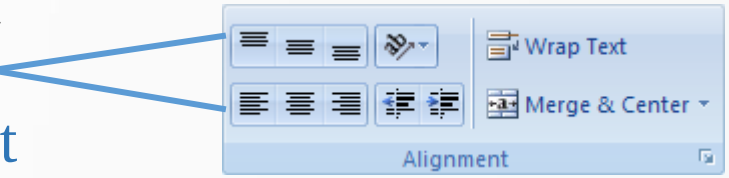
You can set where the text appears in a cell

- Use the Align Right, Align Left and Center buttons, and the Top, Middle and Bottom buttons in the Alignment group on the Home ribbon to align the cell content horizontally and vertically, respectively



You can also use the Format Cells dialogue box, which allows you more alignment options (e.g. slanting)