# ECDL Module 4

## Spreadsheets

*Windows Vista / Microsoft Office 2007 Edition – **Syllabus Five***

ECDL Foundation
Approved Courseware

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# Tutor Setup Information

- Copy the sample files folder to the **Documents** folder on the PC.
- At the end of the course, remove all files modified or created during the course, prior to re-running the course.
- At the end of the course, reset all program and operating system defaults that may have been modified during the course, prior to re-running the course.

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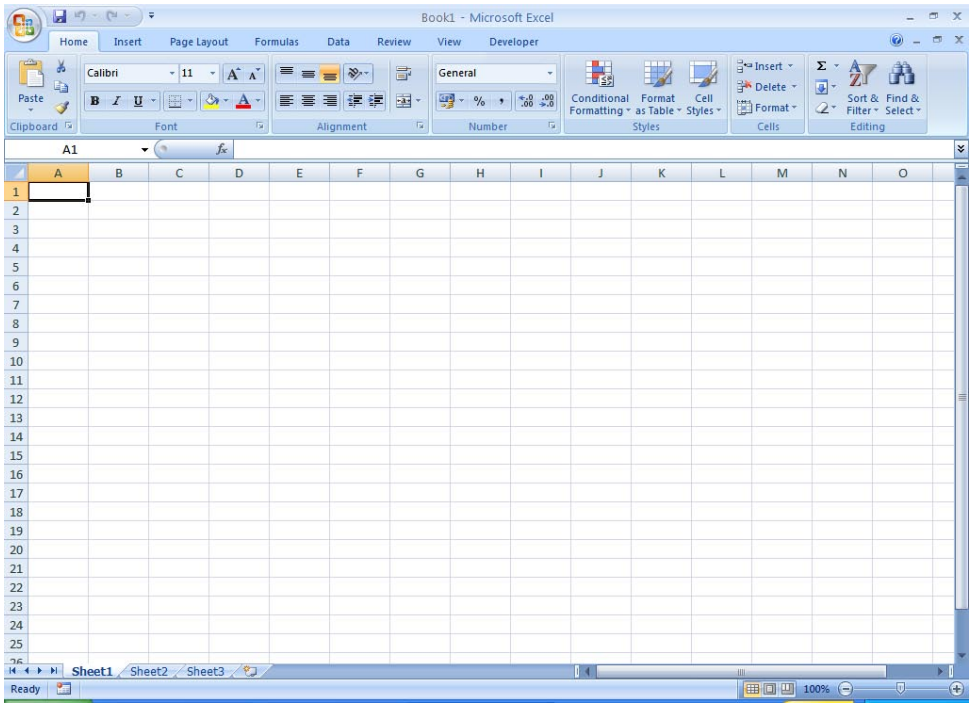
# A first look at Excel 2007

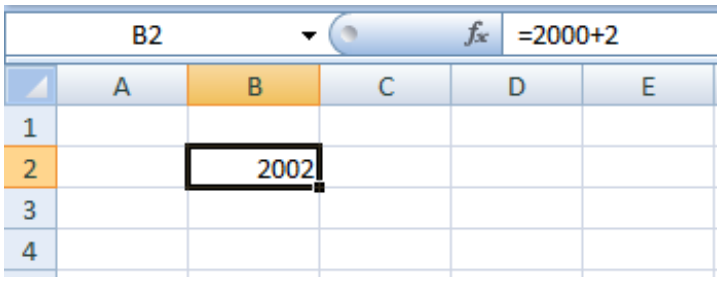
## Starting the Excel program

- Click on the **Start** button (bottom-left of the screen). Click on **All Programs**. Click on **Microsoft Office**. Click on **Microsoft Office Excel 2007**. The Excel window will be displayed, as illustrated.




## What is the Active Cell?

- Excel identifies the **active cell** with a bold outline around the cell and highlighting the column heading letter and row heading number of the cell. In the following example, **B2** is the active cell:




- In the above illustration, notice that **B2** is displayed in the **Name Box**, and the contents of the cell is displayed in the **Formula Bar**. In this case, **2002** is a calculated value, **2000+2**.
- In order for you to enter data into a cell, it needs to be the active cell. The active cell will accept keyboard entries. You can make a cell active by clicking on it or navigating to it.

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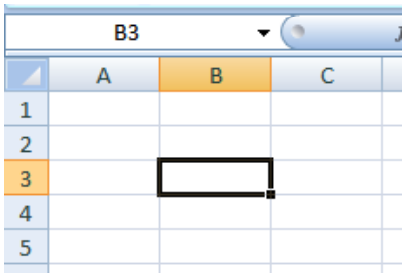
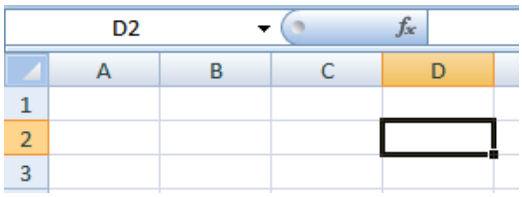
## The Excel cell referencing system

- An Excel worksheet is made up of individual cells, each of which had a unique reference. Look at the illustration below. We have clicked on cell **B3**, which means that the cell is in **column B, row 3**.



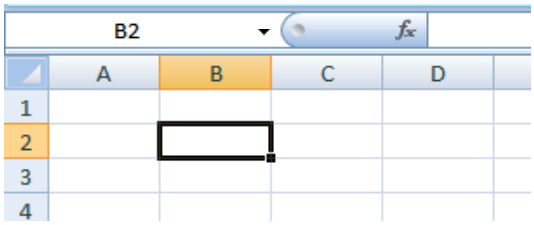

In the illustration below, we have clicked on cell **D2**.



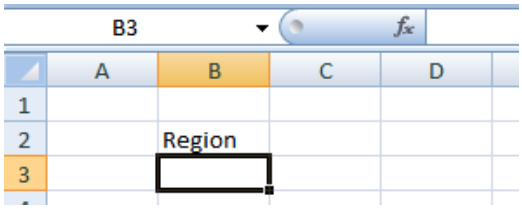

If you look carefully you will see that the current cell reference is displayed just above the actual worksheet.

## Entering numbers and text

- Click on cell **B2**, as illustrated.




- Type in the word '**Region**'. Press the **Enter** key. When you press the **Enter** key you will automatically drop down to the next cell within the worksheet. Your screen will now look like this.




- The active cell is now **B3**. Type in the word '**North**'. Press the **Enter** key.
- The active cell is now **B4**. Type in the word '**South**'. Press the **Enter** key.

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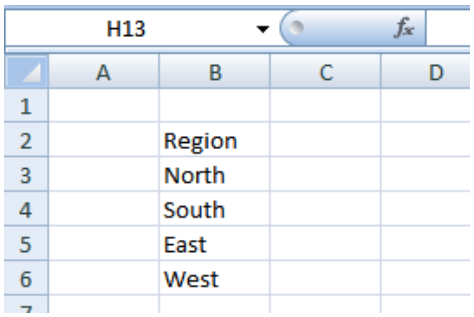
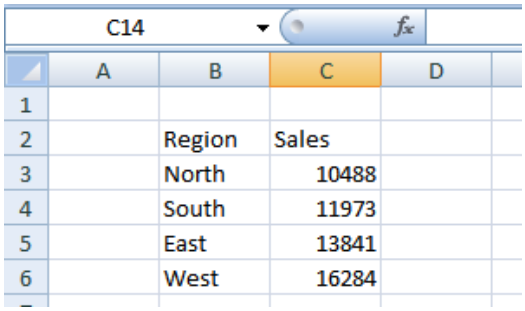
- The active cell is now **B5**. Type in the word '**East**'. Press the **Enter** key.
- The active cell is now **B6**. Type in the word '**West**'. Press the **Enter** key.

Your screen will now look like this:




- Click on cell **C2**. Type in the word '**Sales**'. Press the **Enter** key.
- Type in the number **10488** and press the **Enter** key.
- Type in the number **11973** and press the **Enter** key.
- Type in the number **13841** and press the **Enter** key.
- Type in the number **16284** and press the **Enter** key.

Your screen will now look like this:




## Default text and number alignment

- If you look carefully at what you have typed in you will see that by default text is aligned within a cell to the left, while numbers are aligned within the cell to the right. This makes sense, as normally text starts from the left of a page and it is the same within a cell. Numbers on the other hand normally align to the right. Think how you would write down a column of numbers on a page that you want to add up. Numbers align to the right.

## Summing a column of numbers

- Click on cell **B7** and type in the word '**Total**'.
- Click on cell **C7**. Click on the **Formulas** tab, and then click on the **AutoSum** button.

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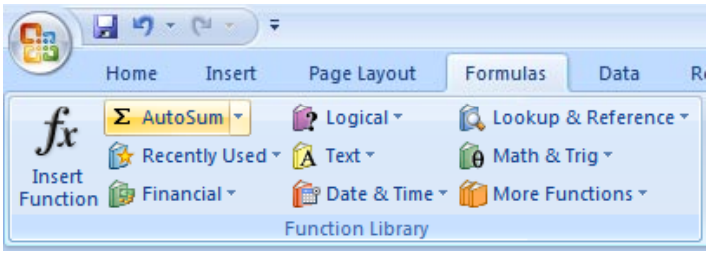
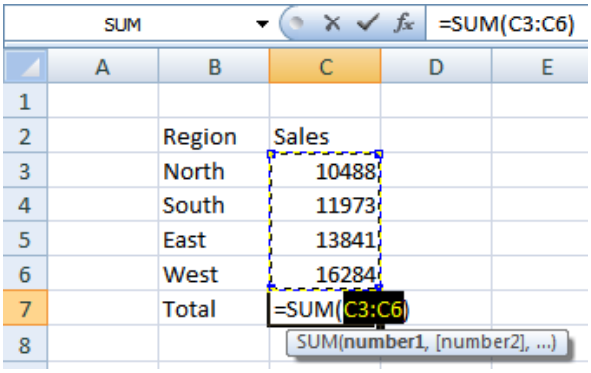
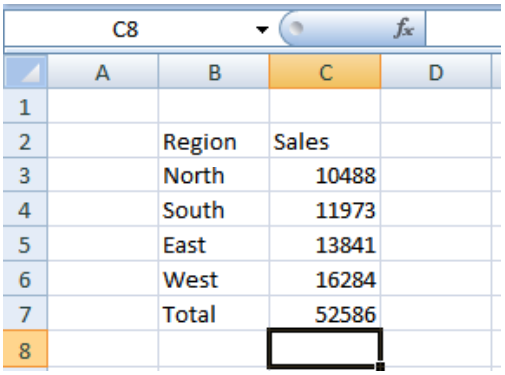


Your screen will look like this:




- Press the **Enter** key and Excel will automatically add up the column of numbers, as illustrated.




- We have hardly started to use Excel but already you have seen how powerful and easy to use it is. We will see more of the Excel functions for performing calculations later.

  The best thing about Excel is that if you make changes to the numbers then totals and other calculations are automatically updated. Click on cell **C4** and type in a different number. When you press the **Enter** key you will see that the total value displayed in cell **C7** changes to recalculate the total vales of the sales.

## Entering a date

- Click on cell A1. Enter the following information and then press the **Enter** key.

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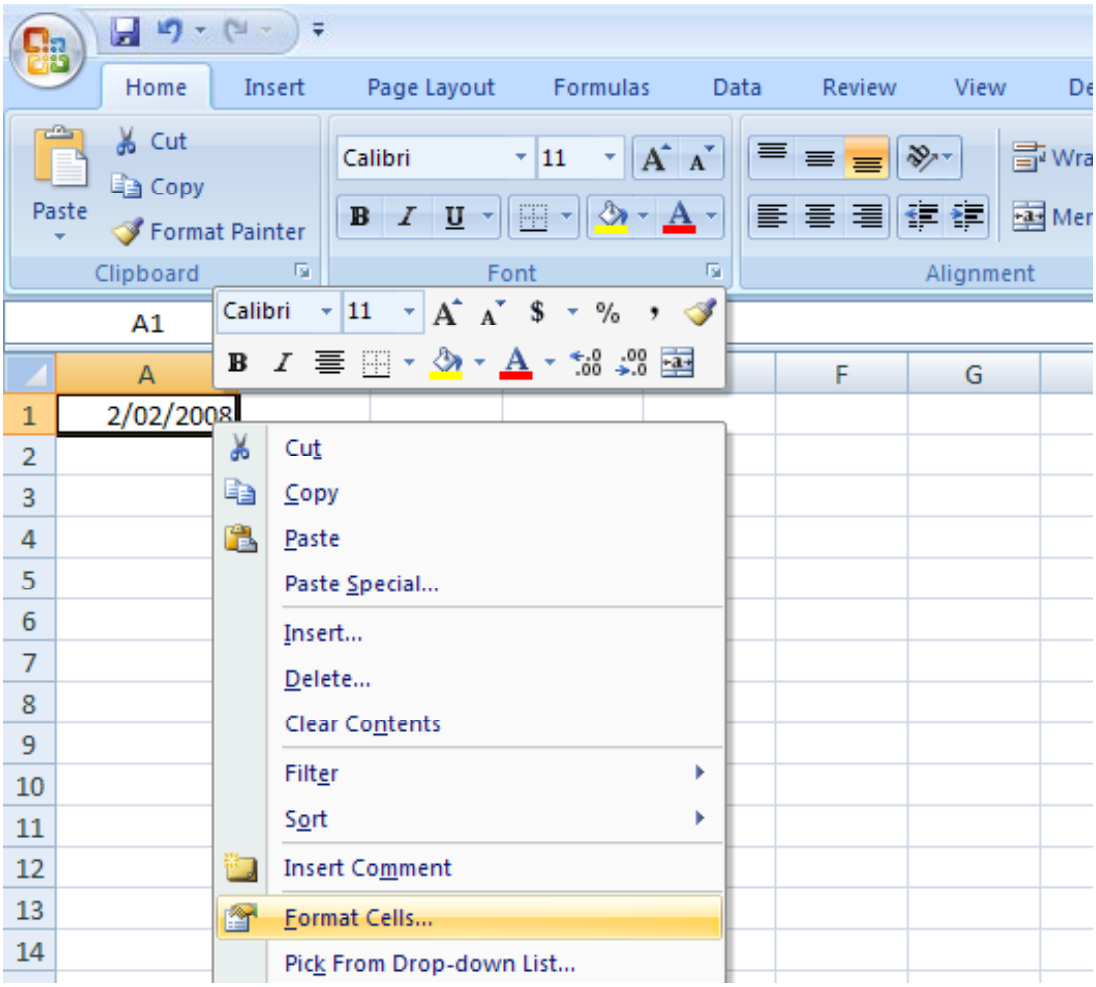
Excel recognises this as a date and automatically marks the cell as containing date information.

- Right click over the date you have just entered. From the popup menu displayed, select the **Format Cells** command, as illustrated.




- This will display the **Format Cells** dialog box.

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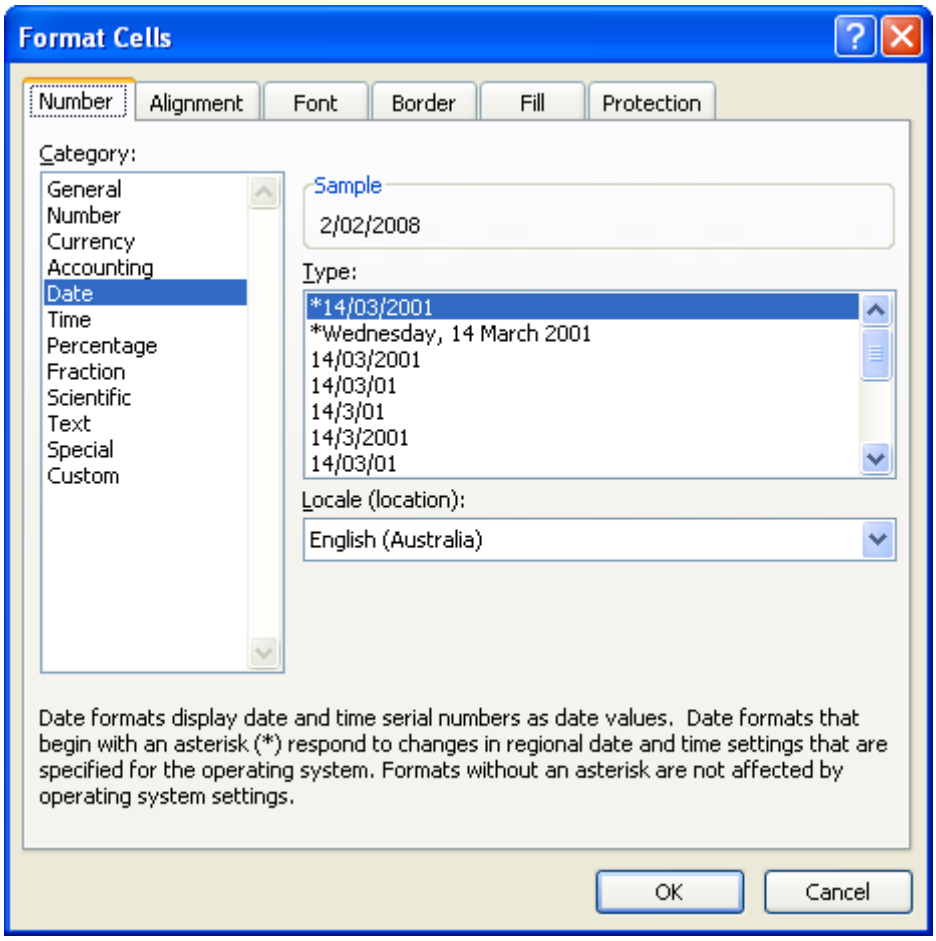
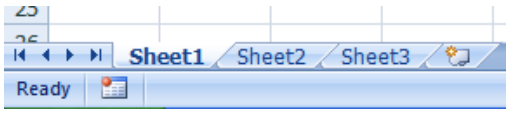



- If you have time you can select a different type of date format, using the **Type** section of the dialog box. Press the **OK** button to apply any changes you make.

## Worksheets and Workbooks

- Look at the bottom-left of your screen and you will see the worksheet tabs displayed.




By default each workbook contains three worksheets. This is similar to a notebook that contains separate pages. Click on the **Sheet 2** worksheet tab and the second worksheet is displayed. Click on the **Sheet 3** worksheet tab and the third worksheet is displayed. Click on the **Sheet 1** worksheet tab and the first worksheet, containing your data is displayed again. As we will see later you can add or remove worksheets as well as reordering and renaming them.

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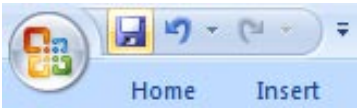
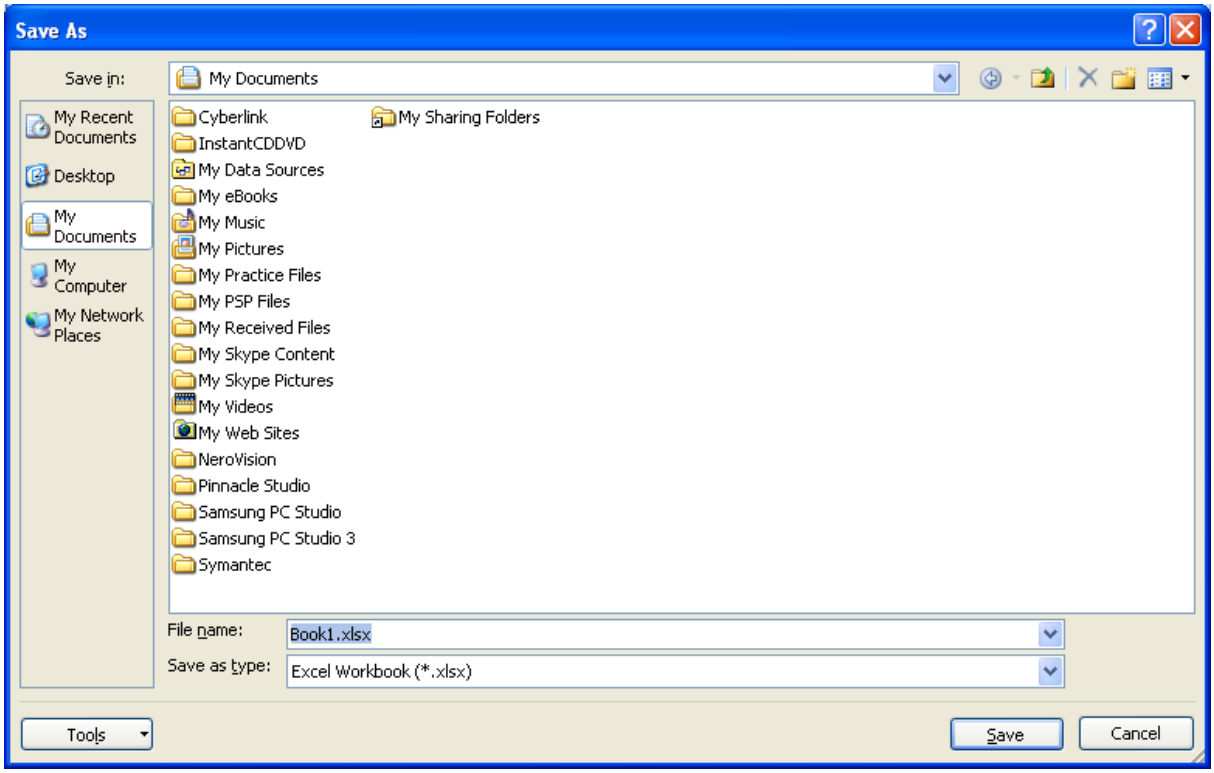
## Saving a workbook

- To save the workbook click on the **Save** icon (top-left part of your screen).




This will display the **Save As** dialog box.




- Click on the **down arrow** next to the **Save in** section of the dialog box to navigate to the folder containing your sample files.
- Click within the **File name** section of the dialog box to name the file. In this case use the file name **My First Spreadsheet**.
- Click on the **Save** button the save the file to disk.

## Closing a workbook

- To close the workbook, click on the **Office Button** (top-left of your screen), from the drop down options displayed, click on the **Close** command.

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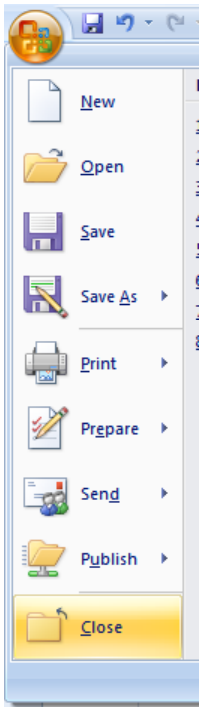
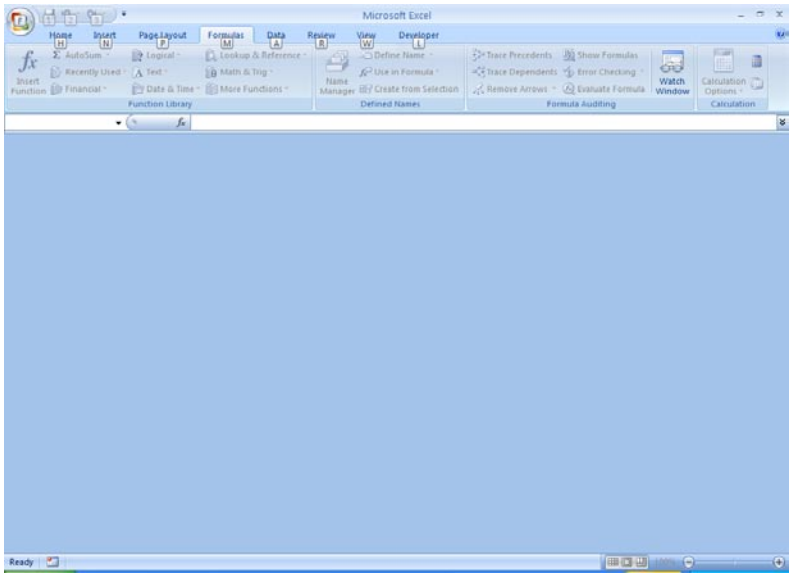



- The screen will now look like the illustration below. The Excel program is open but no workbook is displayed within the program.




- To close the Excel program, click on the **Close** icon. This icon is the small cross displayed at the top right of the Excel screen.

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## Creating a new workbook

- Start the Excel program. Each time you start the Excel program, by default, it displays a new blank workbook containing three blank worksheets. Type in your **First Name** in to cell **A1**.
- To create a new workbook, press **Ctrl+N.** This is the keyboard shortcut for creating a new file. A new workbook will be created containing three worksheets. Type in your **Second Name** in to cell **A1**.
- Close both workbooks without saving your changes.

## Opening a workbook

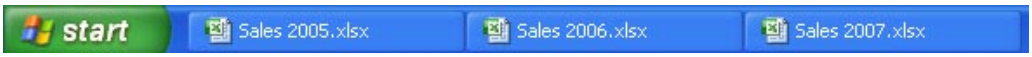
- Press **Ctrl+O** the keyboard shortcut to open an existing file.

  Or click on the **Microsoft Office Button** (top-left) and then click on the **Open** command.

- This will display the **Open** dialog box. Click on the **down arrow** within the **Look in** section of the dialog box and navigate to the folder containing your sample files. Select a file called **Sales 2005,** and then click on the **Open** button to open the workbook.
- Open the workbook called **Sales 2006** and also a workbook called **Sales 2007**. You now have three open workbooks.

## Switching between workbooks

- To switch to a particular Excel workbook, click on the relevant Excel workbook icon displayed within the Windows **Taskbar** (across the bottom of the screen).




  **TIP**: You can use the **Alt+Tab** keyboard shortcut to switch between open programs.

- Close all open workbooks.

## Saving a workbook using another name

- Open the workbook called **Sales 2005**. Click on the **Microsoft Office Button** and the select the **Save As** command.

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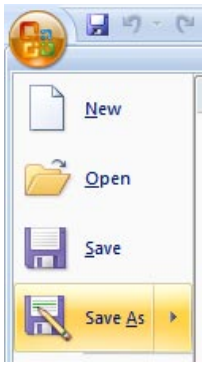
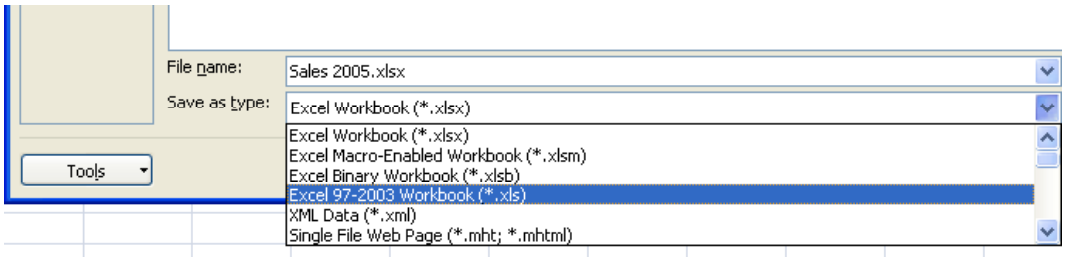



- In the **File name** section enter a new file name, in this case called **My Backup**. Click on the **Save** button. You now have two copies of the same file, both containing the same information. This can be useful for making backups of your data or for retaining copies of a workbook with different versions of the data in each file.

## Saving a workbook using a different file type

- Click on the **Microsoft Office Button** and the select the **Save As** command. The **Save As** dialog is displayed. Click on the **down arrow** within the **Save as type** section of the dialog box. You can select the required file type from the drop down displayed.




**TIP**: If you want to email a copy of an Excel 2007 workbook to someone that has an earlier version of Excel, such as Excel 2003, then you may need to save the file in the **Excel 97-2003 Workbook** file format.

Alternatively, people with earlier versions of Excel can download additional free software from Microsoft allowing them to open and view (but not necessary edit), files created using Excel 2007.

- **Other file type options include**:

**Text file**:
Saving your worksheet as a plain text file will remove all the formatting you have added to your worksheet (such as bold, italics & underlining). It will also remove any pictures or other features such as tables. Only plain text will be saved. Be very careful about using this option.

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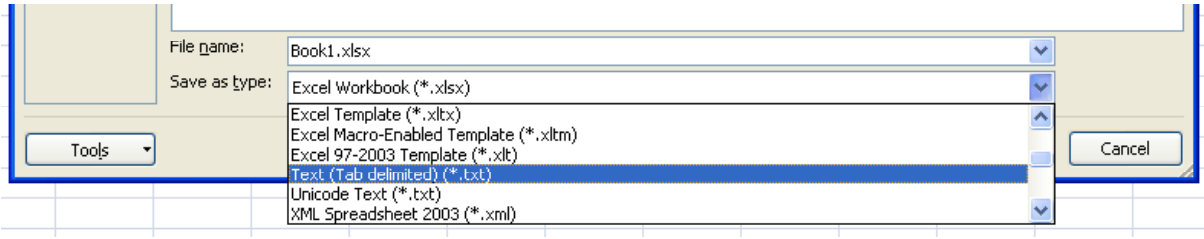
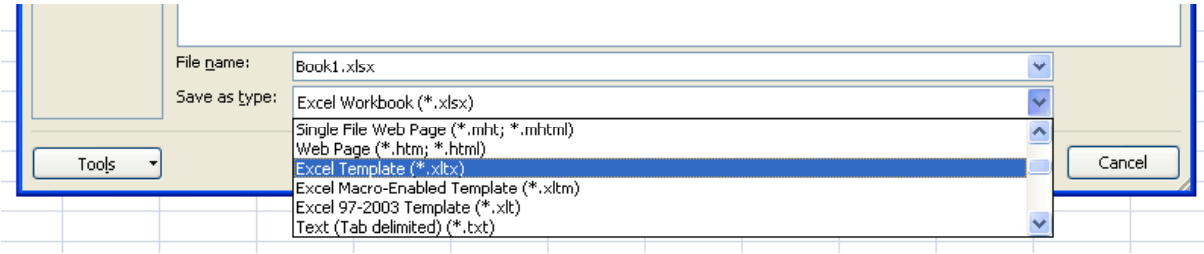
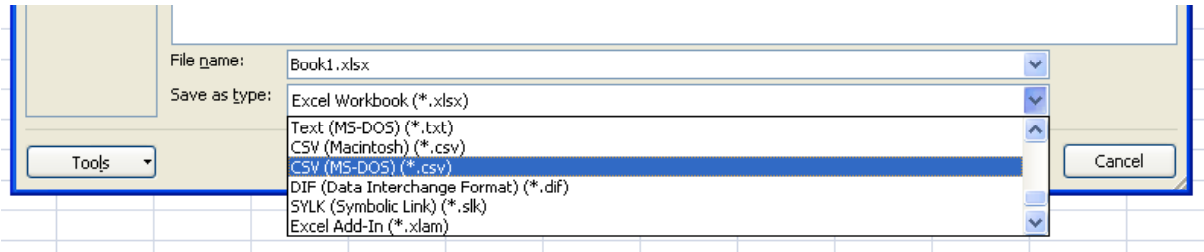



**Template**:
You normally save a workbook as a workbook file. You can however save a workbook as a template. This means that you can create new workbooks in the future, based on the templates you create.




**CSV file**:
This saves table data in a form that can be used by other programs. It is short for **Comma Separated Value**.




- Close any open dialog boxes and close all open worksheets.

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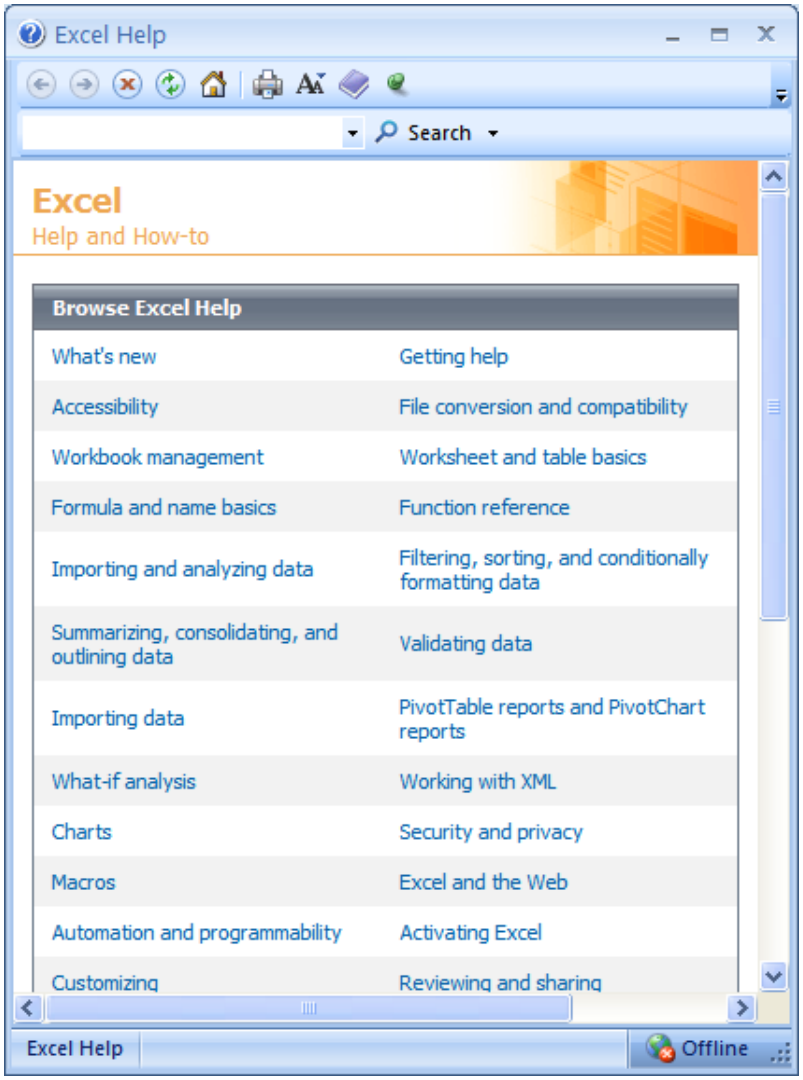
# Help

## Getting help

- Click on the **Microsoft Office Excel Help** icon (towards the top-right of the screen).

**TIP**: Or press the **F1** help key.

- The **Excel Help** window is displayed.




- As you can see a wide range of help topics are displayed. Click on the **What's new** link. You will see the following.

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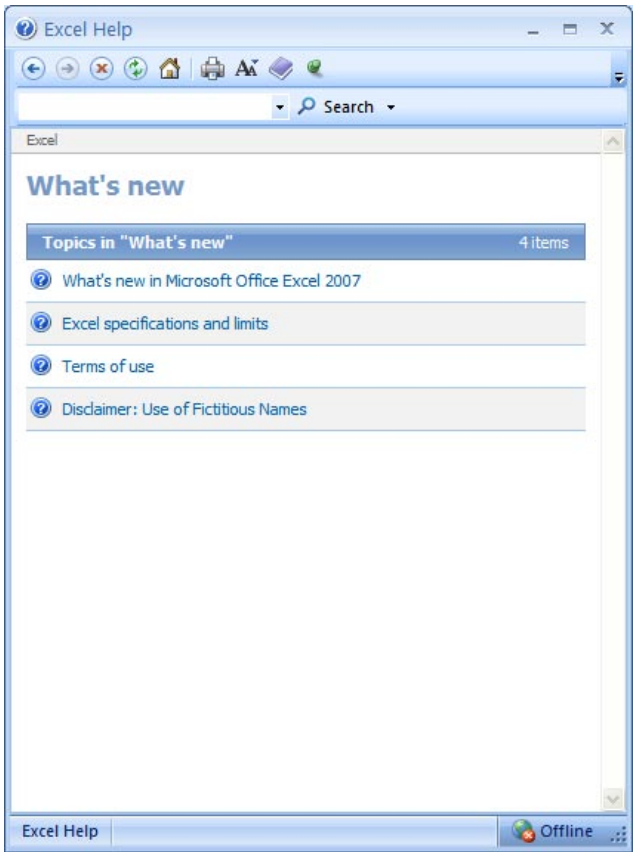


- Click on the **What's new in Microsoft Office Excel 2007** link. You will see the following.

**TIP**: Click on the **Maximise** button within the top-right part of the dialog

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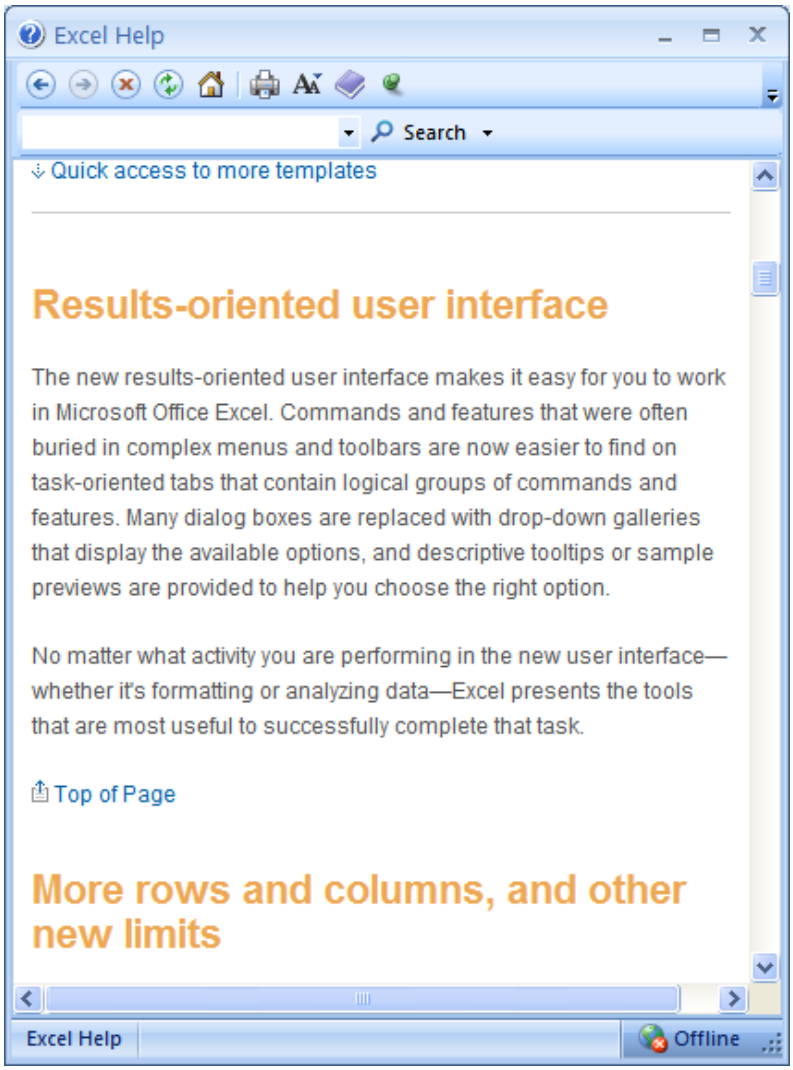
box. This will make the dialog box fill the screen and the information within it will be easier to read.

- Spend a little time browsing what's new within this version of Excel. For instance if you click on the **Results Orientated User Interface** link you will see the following.




- When you have finished experimenting, close the **Excel Help** window.

## Searching for Help

- You can search for help on a topic of particular interest. Press **F1** to display the **Excel Help** window. Within the text box near the top of the Excel Help window, type in a word or words relating to the help you need. For instance, to display help about printing, type in the word '**printing**'

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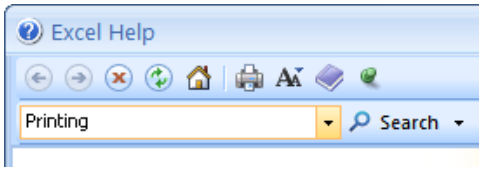
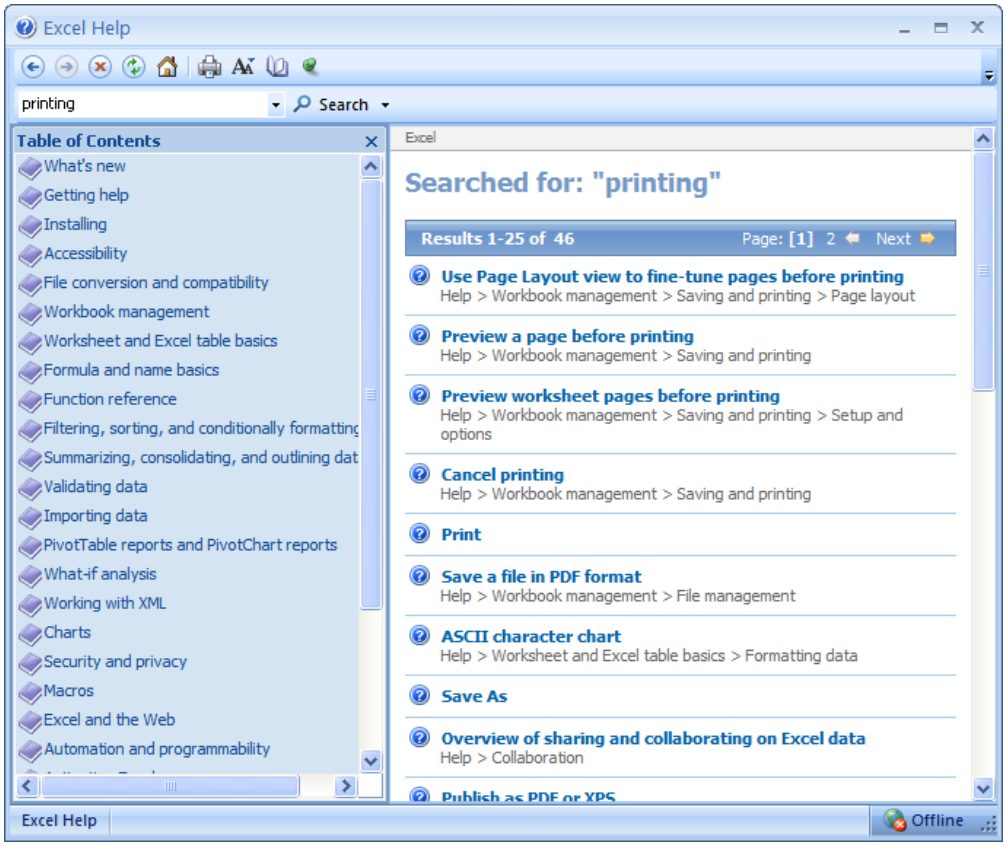


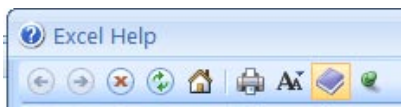

- Click on the **Search** button next to the text input box. You will see a range of topics related to printing. Clicking on any of these topics will display more information about printing.




- Close the **Excel Help** window when you have finished experimenting.

## The Help 'Table of Contents'

- Press **F1** to display the Excel Help window. Click on the **Table of Contents** icon (the book icon displayed within the Excel Help window toolbar).



- You will now see a Table of Contents displayed down the left side of the Excel Help window.

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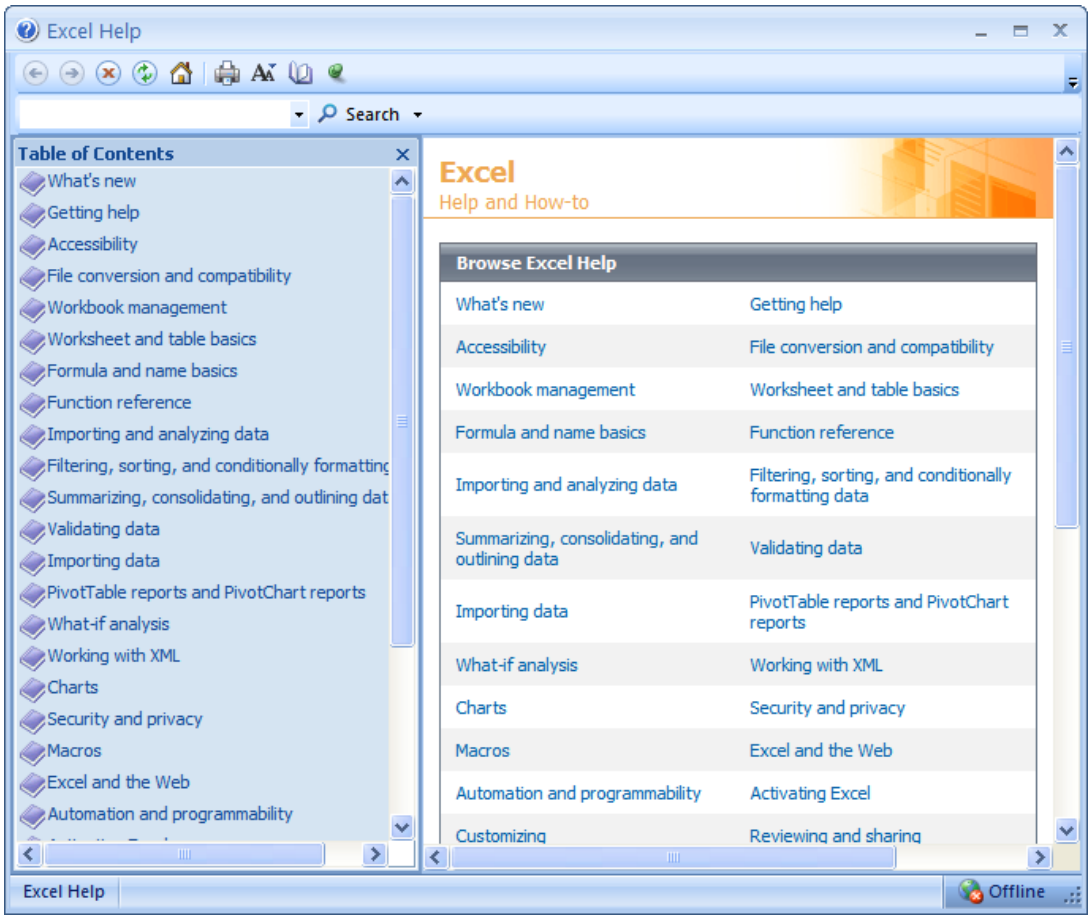
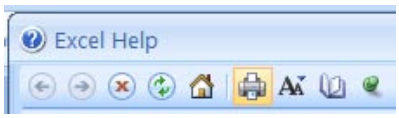



## Printing a Help topic

- Display an item of interest within the Excel Help window. Click on the **Print** icon displayed within the Excel Help toolbar.



- Close all open dialog boxes before continuing.

## Alt key help

- Press **CTRL+N** to open a new blank workbook
- Click on the **Home** tab.
- Press the **Alt** key and you will see numbers and letters displayed over icons, tabs or commands, towards the top of your screen.

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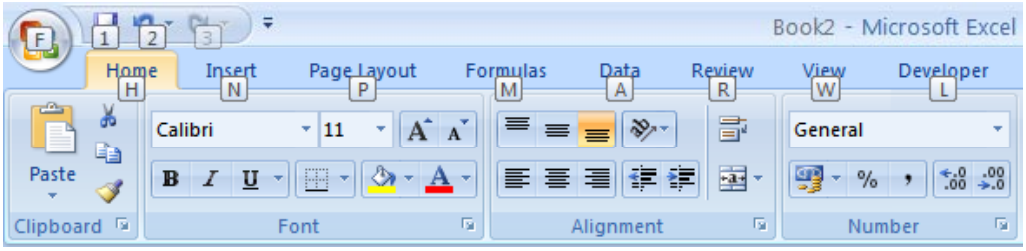


- If you type in a number or letter you will activate a command. For instance in the example shown, the number **1** is displayed over the **Save** icon. Type in **1** and you will see the **Save As** dialog box displayed. Close this dialog box.
- Press the **Alt** key again and you will see an **N** displayed over the **Insert** tab. Pres **N** and you will see the contents of the **Insert** tab displayed.
- This is a very easy way of learning keyboard shortcuts. You now know that **Alt+S** will display the **Save As** dialog box and that **Alt+N** will display the **Insert** Tab.
- Click on the **Home** tab before continuing.

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# Using Excel 2007

## Selection techniques

### Why are selection techniques important?

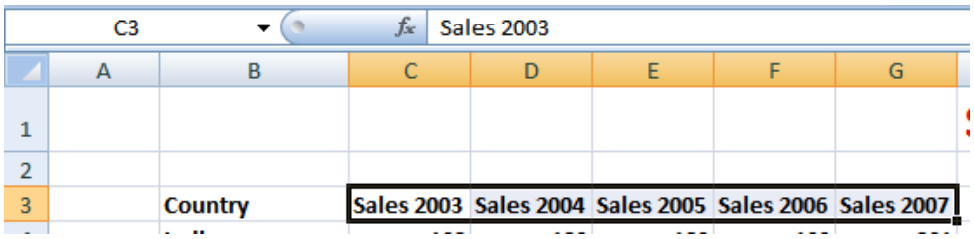
- Often when you want to do something within Excel you need to select an item first. This could involve selecting a cell or multiple cells. It many need you to select a row, a column or even the entire table.

### Selecting a cell

- Open a workbook called **Selection techniques**. To select a cell simply click on that cell. Thus to select cell **B3**, click on cell **B3**.

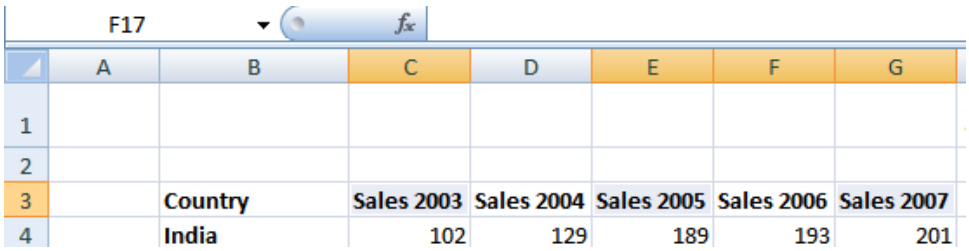
### Selecting a range of connecting cells

- We want to select the cells from **C3** to **G3**. To do this click on the first cell within the range, i.e. **C3**. Then press down the **Shirt** key (and keep it held down). Click on cell **G3**. When you release the **Shift** key the cell range will remain selected, as illustrated.




### Selecting a range of non-connecting cells

- Sometimes we need to select multiple cells that are not next to each other, as in the example below, where **C3**, **E3** and **G3** have been selected.




To do this click on the first cell, i.e. **C3**. Then while keeping the **Ctrl** key pressed click on the cells **E3** and **G3**. When you release the **Ctrl** key the cells will remain selected.

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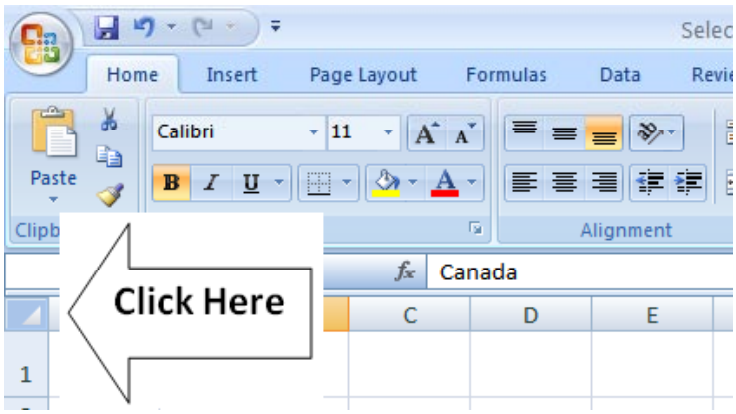
## Selecting the entire worksheet

- To select the entire worksheet, click on the intersection between the column and row referencing numbers.




## Selecting a row

- To select a row, say the row relating to Canada, click on the relevant row number displayed down the left side of the worksheet.

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | India | 102 | 129 | 189 | 193 | 201 |
| 5 | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | China | 67 | 79 | 83 | 88 | 93 |
| 11 | Pakistan | 24 | 34 | 43 | 54 | 73 |
| 12 | Mexico | 12 | 24 | 20 | 23 | 32 |

## Selecting a range of connecting rows

- To select the rows relating to Canada, USA, UK and Australia. First click on the row number next to **Canada** (i.e. **5**). Press down the **Shift** key and keep it pressed. Click on the row number relating to **Australia** (i.e. **8**). When you release the **Shift** key the multiple rows remain selected.

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | India | 102 | 129 | 189 | 193 | 201 |
| 5 | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | China | 67 | 79 | 83 | 88 | 93 |

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## Selecting a range of non-connected rows

- Click on the row number **3** and press down the **Ctrl** key. Click on row number **5**, then row number **7** and finally number **9**. Release the **Ctrl** key and the rows will remain selected.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | | | | | | | |
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | | China | 67 | 79 | 83 | 88 | 93 |

## Selecting a column

- To select the column containing data relating to **2003**, click on the column header C, as illustrated.

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | | China | 67 | 79 | 83 | 88 | 93 |
| 11 | | Pakistan | 24 | 34 | 43 | 54 | 73 |
| 12 | | Mexico | 12 | 24 | 20 | 23 | 32 |
| 13 | | | | | | | |

## Selecting a range of connecting columns

- To select the columns relating to the sales figures for **2003-2006**, first select column **C**. Press the **Shift** key and while keeping it pressed select column **F**. When you release the **Shift** key the columns will remain selected.

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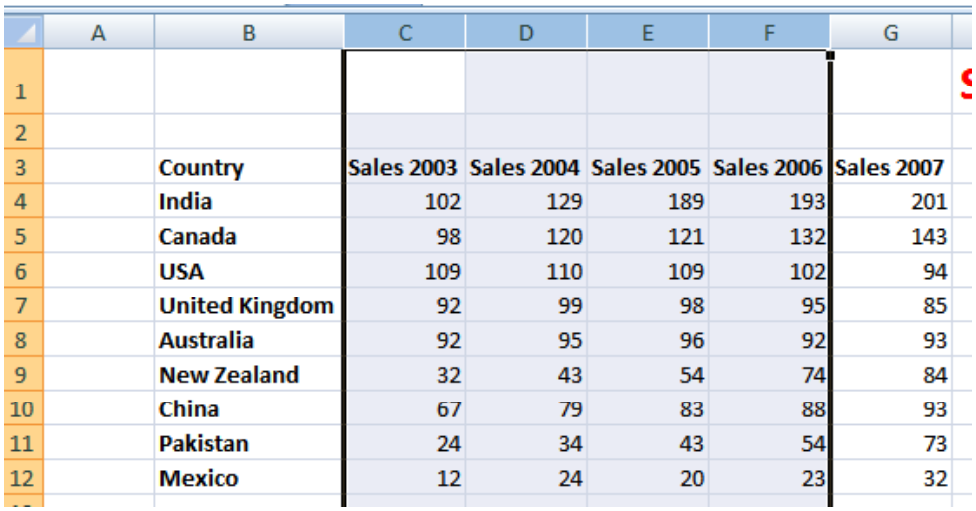
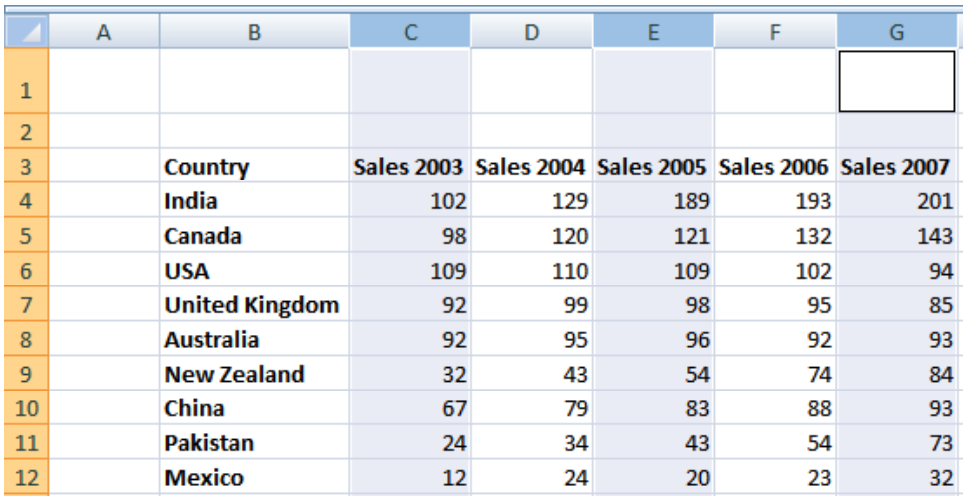


| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | | China | 67 | 79 | 83 | 88 | 93 |
| 11 | | Pakistan | 24 | 34 | 43 | 54 | 73 |
| 12 | | Mexico | 12 | 24 | 20 | 23 | 32 |

## Selecting a range of non-connecting columns

- To select the columns relating to **2003**, **2005** and **2005**, first select the column **C**. Press the **Ctrl** key and keep it pressed. Select column **E** and then select column **G**. Release the **Ctrl** key and the columns remain selected.



| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 92 | 95 | 96 | 92 | 93 |
| 9 | | New Zealand | 32 | 43 | 54 | 74 | 84 |
| 10 | | China | 67 | 79 | 83 | 88 | 93 |
| 11 | | Pakistan | 24 | 34 | 43 | 54 | 73 |
| 12 | | Mexico | 12 | 24 | 20 | 23 | 32 |

- Close the workbook without saving any changes you may have made.

## Good practice when creating or editing lists

- Each cell should contain the smallest data element. For instance if you are storing a person's name, use one cell for the first name and another cell for the second name. This means that at a later date you could manipulate the data to sort by the second name. For the same reason split the details of an address into as many smaller parts as possible so that later you could search by state/region , by post code/zip code or even by country if you are maintaining an international list.
- The top row of your data will often contain the headers of each column. These are called field names.

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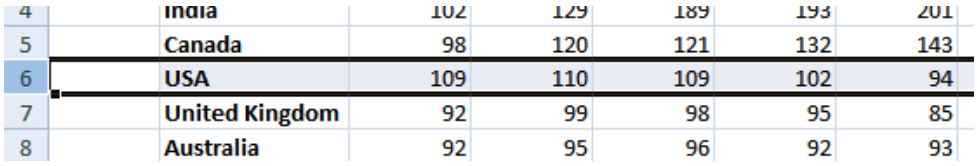
- List should not contain blank rows or columns within the data. This can cause problems when later sorting your data.
- Ensure that cells bordering your list are blank.
- If your data contains the bottom row which contains totals, it is often a good idea to insert a blank line above the row of totals.

# Manipulating rows and columns

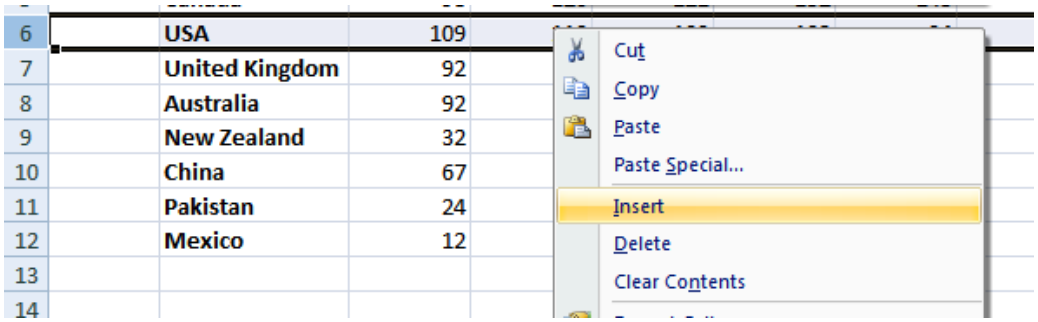
## Inserting rows into a worksheet

- Open a workbook called **Rows and columns**. We need to insert a row for **Japan** between the row for **Canada** and the row for the **USA**. Select the row for the **USA**, as illustrated.

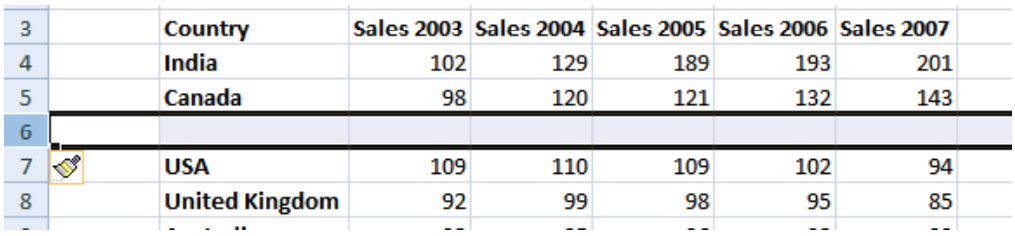


| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | USA | 109 | 110 | 109 | 102 | 94 |
| 7 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 92 | 95 | 96 | 92 | 93 |

- Right click over the selected row and from the popup menu displayed select the **Insert** command.




- The table will now look like this.



| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | | | | | | |
| 7 | | USA | 109 | 110 | 109 | 102 | 94 |
| 8 | | United Kingdom | 92 | 99 | 98 | 95 | 85 |

- Click on cell **B6** and type in the word '**Japan**'. Enter the following sales figures for **Japan**.

| Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
|---|---|---|---|---|---|
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| Japan | 89 | 93 | 102 | 109 | 120 |

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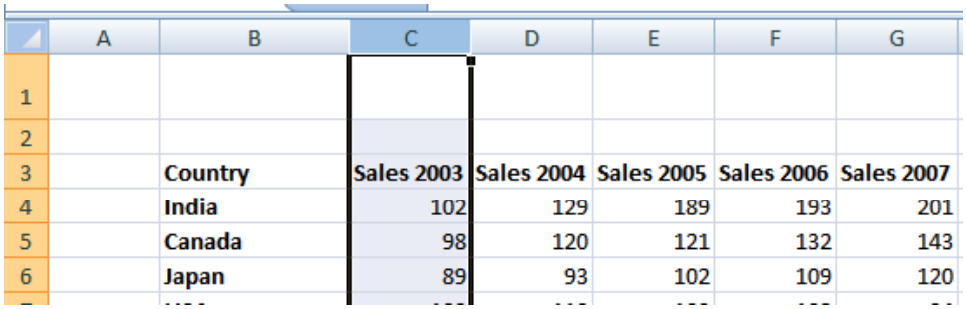
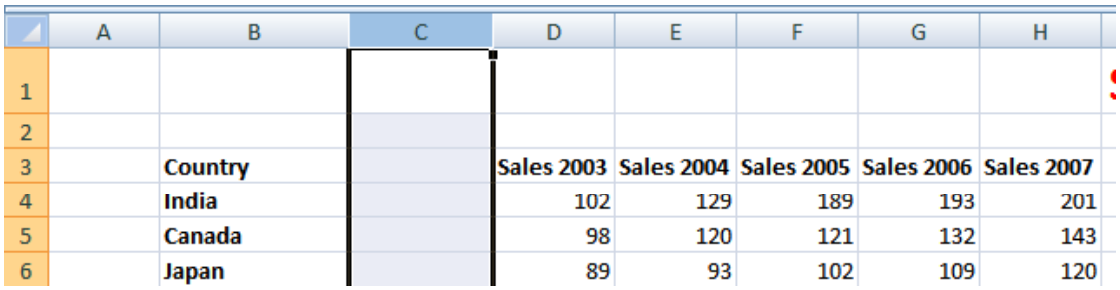
## Inserting columns into a worksheet

- We want to insert a column for sales figures in 2002, which needs to be inserted before the **2003** column. Select the column relating to **2003**, as illustrated.



| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 98 | 120 | 121 | 132 | 143 |
| 6 | | Japan | 89 | 93 | 102 | 109 | 120 |

- Right click over the selected column and from the popup menu displayed select the **Insert** command. The column will be inserted, as illustrated.



| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | Country | | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | | 98 | 120 | 121 | 132 | 143 |
| 6 | | Japan | | 89 | 93 | 102 | 109 | 120 |

- Enter the following data into the column.

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | Country | Sales 2002 | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
| 4 | | India | 93 | 102 | 129 | 189 | 193 | 201 |
| 5 | | Canada | 89 | 98 | 120 | 121 | 132 | 143 |
| 6 | | Japan | 74 | 89 | 93 | 102 | 109 | 120 |
| 7 | | USA | 92 | 109 | 110 | 109 | 102 | 94 |
| 8 | | United Kingdom | 86 | 92 | 99 | 98 | 95 | 85 |
| 9 | | Australia | 84 | 92 | 95 | 96 | 92 | 93 |
| 10 | | New Zealand | 23 | 32 | 43 | 54 | 74 | 84 |
| 11 | | China | 54 | 67 | 79 | 83 | 88 | 93 |
| 12 | | Pakistan | 23 | 24 | 34 | 43 | 54 | 73 |
| 13 | | Mexico | 10 | 12 | 24 | 20 | 23 | 32 |

## Deleting rows within a worksheet

- Select the row relating to **Canada**. Right click over the selected row and from the popup menu displayed select the **Delete** command.

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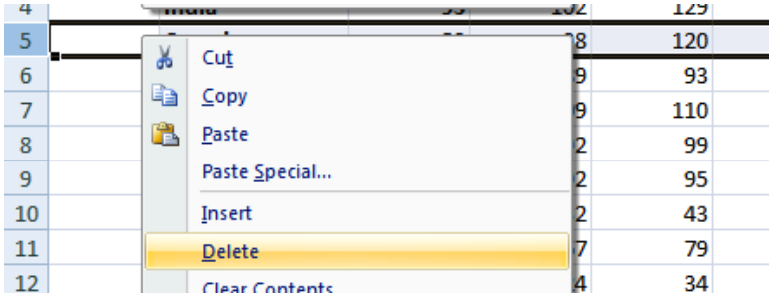



- The row is deleted without any additional warning.

  **TIP**: To delete multiple connected rows, just the **Shift** key trick to select multiple rows and then right click to delete the rows. To delete multiple non-connected rows, use the **Ctrl** key trick to select the multiple rows and then right click to delete the rows.

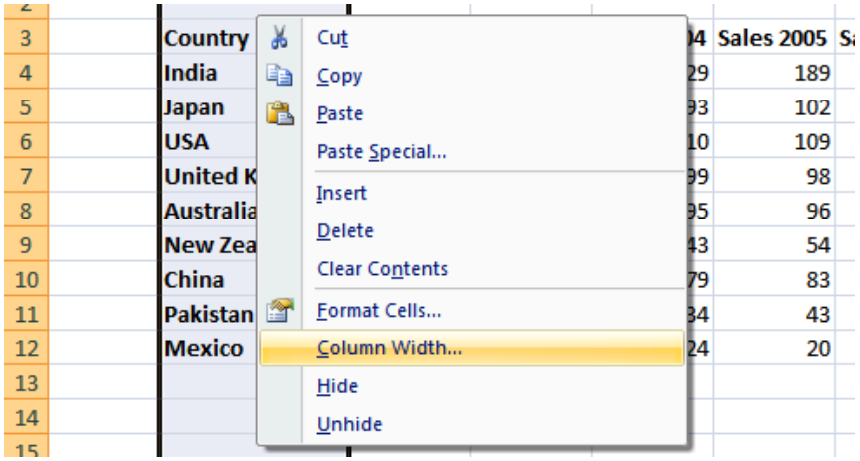
## Deleting columns within a worksheet

- Select the column relating to **Sales 2007**. Right click over the selected column and from the popup menu displayed select the **Delete** command. The column is deleted without any additional warning.

  **TIP**: To delete multiple connected columns, use the **Shift** key trick to select multiple columns and then right click to delete the columns. To delete multiple non-connected columns, use the **Ctrl** key trick to select the multiple columns and then right click to delete the columns.

## Modifying column widths

- Select a column, such as the **Country** column. Right click over the selected column and from the popup menu displayed select the **Column Width** command.




- The **Column Width** dialog box is displayed which allows you to set the column width. Click on the **Cancel** button to close the dialog box.

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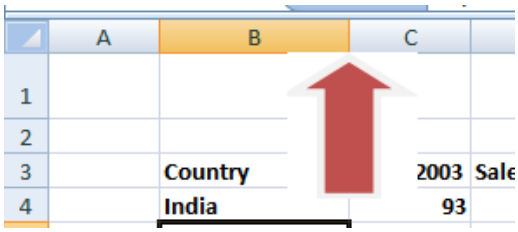
## Modifying column widths using 'drag and drop'

- Move the mouse pointer to the line between the header for **column B** and **column C**, as illustrated below.




- Press the mouse button and keep it pressed.

  The pointer changes to a black cross with double arrows when placed on the line between two columns.

- Move the mouse pointer left or right to make the column narrower or wider. Release the mouse button and the column width will change as required.

## Automatically resizing the column width to fit contents

- Resize all the columns so that they are too narrow to properly display the data contained within the columns. Your screen will look similar that the illustration below.

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | S |
| 2 | | | | | | | | |
| 3 | | Country | Sales 2 | Sales 20( | Sales : | Sales 2 | Sales 20 | Sales 2007 |
| 4 | | India | 93 | 102 | 129 | 189 | 193 | 201 |
| 5 | | Japan | 74 | 89 | 93 | 102 | 109 | 120 |
| 6 | | USA | 92 | 109 | 110 | 109 | 102 | 94 |
| 7 | | United King | 86 | 92 | 99 | 98 | 95 | 85 |
| 8 | | Australia | 84 | 92 | 95 | 96 | 92 | 93 |
| 9 | | New Zealar | 23 | 32 | 43 | 54 | 74 | 84 |
| 10 | | China | 54 | 67 | 79 | 83 | 88 | 93 |
| 11 | | Pakistan | 23 | 24 | 34 | 43 | 54 | 73 |
| 12 | | Mexico | 10 | 12 | 24 | 20 | 23 | 32 |

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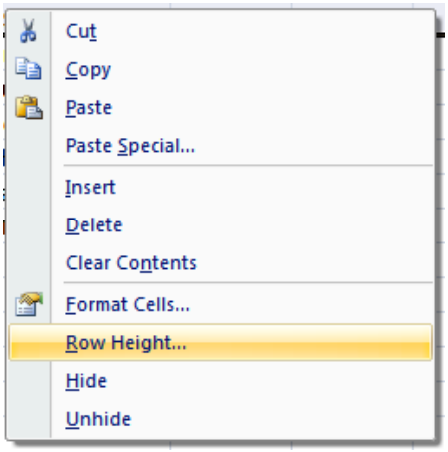
- To automatically resize each column width to fit the contents, select all the columns containing data. Double click on the junction between one of the column header headers within the selected columns.

## Modifying row heights

- Select one or more rows and then right click over the selected row(s). From the popup menu displayed select the **Row Height** command.




- The **Row Height** dialog is displayed allowing you to set the exact row height, as required.

**TIP**: If you click between any two row headers, you can drag the row height up or down as required, to modify the row height.

- Save your changes and close the workbook.

# Manipulating cells and cell content

## Copying a cell or range contents within a workbook.

- Open a workbook called **Copying moving and deleting**.
- Select a cell, range, row or column to copy. In this case select the range **B4** to **E4**.

**TIP**: A range like this is often written as **B4:E4**.

Your screen will look something like this:

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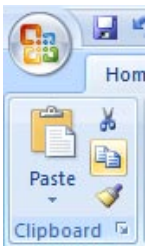
| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | | Stock Levels | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | Component number | No in stock | Value each item | Total value in stock |
| 5 | | 100846 | 2 | 56.99 | 113.98 |

- Press **Ctrl+C** to copy the selected range to the Clipboard.

  **TIP**: To copy a selected item to the Clipboard, click on the **Home** tab and then click on the **Copy** icon in the **Clipboard** group on the **Ribbon**.




- Click at the location you wish to paste the data to. In this case click on cell **B14** and press the **Ctrl+V** keys to paste the data from the Clipboard.

  **TIP**: To copy a selected item to the Clipboard, click on the **Home** tab and then click on the **Paste** icon, in the **Clipboard** group on the **Ribbon**.

- Your data will now look like this.

| | | | | | |
|---|---|---|---|---|---|
| 4 | | Component number | No in stock | Value each item | Total value in stock |
| 5 | | 100846 | 2 | 56.99 | 113.98 |
| 6 | | 100332 | 0 | 28.38 | 0 |
| 7 | | 100622 | 5 | 12.74 | 63.7 |
| 8 | | 100847 | 2 | 32.99 | 65.98 |
| 9 | | 100743 | 5 | 18.99 | 94.95 |
| 10 | | 100934 | 1 | 12.99 | 12.99 |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | Component number | No in stock | Value each item | Total value in stock |

**TIP**: You can use the same technique to copy entire rows or columns.

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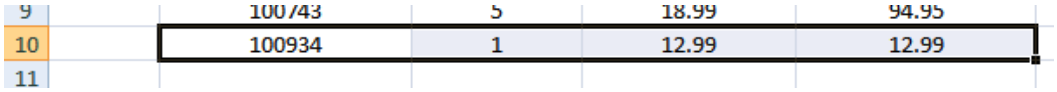
Pressing **Ctrl+A** will select everything within a worksheet and allow you to copy the entire worksheet contents to the Clipboard when you press **Ctrl+C.**

## Deleting cell contents

- Select the range that you wish to delete the contents of. In this case select the range **B10:E10**, as illustrated.



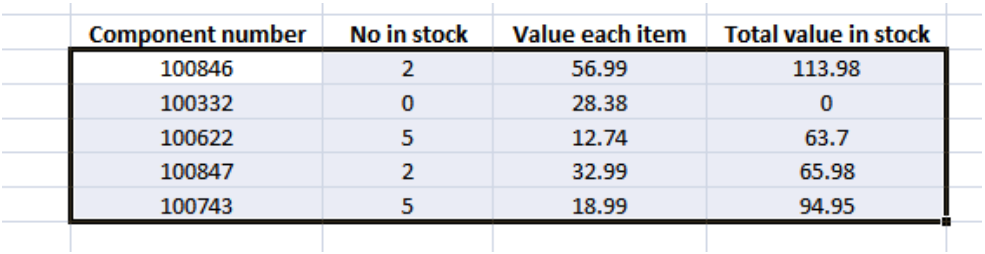
| | | | | |
|---|---|---|---|---|
| 9 | 100743 | 5 | 18.99 | 94.95 |
| 10 | 100934 | 1 | 12.99 | 12.99 |
| 11 | | | | |

- Press the **Del** key and the cell contents will be deleted.

  **TIP**: You can use the same technique to delete entire rows or columns. Pressing **Ctrl+A** will select everything within a worksheet will allow you to delete the entire worksheet contents when you press the **Del** key.

## Moving the contents of a cell or range within a workbook

- Select the range to wish to move and then cut it to the Clipboard. In this case select the data, as illustrated.



| Component number | No in stock | Value each item | Total value in stock |
|---|---|---|---|
| 100846 | 2 | 56.99 | 113.98 |
| 100332 | 0 | 28.38 | 0 |
| 100622 | 5 | 12.74 | 63.7 |
| 100847 | 2 | 32.99 | 65.98 |
| 100743 | 5 | 18.99 | 94.95 |

- Press the **Ctrl+X** keys to cut the selected data to the Clipboard.
  Click at the location you wish to move the selected data to, in this case click in cell **B15**, and press **Ctrl+V**, to paste the data.

  **TIP**: You can use the same technique to move entire rows or columns.

- Save your changes and close the workbook.

## Editing cell content

- It is easy to edit existing data within a cell or to replace existing data within a cell. Open a workbook called **Editing**.
- Click on cell **B3**. Double click in front of the word '**Region**' and insert the word '**Sales**' followed by a space. Press the **Enter** key to commit your changes to the cell.
- Click on cell **B7**. Double click on the word '**West**', to select it and then over type the selected word with the word '**Central**'. Press the **Enter** key to commit your changes to the cell.

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## Undo and Redo

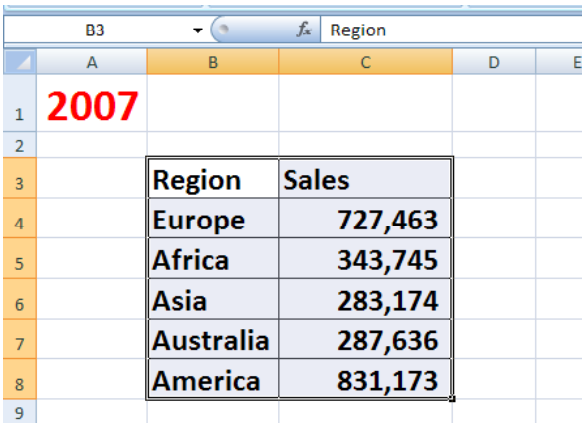
- Click on the **Undo** icon (top-left of your screen) to reverse the last action. Try it now.

- Click on the **Redo** icon (top-left of your screen) to reapply the last action. Try it now.

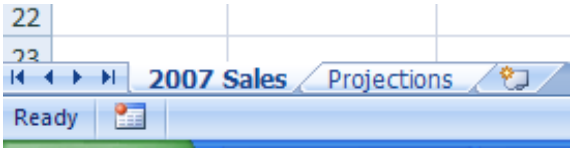
- Save your changes and close the workbook.

## Copying the contents of a cell or range between worksheets (within the same workbook)

- Open a workbook called **Worksheet manipulation**.
- Select a cell, range, row or column to copy. In this case select the range **B3:C8**. Your screen will look something like this:




- Press **Ctrl+C** to copy the selected range to the Clipboard. Click on the second worksheet tab (called **Projections**).




You will now see the contents of the second, empty worksheet displayed.

- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully copied selected data from one worksheet to another worksheet within the same workbook.

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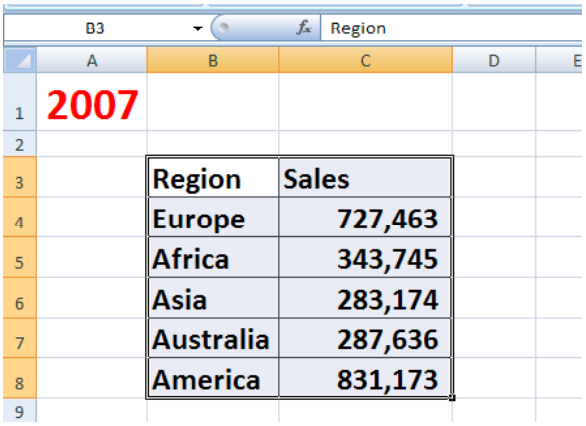
**BEFORE CONTINUING**: Click on the **Undo** icon to undo this copy.

The **Undo** icon is displayed towards the top-left of your screen.

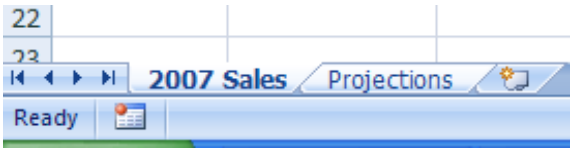
Leave the workbook open and carry on to the next section.

## Moving the contents of a cell or range between worksheets (within the same workbook)

- Switch back to the first worksheet within the workbook called **Worksheet manipulation**.
- Select a cell, range, row or column to move. In this case select the range **B3:C8**. Your screen will look something like this:




- Press **Ctrl+X** to cut (move) the selected range to the Clipboard.
- Click on the second worksheet tab (called **Projections**).




You will now see the contents of the second, empty worksheet displayed.

- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully moved selected data from one worksheet to another worksheet within the same workbook.
- Save your changes and close the workbook.

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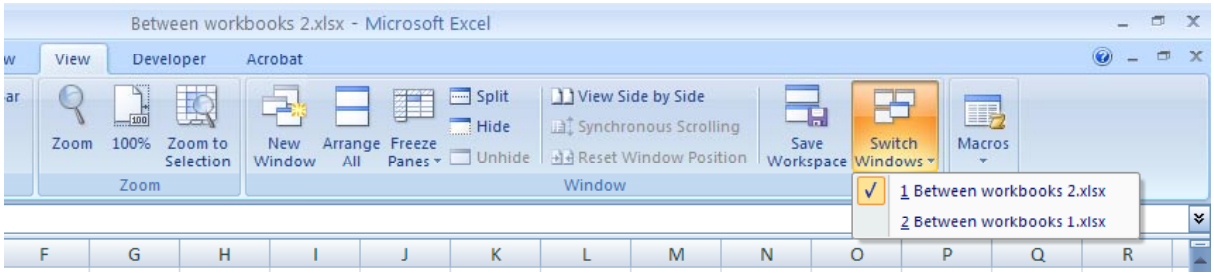
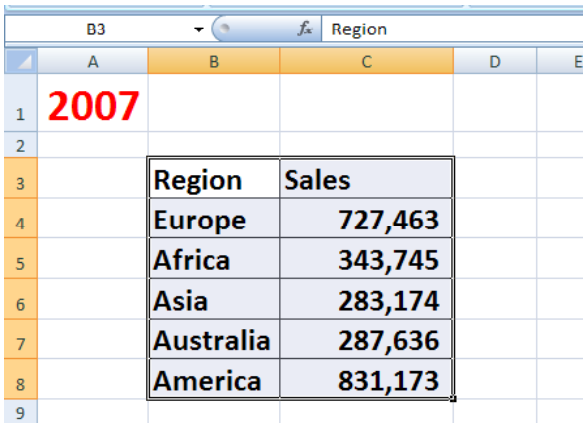
## Moving the contents of a cell or range between worksheets (in different workbooks)

- Open a workbook called **Between workbooks 1**.
- Open a second workbook called **Between workbooks 2**.
- Display the contents of the **Between workbooks 1** workbook.

  **NOTE**: To switch between multiple open workbooks, click on the **View** tab and from within the **Windows** section of the Ribbon, click on the **Switch Windows** icon. This displays a drop down list allowing you to select the worksheet that you want to switch to.




- Within the **Between workbooks 1** workbook, select a cell, range, row or column to move. In this case select the range **B3:C8**. Your screen will look something like this:




- Press **Ctrl+X** to cut (move) the selected range to the Clipboard.

- Switch to the second workbook (called **Between workbooks 2**).
- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully moved selected data from one workbook to another workbook.

  **NOTE**: You could have selected a different worksheet within the second workbook if you wanted.

  Leave the workbook open and carry on to the next exercise.

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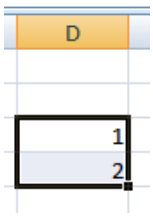
## Copying the contents of a cell or range between worksheets (in different workbooks)

- Select the data in the second workbook.
- Press **Ctrl+C** to copy the selected data to the Clipboard.
- Switch back to the first workbook.
- Click where you wish to paste the data to.
- Press **Ctrl+V** to paste the data from the Clipboard.

You have now copied selected data from one workbook to another workbook.

## AutoFill

- Open a workbook called **AutoFill**.
- Click on cell **B3** which contains the word **Monday**. Move the mouse pointer to the bottom-right corner of this cell and the mouse pointer shape will change to the shape of a small black cross. When the mouse pointer changes shape, press the mouse button down, and while keeping it pressed move slowly down the page. When you release the mouse button you will see that Excel has 'AutoFilled' the range you dragged across with days of the week.
- Click on cell **C3** which contains the word **January**. Use the AutoFill feature to automatically create a column containing all the months of the year.
- Select the cell range **D3:D4**. Use **AutoFill** to extend the series down the page. As you will see the series becomes **1,2,3,4,5,6,7** etc.




- Select the cell range **E3:E4**. Use **AutoFill** to extend the series down the page. As you will see the series becomes **2,4,6,8,10** etc.

- Save your changes and close the workbook.

## Copying a data range using AutoFill

- Open a workbook called **AutoFill a data range**.
- Select the range **B2:B24**.

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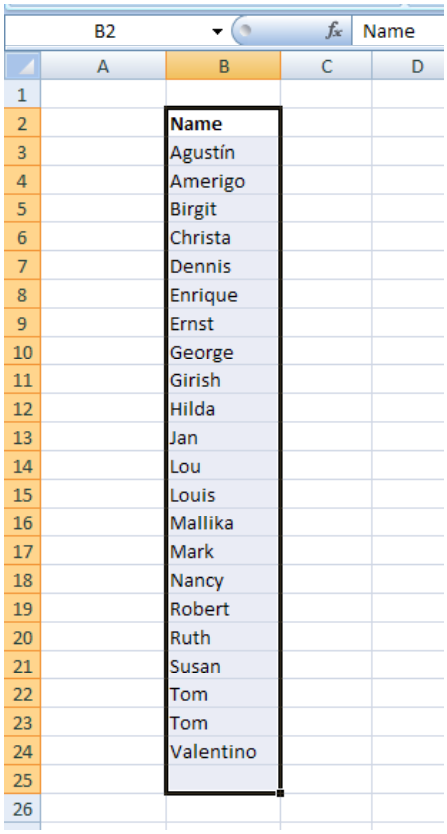
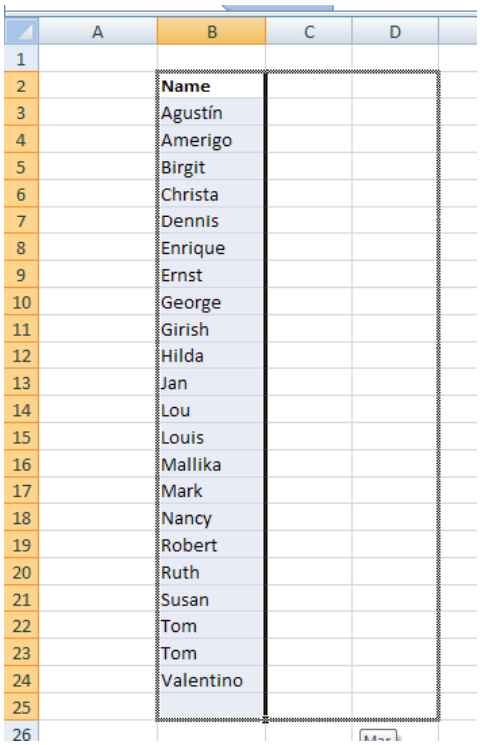



- Move the mouse pointer to the bottom-right corner of this range and the mouse pointer shape will change to the shape of a small black cross. When the mouse pointer changes shape, press the mouse button down, and while keeping it pressed move slowly to the right, by two columns.




When you release the mouse button you will see that Excel has 'AutoFilled'

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the range you dragged across with data, as illustrated below.

I22

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | **Name** | **Name** | **Name** | |
| 3 | | Agustín | Agustín | Agustín | |
| 4 | | Amerigo | Amerigo | Amerigo | |
| 5 | | Birgit | Birgit | Birgit | |
| 6 | | Christa | Christa | Christa | |
| 7 | | Dennis | Dennis | Dennis | |
| 8 | | Enrique | Enrique | Enrique | |
| 9 | | Ernst | Ernst | Ernst | |
| 10 | | George | George | George | |
| 11 | | Girish | Girish | Girish | |
| 12 | | Hilda | Hilda | Hilda | |
| 13 | | Jan | Feb | Mar | |
| 14 | | Lou | Lou | Lou | |
| 15 | | Louis | Louis | Louis | |
| 16 | | Mallika | Mallika | Mallika | |
| 17 | | Mark | Mark | Mark | |
| 18 | | Nancy | Nancy | Nancy | |
| 19 | | Robert | Robert | Robert | |
| 20 | | Ruth | Ruth | Ruth | |
| 21 | | Susan | Susan | Susan | |
| 22 | | Tom | Tom | Tom | |
| 23 | | Tom | Tom | Tom | |
| 24 | | Valentino | Valentino | Valentino | |

- Save your changes and close the workbook.

## Sorting a cell range

- Open a workbook called **Sorting**.
- Click within the data contained within column **B**.
- Click on the **Data** tab and from within the **Sort & Filter** group, click on **Sort A to Z** icon.

The data will be displayed as illustrated.

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| Countries | Value of Sales |
|---|---|
| Australia | 3281746 |
| Canada | 2183721 |
| China | 2917438 |
| India | 1846276 |
| Ireland | 2948183 |
| New Zealand | 1019483 |
| Pakistan | 1281637 |
| United Kingdom | 2093627 |
| USA | 4817423 |

- Click on the **Sort Z to A** icon.

The data will be displayed as illustrated.

| Countries | Value of Sales |
|---|---|
| USA | 4817423 |
| United Kingdom | 2093627 |
| Pakistan | 1281637 |
| New Zealand | 1019483 |
| Ireland | 2948183 |
| India | 1846276 |
| China | 2917438 |
| Canada | 2183721 |
| Australia | 3281746 |

- Click within the data contained in column **C**.
- Click on the **Data** tab, and from within the **Sort & Filter** group, click on **Sort A to Z** icon.

The data will be displayed as illustrated.

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| Countries | Value of Sales |
|---|---|
| New Zealand | 1019483 |
| Pakistan | 1281637 |
| India | 1846276 |
| United Kingdom | 2093627 |
| Canada | 2183721 |
| China | 2917438 |
| Ireland | 2948183 |
| Australia | 3281746 |
| USA | 4817423 |

- Click on the **Sort Z to A** icon.

The data will be displayed as illustrated.

| Countries | Value of Sales |
|---|---|
| USA | 4817423 |
| Australia | 3281746 |
| Ireland | 2948183 |
| China | 2917438 |
| Canada | 2183721 |
| United Kingdom | 2093627 |
| India | 1846276 |
| Pakistan | 1281637 |
| New Zealand | 1019483 |

- Save your changes and close the workbook.

# Searching

## Searching and replacing data

- Open a workbook called **Search and replace**.
- Press **Ctrl+F** to start the **Search** utility (or click on the **Home** tab, then click on the **Find & Select** icon, from the menu displayed select the **Find** command).

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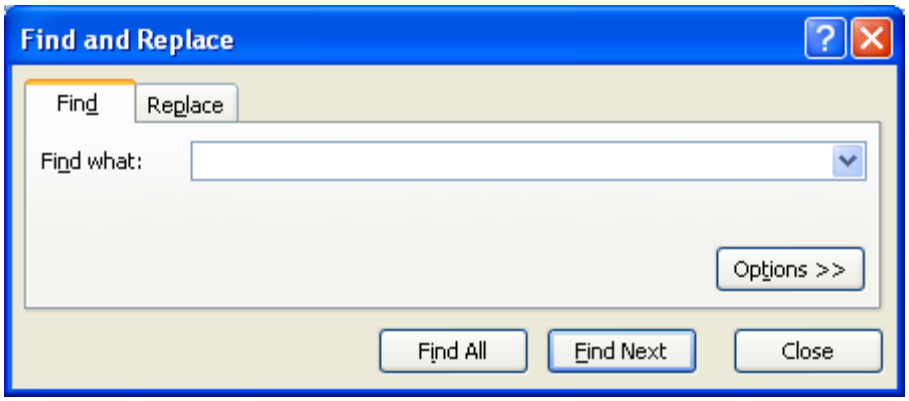
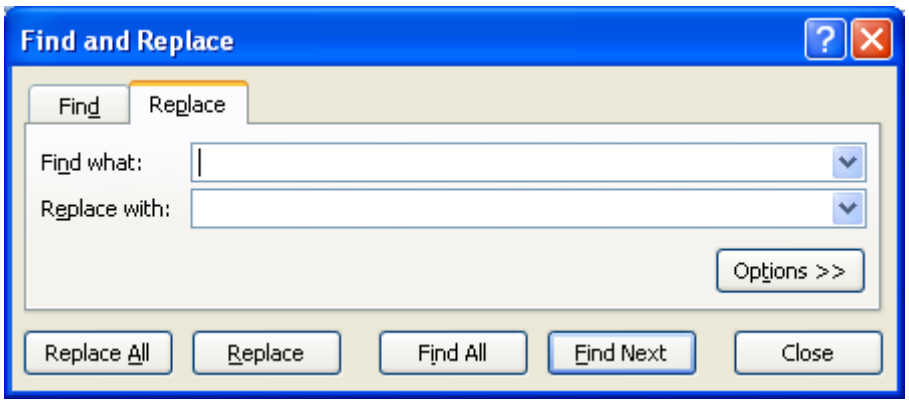
This will display the **Find and Replace** dialog box, as illustrated.




- Within the **Find what** section of the dialog box, enter the word '**Blue**'. Click on the **Find Next** button and you will find the next occurrence of the word Blue. Keep pressing on this button to find all occurrences within the worksheet.
- Click on the **Replace** tab within the **Find and Replace** dialog box.




- Within the **Find what** section type in the word '**Blue**'.
- Within the **Replace with** section type in the word '**Purple**'.
- Click on the **Find Next** button and once found click on the **Replace** button. Carry on replacing all occurrence of the word **Blue** with the word **Purple**.
- Close the **Find and Replace** dialog box.

- Press **Ctrl+H** to display the **Find and Replace** dialog box, with the **Replace** tab already selected for you.
- Within the **Find what** section type in the word '**Red**'.
- Within the **Replace with** section type in the word '**Orange**'.
- Click on the **Replace All** button and all occurrences of the word **Red** will immediately be replaced by the word **Orange**.

- Save your changes and close the workbook.

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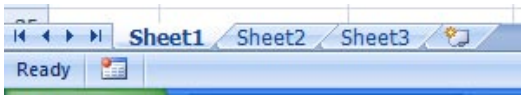
# Worksheets

## Switching between worksheets

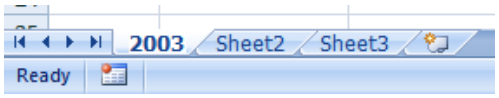
- Open a workbook called **Worksheets**.
- You are looking at the first worksheet within the workbook. You can confirm this by looking at the worksheet tabs at the bottom-left of your screen.



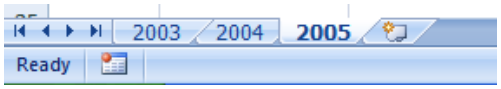

- To switch to another worksheet click on either the **Sheet2** or **Sheet3** tab.

## Renaming a worksheet

- Click on the **Sheet1** tab to display the first worksheet. Double click on the **Sheet1** tab and you will be able to type in a new name. In this case type in the name **2003** and then press the **Enter** key to confirm the change, as illustrated.




- Double click on the **Sheet2** tab and rename it **2004**.
- Double click on the **Sheet3** tab and rename it **2005**. Your tabs will now look like this:




## Good practice with naming worksheets

- By default worksheets are called Sheet1, Sheet2 and Sheet3. You should use meaningful names for your worksheets, especially if you are using multiple worksheets within a workbook. This can make a complicated workbook much easier to understand.

## Inserting a new worksheet

- Click on the **2005** worksheet tab to select it. Right click over the tab and from the popup menu displayed, click on the **Insert** command.

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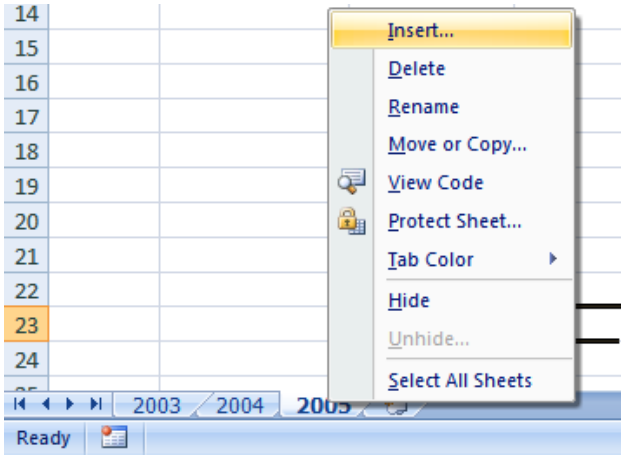
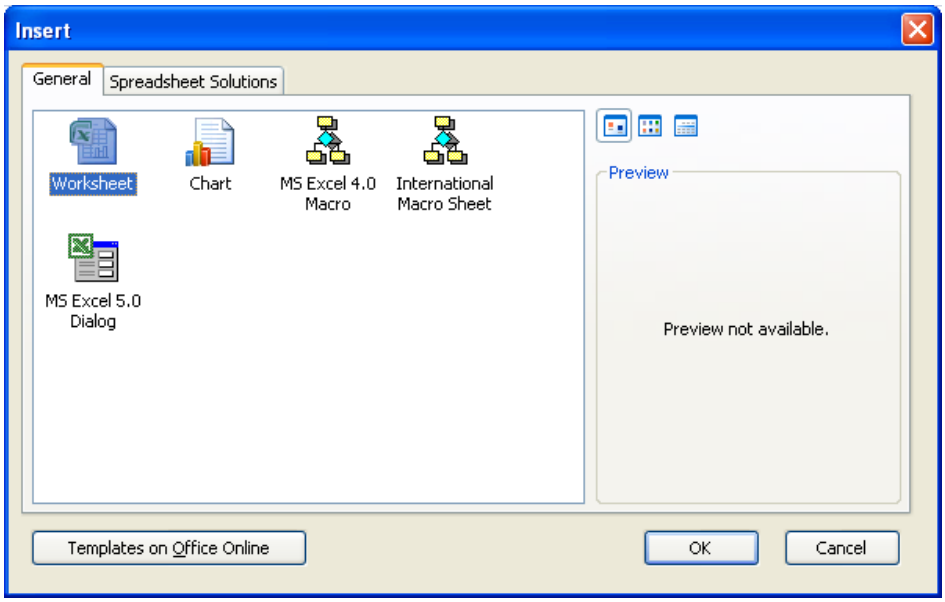
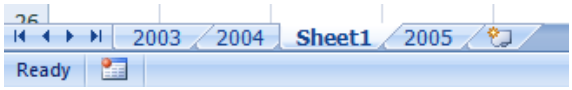



- The **Insert** dialog is displayed. Make sure that the **Worksheet** object is selected within the dialog box.




- Click on the **OK** button and a new worksheet will be inserted just before the selected worksheet, as illustrated.




## Deleting a worksheet

- Make sure that the new tab that you have just inserted is selected. Right click on the tab and from the popup menu displayed select the **Delete** command. The new worksheet will be deleted.

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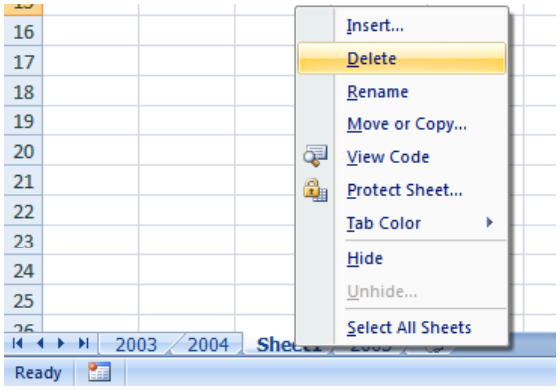
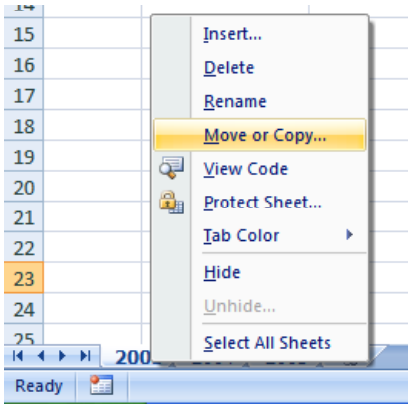
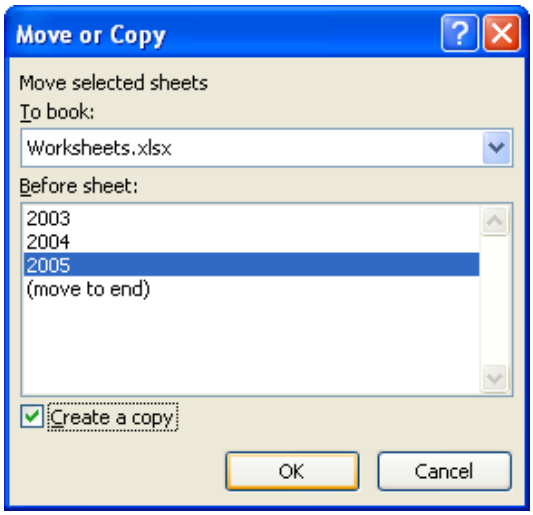



## Copying a worksheet within a workbook

- Select the **2003** tab. Right click on the tab and from the popup menu displayed select the **Move or Copy** command.




- The **Move or Copy** dialog box is displayed. As we want to copy rather than move, click on the **Create a copy** check box. In the **Before sheet** section of the dialog box, select which worksheet you wish to insert the copy in front of. In this case select **2005**.

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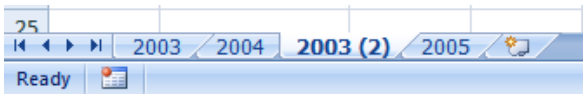
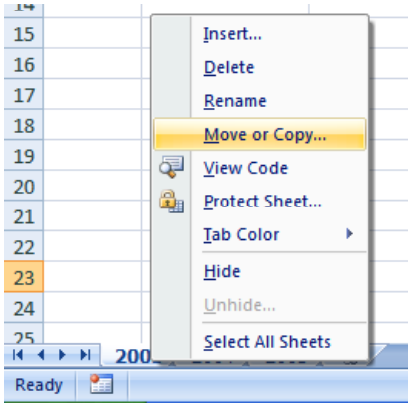
- When you click on the **OK** button a copy of the first worksheet will be inserted, as illustrated.



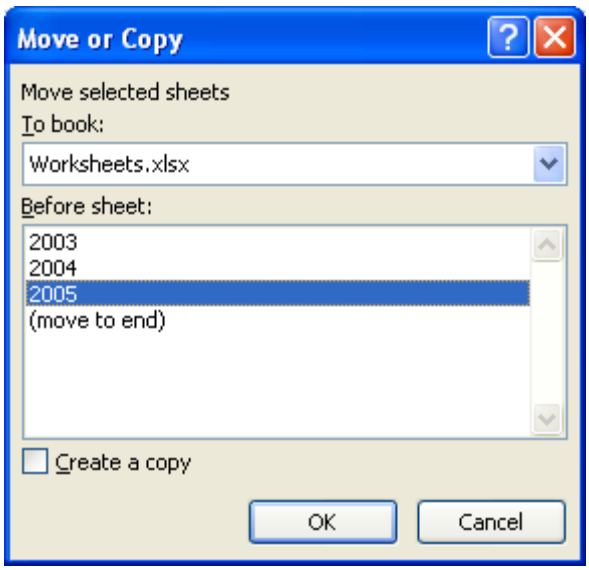

- Delete this copied worksheet before continuing.

## Moving a worksheet within a workbook

- Select the **2003** tab. Right click on the tab and from the popup menu displayed select the **Move or Copy** command.




- The **Move or Copy** dialog box is displayed. In the **Before sheet** section of the dialog box, select which worksheet you wish to insert the moved worksheet in front of. In this case select **2005**.




- When you click on the **OK** button the worksheet will be moved, as illustrated below.

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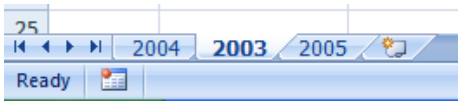
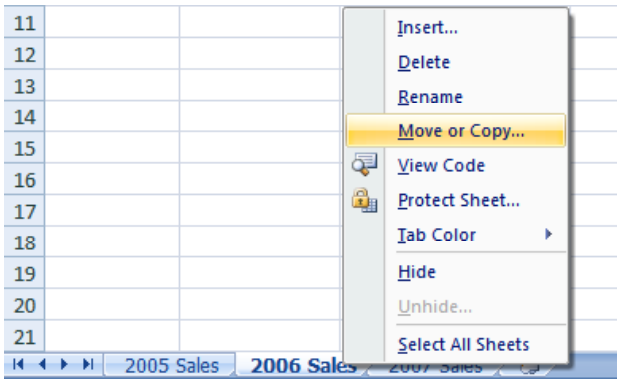



- Before continuing, rearrange the worksheets in the correct order.
- Save your changes and close the workbook.

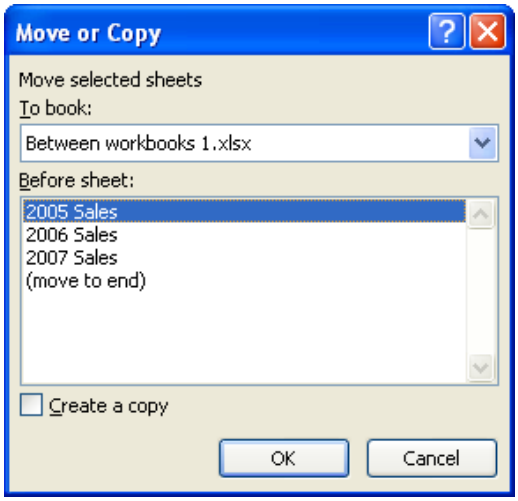
## Copying or moving worksheets between workbooks

- Open a workbook called **Between workbooks 2**. Leave this workbook open.
- Open a workbook called **Between workbooks 1**.
- Click on the worksheet tab for **2006 Sales**.

- Right click on the **2006 Sales** tab and from the popup menu displayed select the **Move or Copy** command.




- The **Move or Copy** dialog box is displayed.

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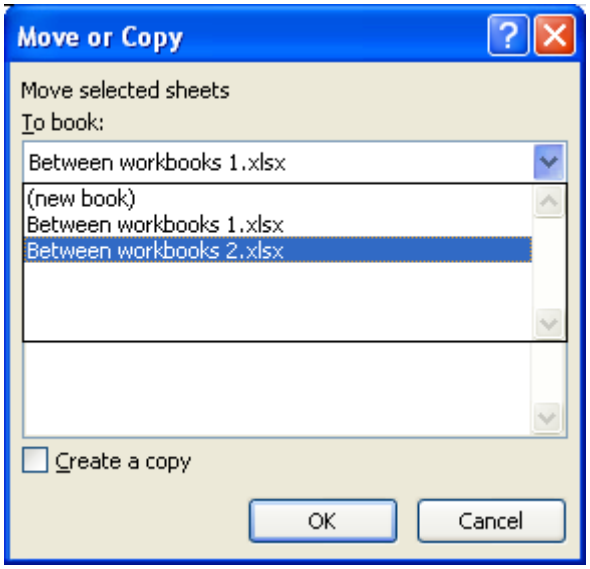
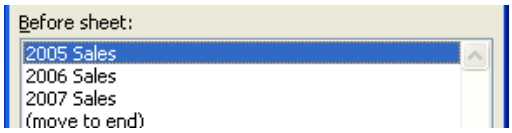
- Click on the **down arrow** in the **To book** section of the dialog box. From the drop down list, select the workbook called **Between wordbooks 2**, as illustrated below.




- Use the **Before sheet** section of the dialog box to determine where in the second workbook the worksheet will be copied to.




- Click on the **Create a copy** check box.

- Click on the **OK** button.

- Switch to the second workbook and you should see a copy of the worksheet inserted into the workbook.

  **TIP**: Experiment with moving a worksheet between workbooks using the same method, but this time do not click on the **Create a copy** check box.

- When you have finished experimenting save the changes in both your workbooks and close all open files.

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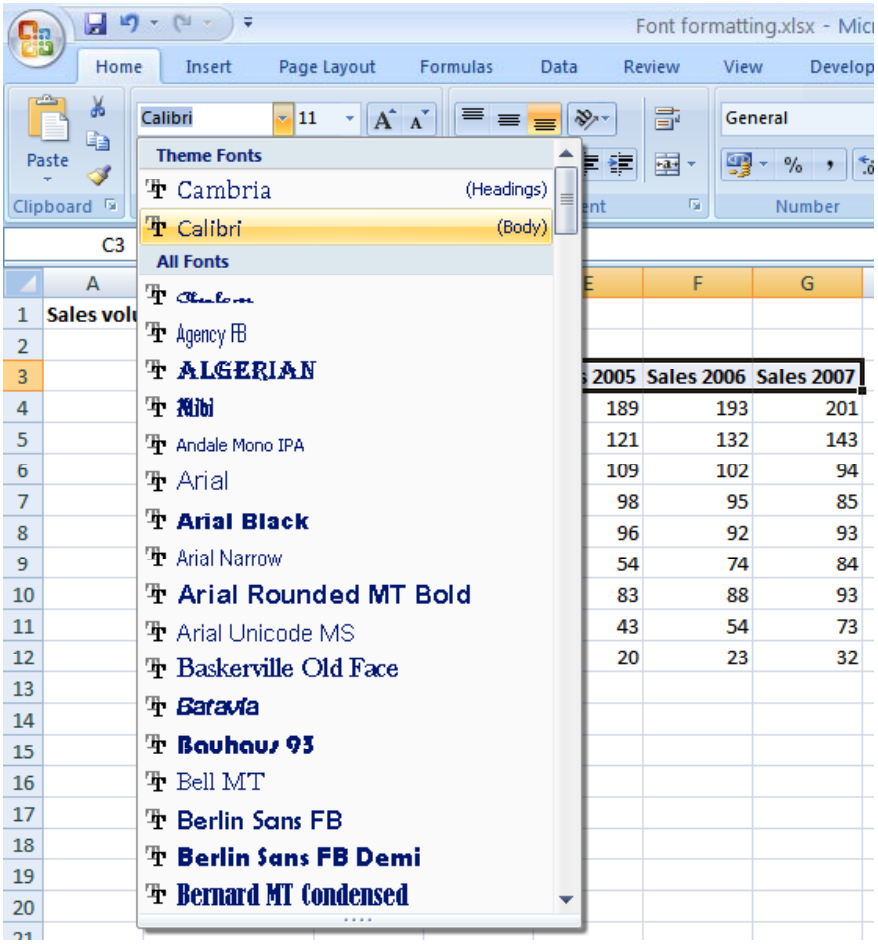
# Formatting

## Font formatting

- The font formatting options are located on the **Home** tab within the **Font** group.

### Font type

- Open a workbook called **Font formatting**. Select the range **C3:G3**. Click on the **down arrow** within the **Font** section and select a different font type, such as **Arial**.




- Experiment with applying different fonts to your data.

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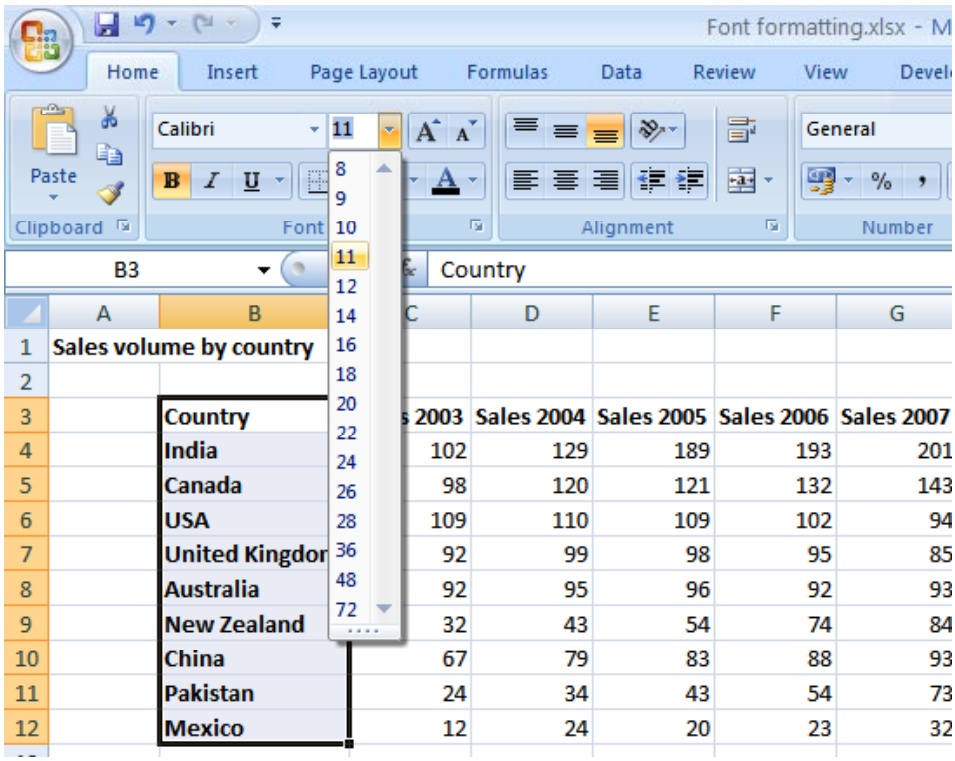
## Font size

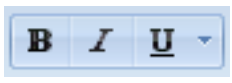
- Select the range **B3:B12**. Click on the **down arrow** within the **Font Size** section and select a different font size.



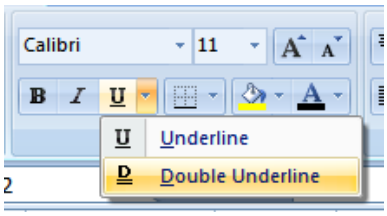

**TIP**: You can also select a range and use the **Increase Font Size** and **Decrease Font Size** icons.

## Bold, italic, underline formatting

- Select the range **C4:G12** and experiment with applying bold, italic and underlining formatting using the icons illustrated below.



**TIP**: You can easily apply double underline formatting. To do this click on the **down arrow** next to the **Underline** icon. Select the **Double Underline** command.

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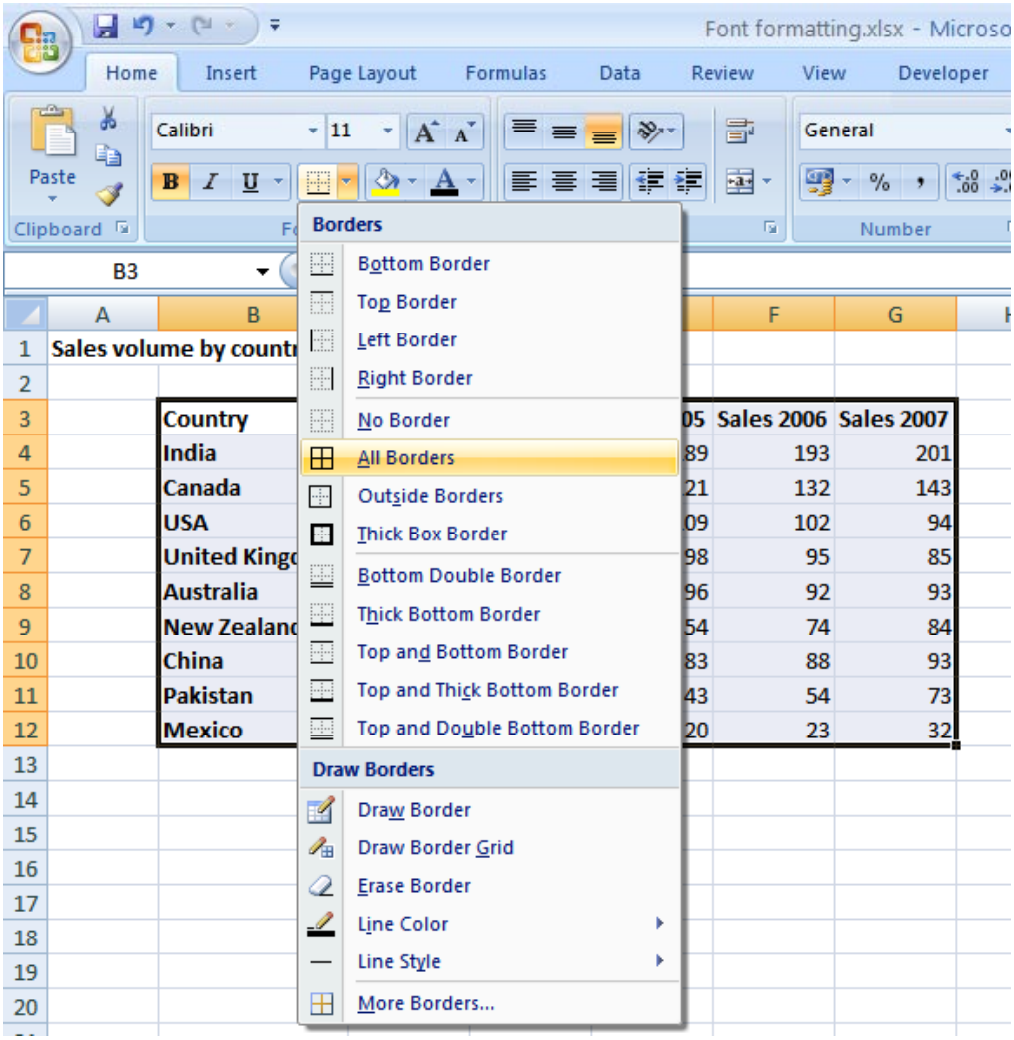
## Cell border formatting

- Select the range **B3:G12**. Click on the **down arrow** next to the **Border** icon. A drop down is displayed from which you can select the required border. Select **All Borders**.




- Your data will now look like this.

| Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
|---|---|---|---|---|---|
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| USA | 109 | 110 | 109 | 102 | 94 |
| United Kingdom | 92 | 99 | 98 | 95 | 85 |
| Australia | 92 | 95 | 96 | 92 | 93 |
| New Zealand | 32 | 43 | 54 | 74 | 84 |
| China | 67 | 79 | 83 | 88 | 93 |
| Pakistan | 24 | 34 | 43 | 54 | 73 |
| Mexico | 12 | 24 | 20 | 23 | 32 |

- Click on the **Undo** icon (top-left of your screen) to undo this formatting.

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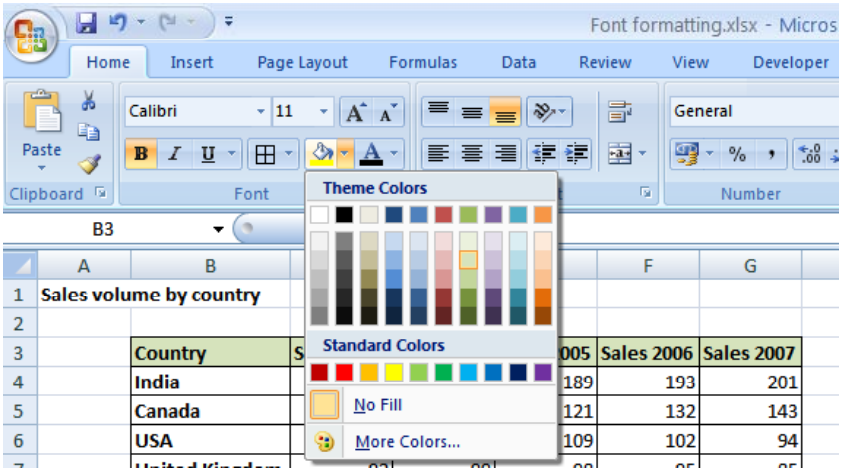
- Spend a little time experimenting with applying different types of borders. Remember that you can use the **Undo** icon to undo any formatting that you apply.

  **TIP**: Experiment with applying border formatting effects, such a thick or double edged border effects.

## Formatting the background colour

- Select the range **B3:G3**. Click on the **Fill Color** icon. Move the mouse over a colour and you will see the colour formatting previewed within your data. Click on a colour to apply it.




  **TIP**: Be carful when applying background fill colours as it may make any text within the range difficult to see. Avoid using similar text colours and background fill colours.

## Formatting the font colour

- Select the range **B3:B12**. Click on the **down arrow** next to the **Font Colour** icon. This will display a drop down from which you can select the required colour. Experiment with applying different font colours.

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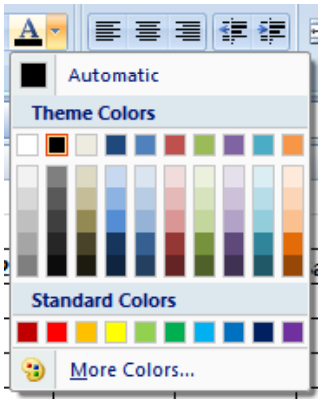
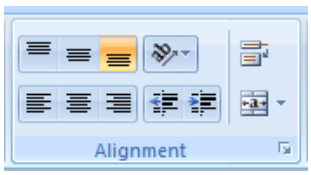



- Save your changes and close the workbook.

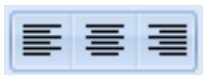
# Alignment formatting

- The alignment options are contained within the **Alignment** group on the **Home** tab.




## Aligning contents in a cell range

- Open a workbook called **Alignment**. Select the range **C3:G12**. Click on the **Center** icon to centre the cell contents in this range. Try applying **left** and then **right** alignment formatting. Use the alignment icons illustrated below.



## Centring a title over a cell range

- Click on cell **C2** and type in the word '**Sales**'. We want to centre this within the range **C2:G2**. To do this, select the range **C2:G2** and then click on the **Merge and Center** icon.

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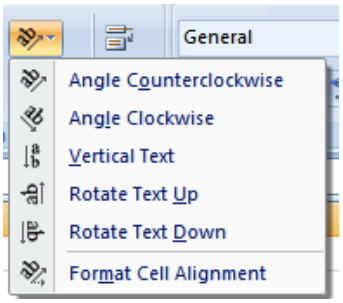
- Your screen will now look like this.

| | Sales | | | | |
|---|---|---|---|---|---|
| Country | 2003 | 2004 | 2005 | 2006 | 2007 |
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| USA | 109 | 110 | 109 | 102 | 94 |
| United Kingdom | 92 | 99 | 98 | 95 | 85 |

## Cell orientation

- Select the range **C3:G3**. Click on the **Orientation** icon. You will see a drop down menu allowing you to format the cell orientation.




- Select the **Angle Counterclockwise** command. Your data will now look like this.

| Country | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| USA | 109 | 110 | 109 | 102 | 94 |

- Experiment with applying some of the other orientation effects.

## Text wrapping

- Click on cell **B14**. Type the following txt into cell **B14**.

  **All revenues are pre- tax profits**.

- When you press the **Enter** key you will see that the text does not 'fit' into the cell.

| | | |
|---|---|---|
| 13 | | |
| 14 | All revenues are pre- tax profits. | |
| 15 | | |

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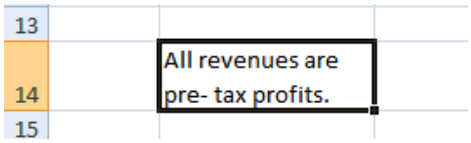
- Select cell **B14** and click on the **Wrap Text** icon.

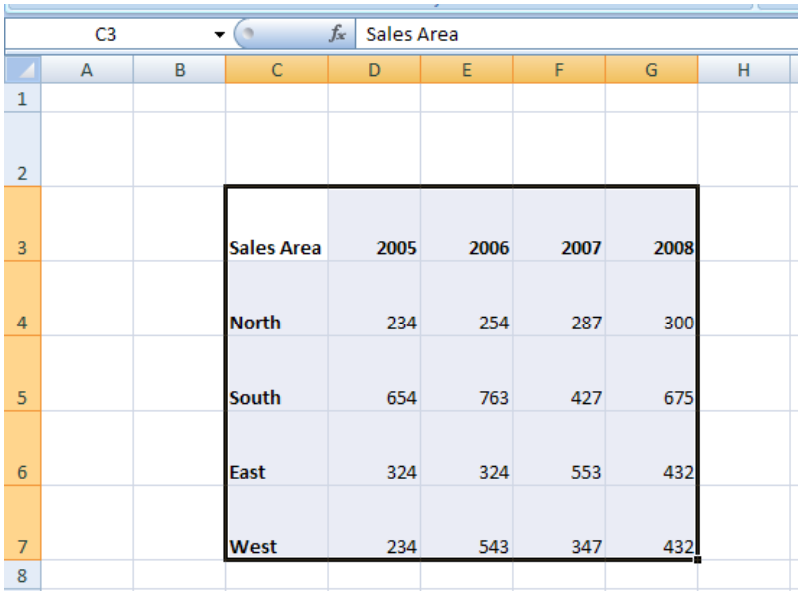
- The cell will now look like this.



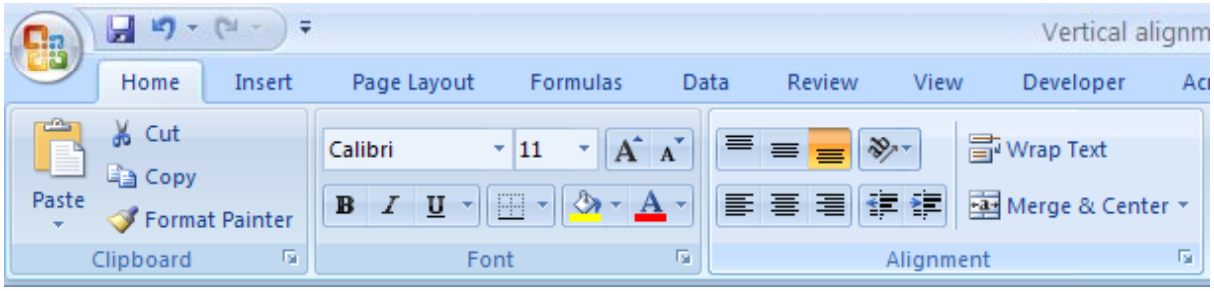

- Save your changes and close the workbook.

## Aligning cell contents vertically

- Open a workbook called **Vertical alignment**. As you can see the cell contents are aligned to the bottom of the cell.
- Select the data as illustrated.




- Click on the **Home** tab and from within the **Alignment** section select the required vertical alignment option.

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- Experiment with applying each of the three vertical alignment options.

**Top Alignment**
**Middle Alignment**
**Bottom Alignment**

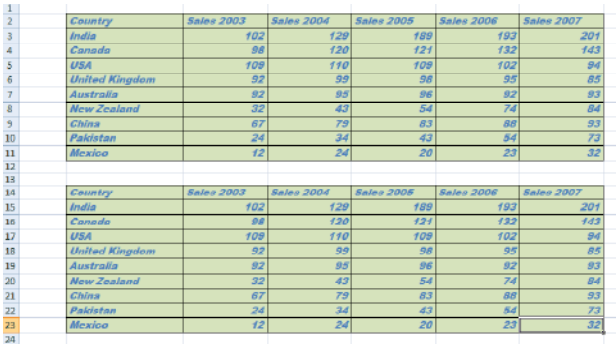
- After you have finished experimenting, set the alignment to **Middle Alignment**.

- Save your changes and close the workbook.

## Format Painter

- Open a workbook called **Format painter**.
- Click within the upper table and click on the **Format Painter** icon. This icon is contained within the **Clipboard** group of the **Home** tab.

- Once you click on the Format Painter icon, you will notice that the shape of the mouse pointer changes to the shape of a paintbrush. You can now apply the formatting within the cell that you clicked on, to another range within the worksheet.
- Click on cell **B14**, and while keeping the mouse button pressed, move the mouse pointer to cell **G23**. Release the mouse button and the formatting will be copied to the second range within your worksheet, as illustrated.



| Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
|---|---|---|---|---|---|
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| USA | 109 | 110 | 109 | 102 | 94 |
| United Kingdom | 92 | 99 | 98 | 95 | 85 |
| Australia | 92 | 95 | 96 | 92 | 93 |
| New Zealand | 32 | 43 | 54 | 74 | 84 |
| China | 67 | 79 | 83 | 88 | 93 |
| Pakistan | 24 | 34 | 43 | 54 | 73 |
| Mexico | 12 | 24 | 20 | 23 | 32 |

| Country | Sales 2003 | Sales 2004 | Sales 2005 | Sales 2006 | Sales 2007 |
|---|---|---|---|---|---|
| India | 102 | 129 | 189 | 193 | 201 |
| Canada | 98 | 120 | 121 | 132 | 143 |
| USA | 109 | 110 | 109 | 102 | 94 |
| United Kingdom | 92 | 99 | 98 | 95 | 85 |
| Australia | 92 | 95 | 96 | 92 | 93 |
| New Zealand | 32 | 43 | 54 | 74 | 84 |
| China | 67 | 79 | 83 | 88 | 93 |
| Pakistan | 24 | 34 | 43 | 54 | 73 |
| Mexico | 12 | 24 | 20 | 23 | 32 |

- Save your changes and close the workbook.

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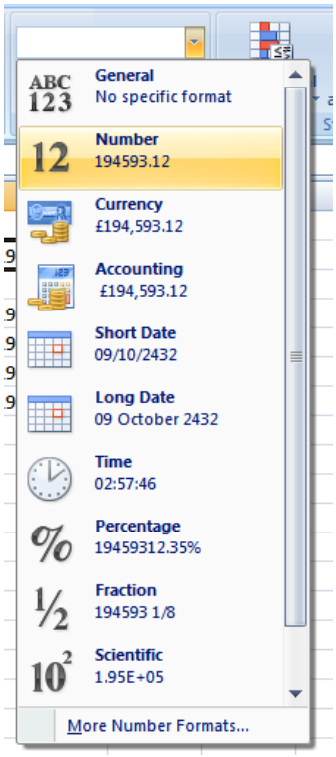
# Number formatting

## Number formatting

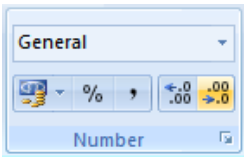
- Open a workbook called **Number formatting**. Click on cell **C2**. Click on the **down arrow** next to the **Number Format** control. You will see a drop down menu from which you can select the format. In this case select **Number**.




- This tells Excel that the data contained within this cell should always now be treated as a number, rather than say text or a date.

## Decimal point display

- Click on cell C4**.** Click on the **Decrease Decimal** icon so that no decimal places are displayed.



- The cell contents should now look like this.

| | |
|---|---|
| Format this number to display no decimal places. | 194593 |

- Set the contents of cell **C5** to display **1** decimal point.

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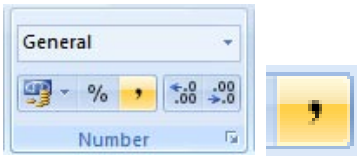
- Set the contents of cell **C6** to display **2** decimal points.

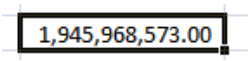
  **TIP**: To increase the number of decimal points displayed, click on the **Increase Decimal** icon.

## Applying and removing comma style formatting (to indicate thousands)

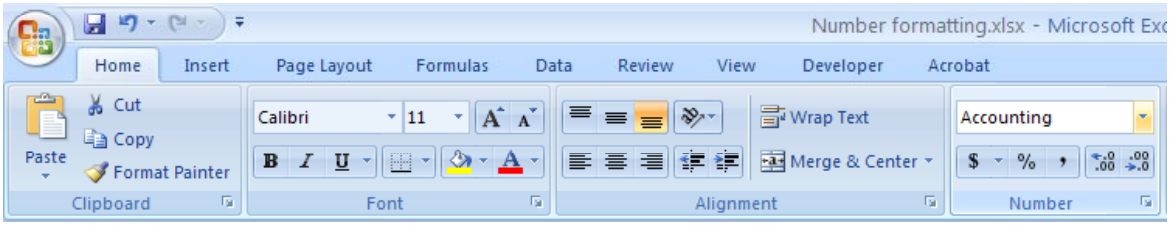
- Click on cell **C8**. Click on the **Comma Style** icon (within the **Number** section of the **Home** tab) to format the number using commas.



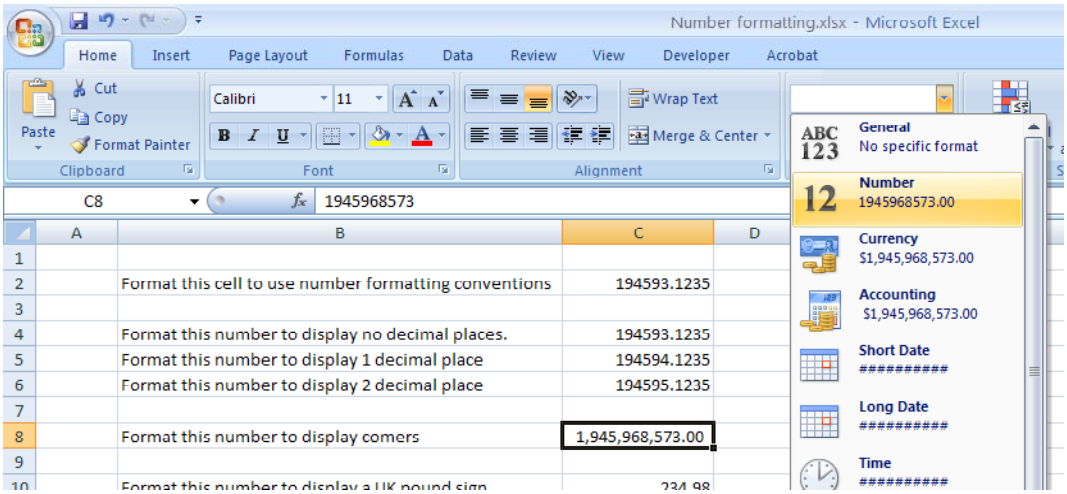

- Your number should now look like this.




  **NOTE**: To remove comma style formatting, click on the **Number format** icon (within the **Number** section of the **Home** tab).




- Select the **General** or **Number** format option, as illustrated.

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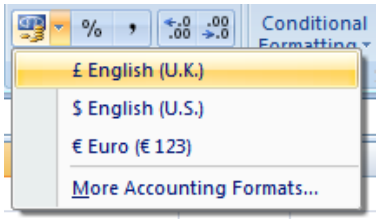
- The cell contents will now be displayed without comma style formatting.

## Currency symbol

- Select cell **C10** and format it to display the **British Pound** symbol. To do this click on the **down arrow** next to the **Currency** icon and select the £ option.

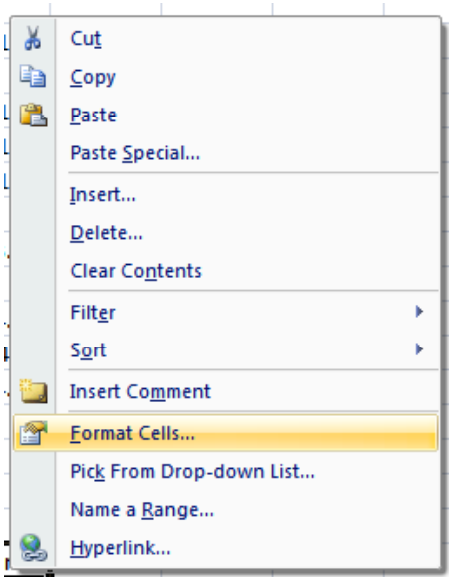



- Select cell **C11** and format it to display the **Dollar** symbol.
- Select cell **C12** and format it to display the **Euro** symbol. Your data will now look like this.

| | |
|---|---|
| £ | 234.98 |
| $ | 234.98 |
| € | 234.98 |

## Date styles

- Click on cell **B17** and type in the text '**The date today is**'. Click on cell **C17** and type in today's date. When you press the **Enter** key you may find that the style of the date changes automatically.
- Right click over cell **C17** and from the popup menu displayed select the **Format Cells** command.

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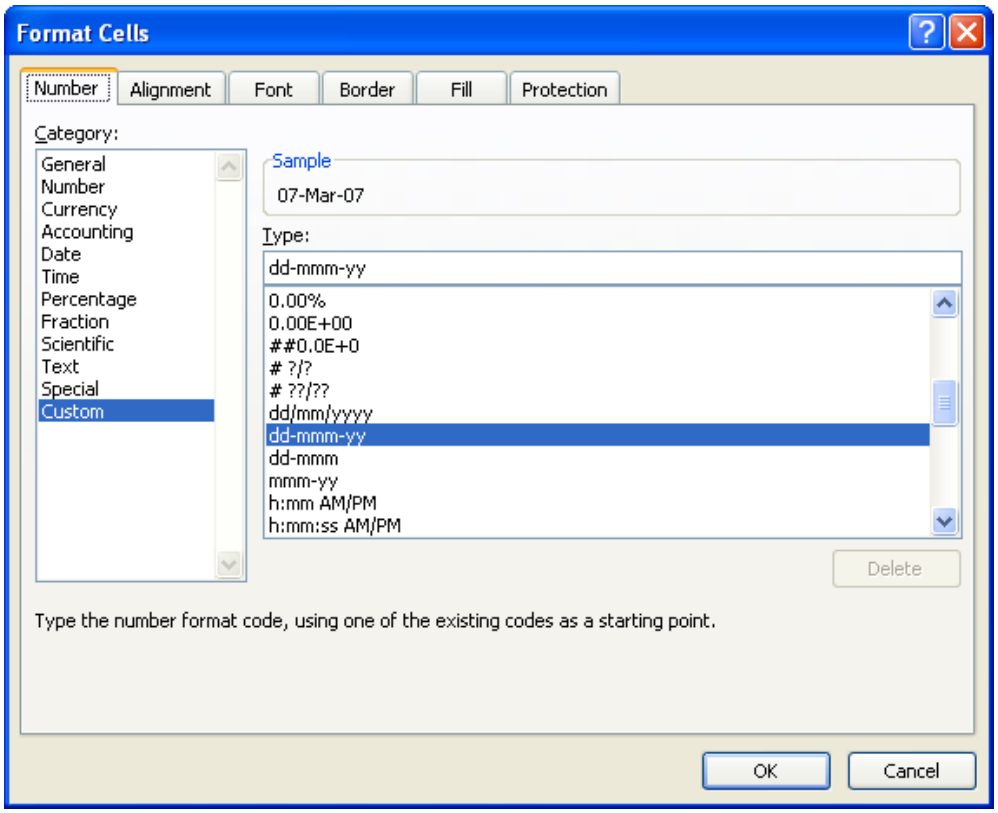
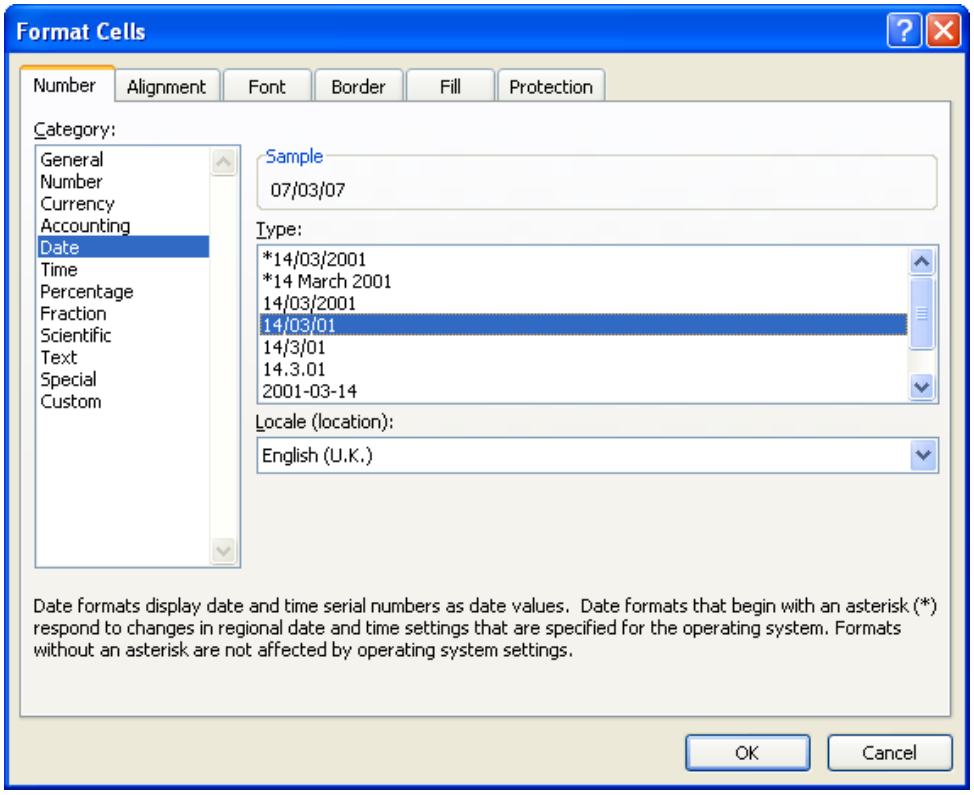
- This will display the **Format Cells** dialog box.




- Within the **Category** section of the dialog box, select the **Date** category. Select the required format from the **Type** section of the dialog box.

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- Click on the **OK** button to apply the date format. Experiment with applying different types of date format to the cell.

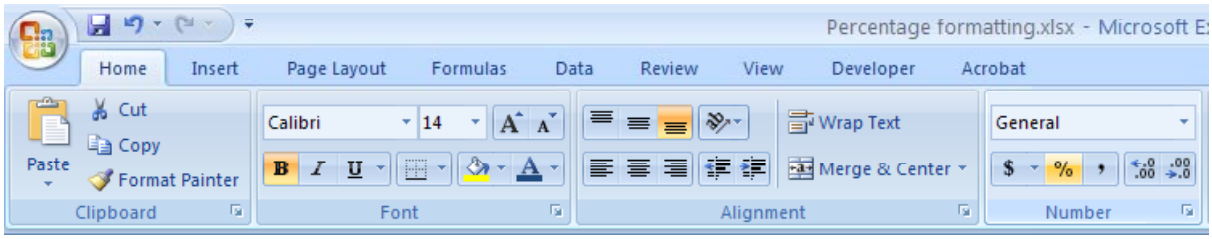
## Percentages

- Click on the cell **C15**. To change this number from **17** to **17%,** type in **17%** and press the **Enter** key. You will then see the contents displayed as illustrated below.

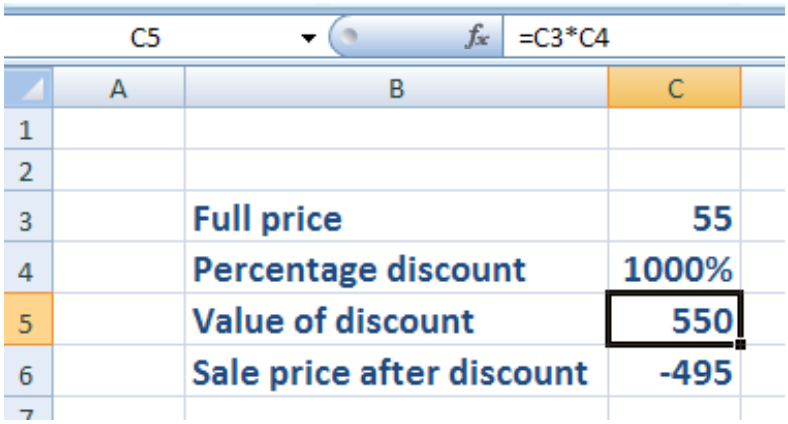
- Save your changes and close the workbook.

## Applying Percentage formatting to a cell or range

- You can format numbers within a worksheet using the percentage format. You need to be carful however how you use this formatting, as you can get some unexpected results if used incorrectly.
- Open a workbook called **Percentage formatting**. This worksheet contains two sets of data, neither of which make sense at present. We need to tell Excel to treat the contents of cells **C4** and **G4** as cells containing percentages.
- Click on cell **C4** to select it. To apply percentage formatting to this cell, click on the **Home** tab and from within the **Number** section, click on the **Percentage** icon.




- You will see the following, which is not quite the result we were expecting.

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As you have just seen, if a cell contains numbers, BEFORE you apply percentage formatting to the cell, then the numbers in the cell are multiplied by 100.

- Click on cell **G4**. . To apply percentage formatting to this cell, click on the **Home** tab and from within the **Number** section, click on the **Percentage** icon. The cell is empty so you will not see any change. However if you enter the number **10**, to cell **G4** you will see the following.

| F | G |
|---|---|
| Full price | 55 |
| Percentage discount | 10% |
| Value of discount | 5.5 |
| Sale price after discount | 49.5 |

As you have just seen numbers that are typed into the cells after you have apply the percentage formatting are treated differently to cells already containing data.

- Save your changes and close the workbook.

# Freezing row and column titles

## Freezing row and column titles

- Open a workbook called **Freezing**.
- Scroll down through the data and you will see that the title row, which contains a description of each columns contents, scroll out of sight. This makes it difficult to remember what the data in each column represents, if you cannot see the column title row.
- Make sure that you can see the title row displayed, as illustrated.

G18

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Component code | Color | Number in stock | Value of each component | Total value of stock |
| 2 | 100001 | Red | 2 | 22.99 | 0.00 |
| 3 | 100002 | Red | 2 | 11.50 | 23.00 |

- To freeze the top row so that it remains in sight at all time, click on the **View** tab and from within the **Window** group on the Ribbon, click on the **Freeze Panes** command.

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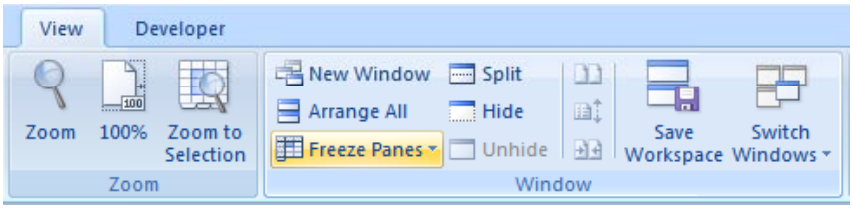
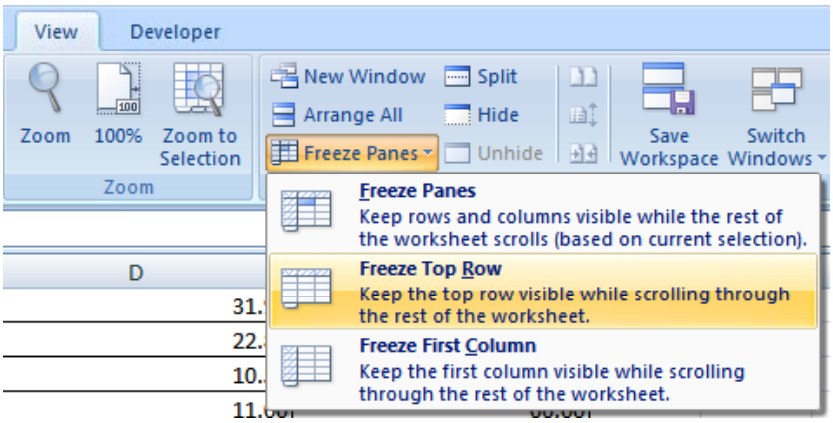


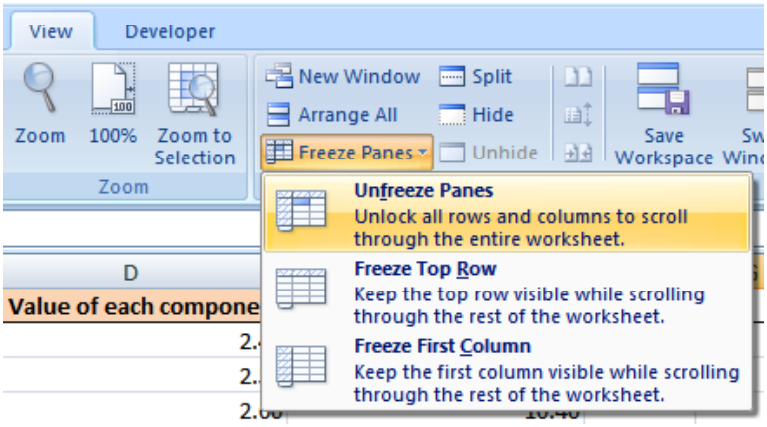

- From the drop down list displayed, click on the **Freeze Top Row** command.




- Scroll down through the data. As you can see the top row stays visible at all times now.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Component code | Color | Number in stock | Value of each component | Total value of stock |
| 53 | 100052 | White | 1 | 2.40 | 2.40 |
| 54 | 100053 | White | 4 | 2.50 | 10.00 |
| 55 | 100054 | White | 4 | 2.60 | 10.40 |

- To unfreeze the top row, click on the **View** tab and from within the **Window** group on the Ribbon, click on the **Unfreeze Panes** command.




**TIP**: You can use the same technique to freeze the first column, so that when you scroll to the right it is always visible. To do this you would select the **Freeze First Column** command.

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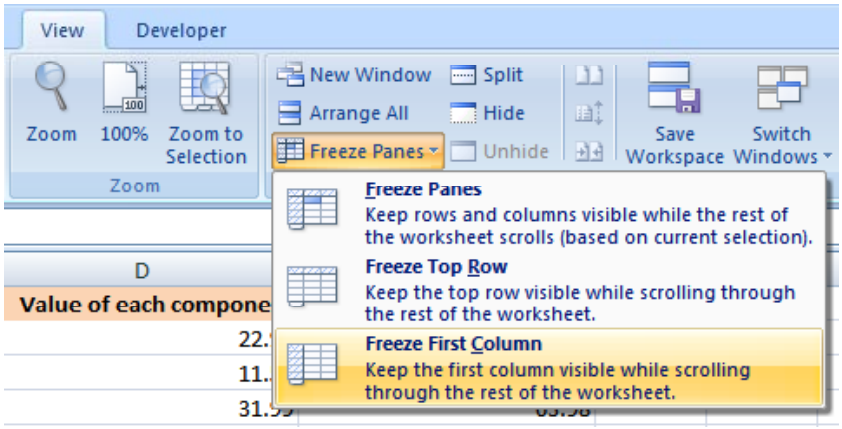


- Save your changes and close the workbook

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# Formulas and Functions

## Formulas

### Creating formulas

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

  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.

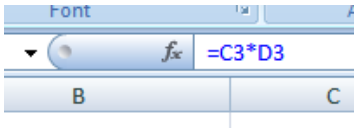
  Type in the following formula.

  **=C3*D3**

  **TIP**: the ***** symbol means 'times'.

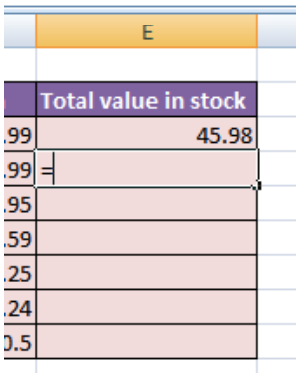
  Press the **Enter** key and you will see the result of the calculation in cell **E3**.

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




### Good Practice: The easy way to create formulas

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




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

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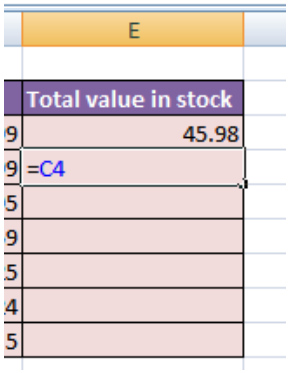
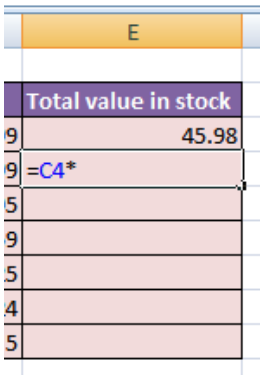
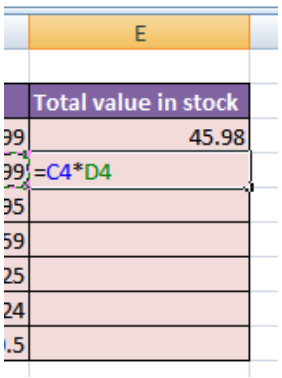



- Type in the ***** symbol, you see this.




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




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

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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 |

- 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**:

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**=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 & absolute cell referencing

## 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

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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.

| Part Number | Price (excluding delivery) | Cost of delivery |
|---|---|---|
| 100837 | 22.99 | 1.15 |
| 100263 | 10.95 | 0.00 |
| 100937 | 20.50 | 0.00 |
| 100234 | 10.50 | 0.00 |
| 100375 | 12.95 | 0.00 |
| 100746 | 29.84 | 0.00 |
| 100387 | 23.43 | 0.00 |
| 100883 | 9.48 | 0.00 |
| 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.

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- 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 move 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.

| Part Number | Price (excluding delivery) | Cost of delivery |
|---|---|---|
| 100837 | 22.99 | 1.15 |
| 100263 | 10.95 | 0.55 |
| 100937 | 20.50 | 1.03 |
| 100234 | 10.50 | 0.53 |
| 100375 | 12.95 | 0.65 |
| 100746 | 29.84 | 1.49 |
| 100387 | 23.43 | 1.17 |
| 100883 | 9.48 | 0.47 |
| 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.

# Functions

## What is a function?

- A function allows you to calculate a result such as adding numbers together, or finding the average of a range of numbers.

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## 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.

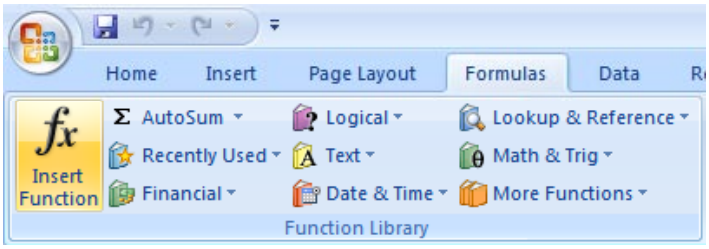
**MAX:** Used to return the maximum number from a list.

**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.

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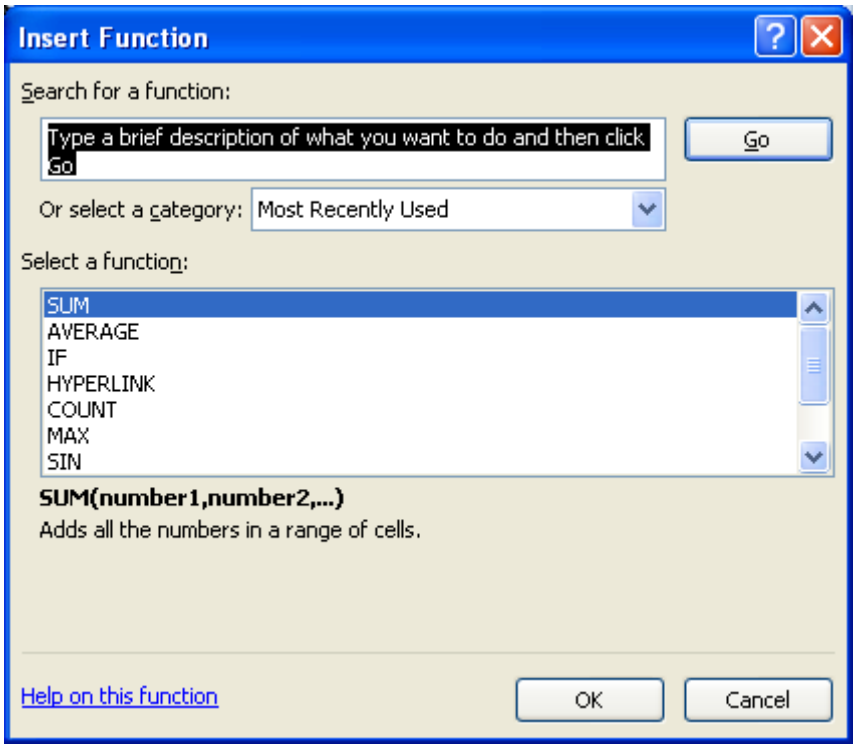
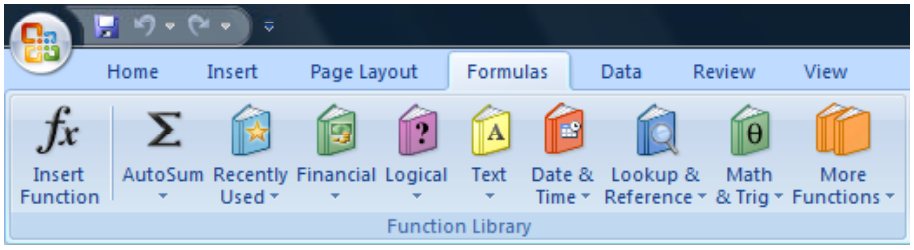


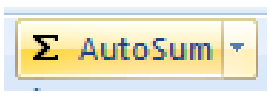

**NOTE**: Depending on the configuration of your PC the **Function Library** group of the **Formulas** tab may look slightly different, as illustrated below. The options however are identical.




## Sum function

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

- Click on cell **C8**. 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.

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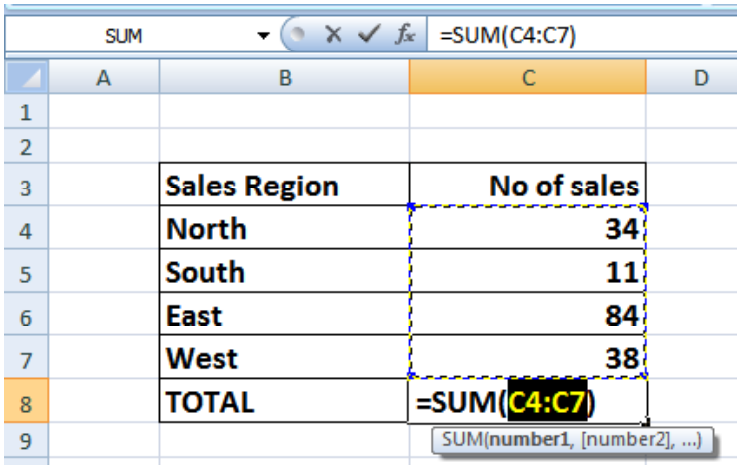
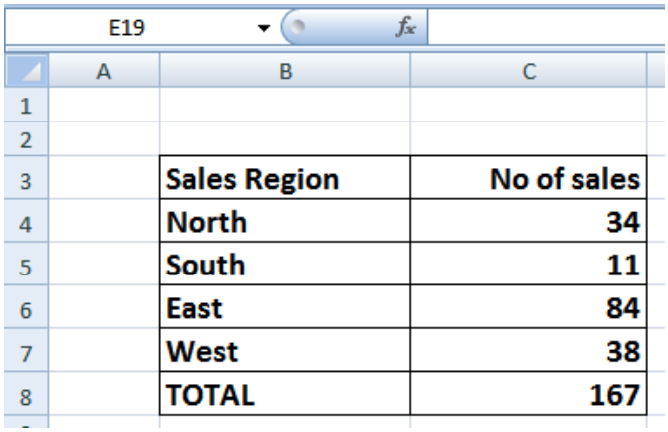
**TIP**: Click on the **AutoSum** icon, not the **down arrow** beside the icon.

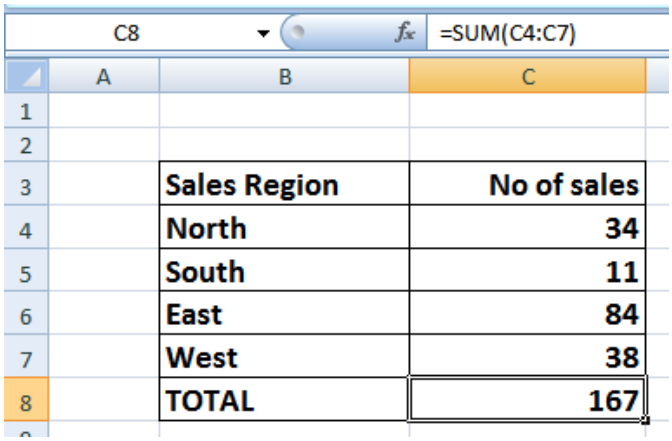
- You will see the following displayed on your screen.




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




- 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:

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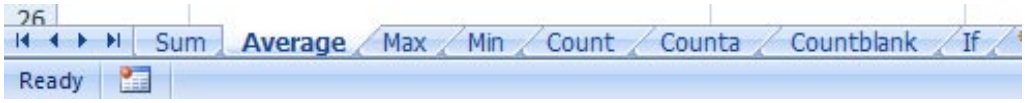
**=SUM(C4:C7)**

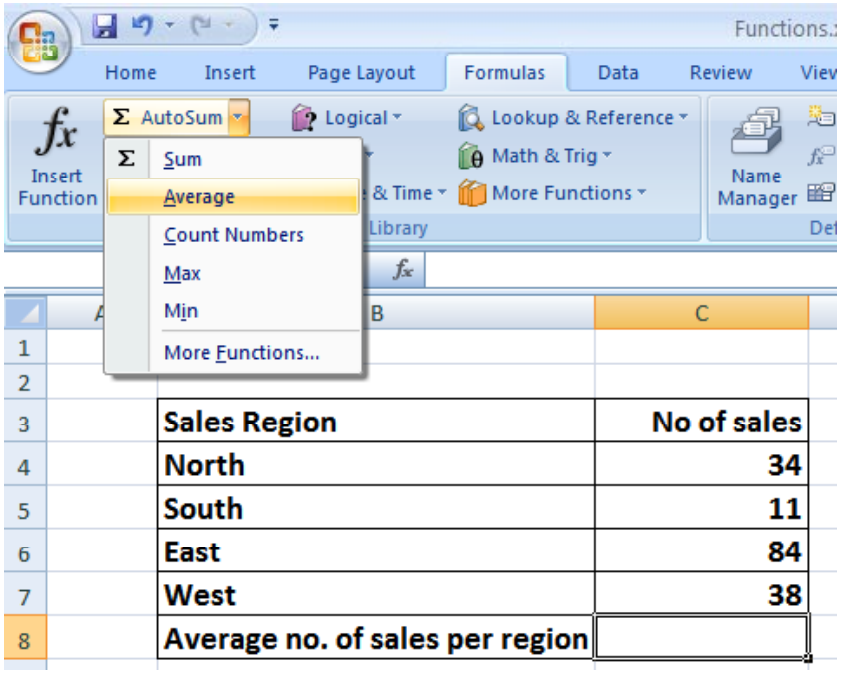
- This function tells Excel to sum the values in the range **C4:C7**.

## Average function

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




- Click on cell **C8**. 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** next to the **AutoSum** icon. You will see a drop down list displayed. Click on the **Average** command.




| | Sales Region | No of sales |
|---|---|---|
| 4 | North | 34 |
| 5 | South | 11 |
| 6 | East | 84 |
| 7 | West | 38 |
| 8 | Average no. of sales per region | |

- You will see the following displayed on your screen.

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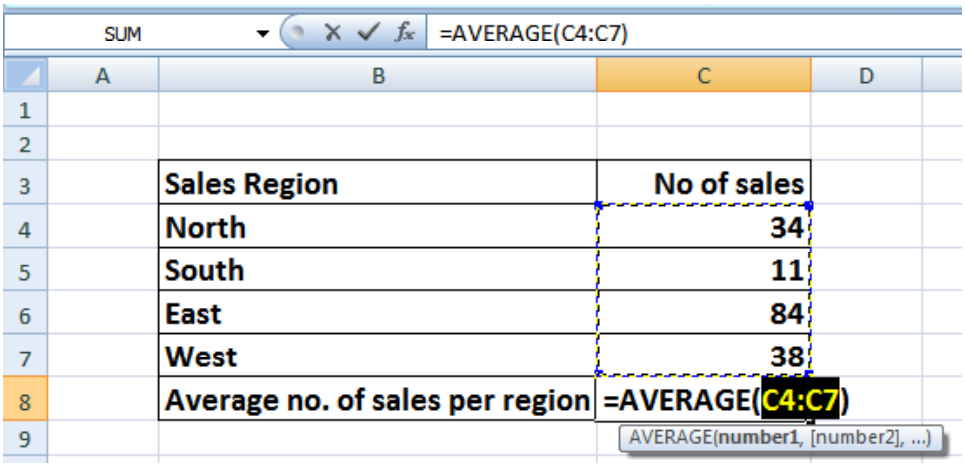
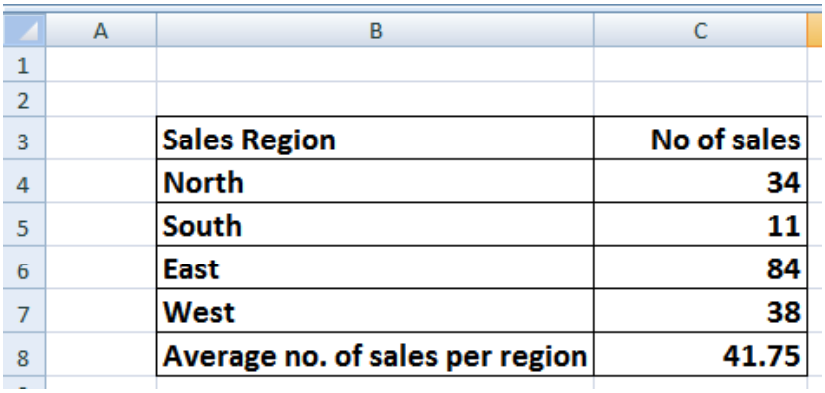
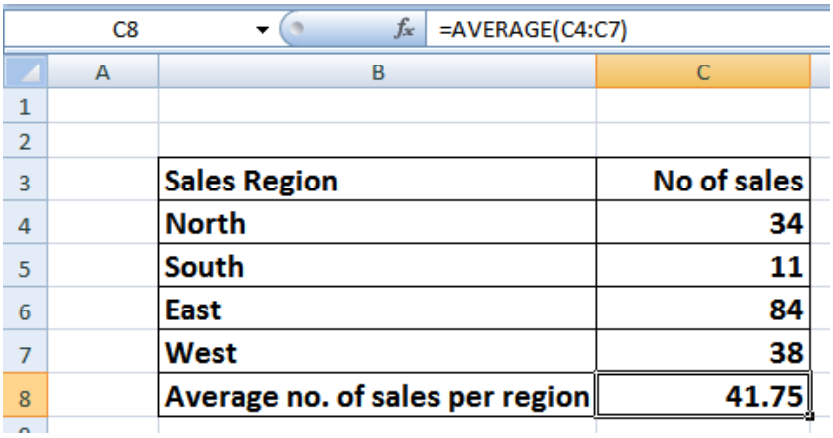



- Press the **Enter** key and you will see the average value displayed in cell **C8**.




- 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:

**=AVERAGE(C4:C7)**

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

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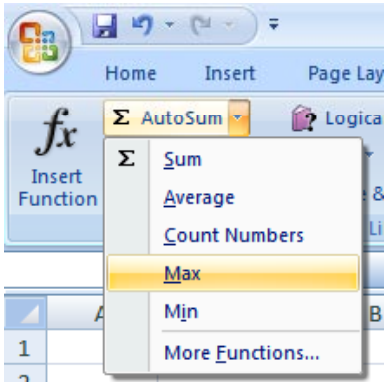
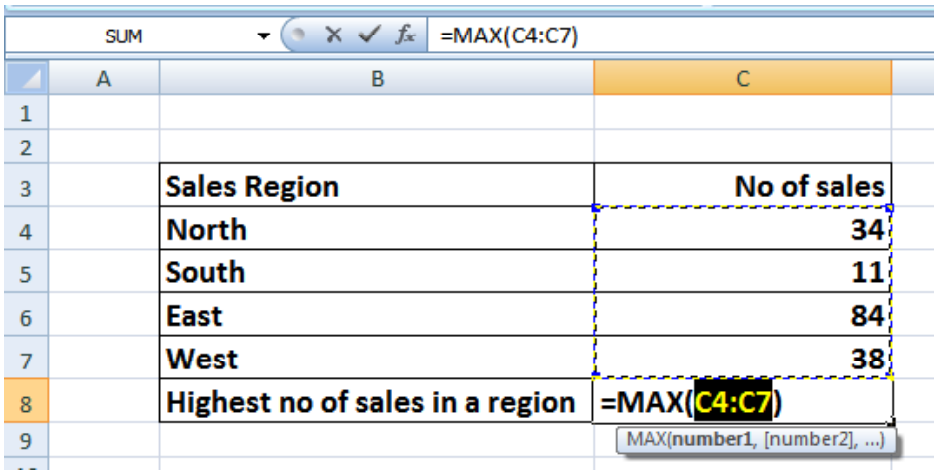
## Max function

- 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** next to (or under) 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.




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

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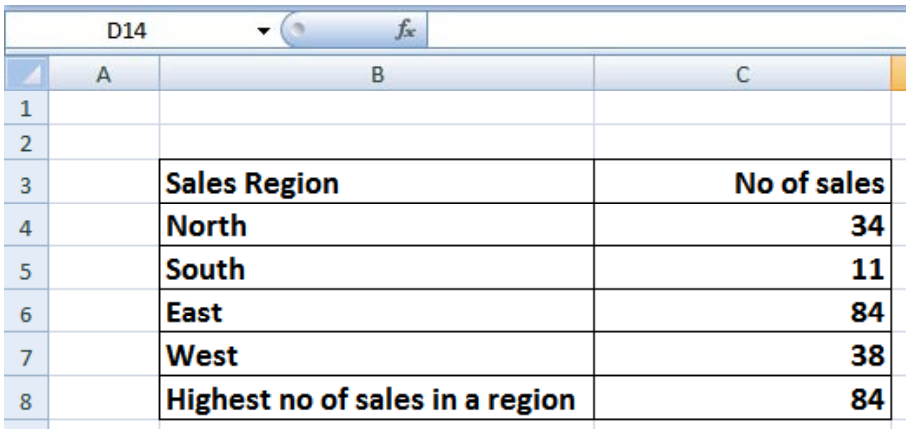
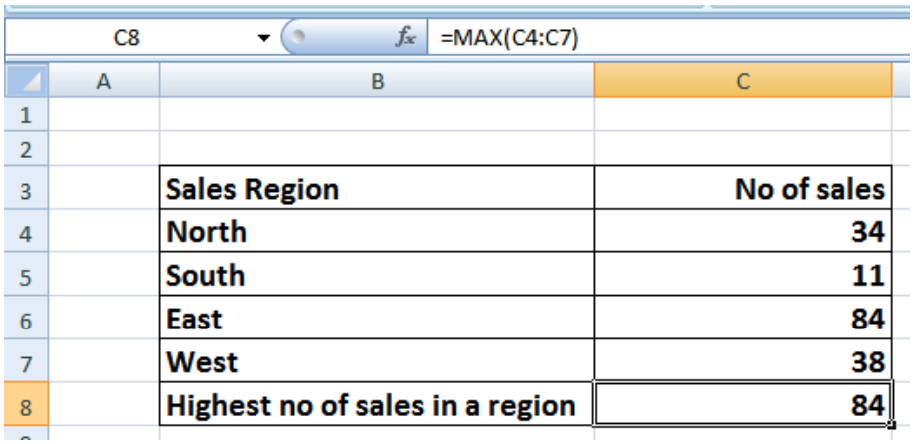


| | A | B | C |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | Sales Region | No of sales |
| 4 | | North | 34 |
| 5 | | South | 11 |
| 6 | | East | 84 |
| 7 | | West | 38 |
| 8 | | Highest no of sales in a region | 84 |

- 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 | | Highest no of sales in a region | 84 |

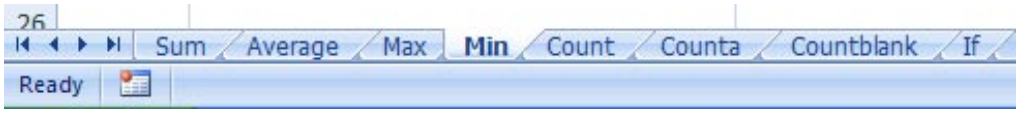
As you can see the function is:

**=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** next to (or under) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Min** command.

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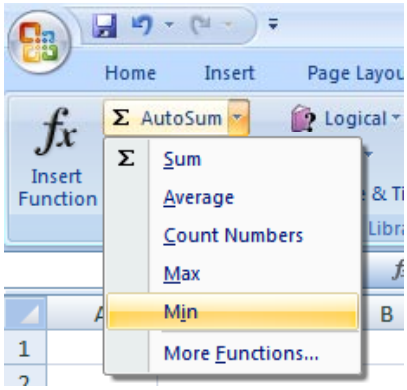
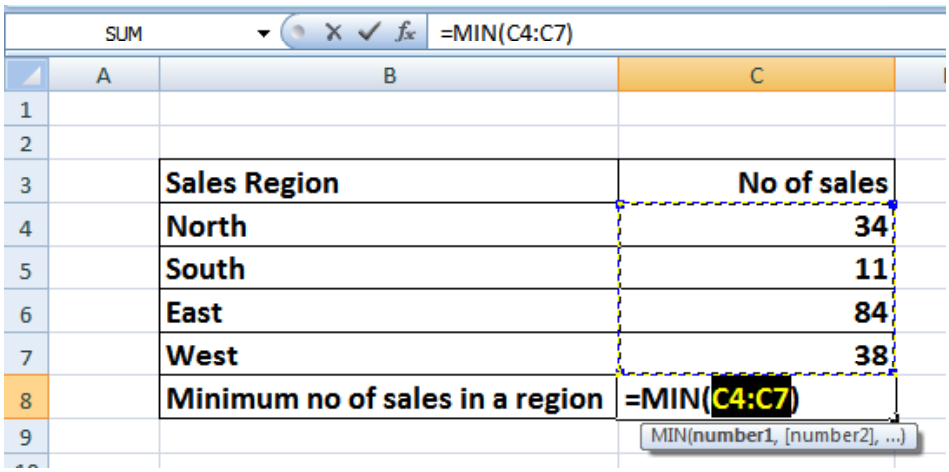
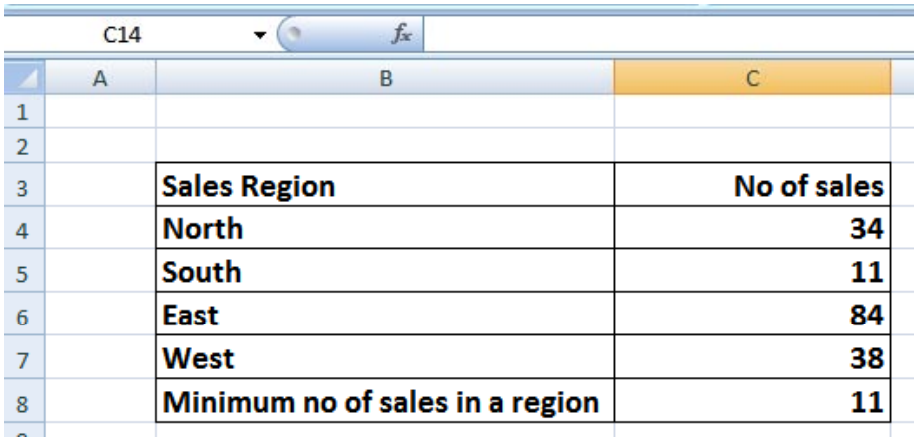



- You will see the following displayed on your screen.




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




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

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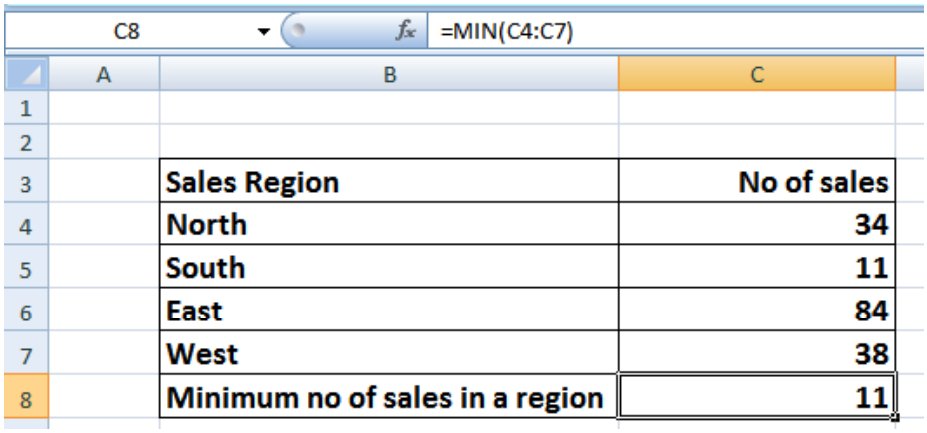



| | A | B | C |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | Sales Region | No of sales |
| 4 | | North | 34 |
| 5 | | South | 11 |
| 6 | | East | 84 |
| 7 | | West | 38 |
| 8 | | Minimum no of sales in a region | 11 |

As you can see the function is:

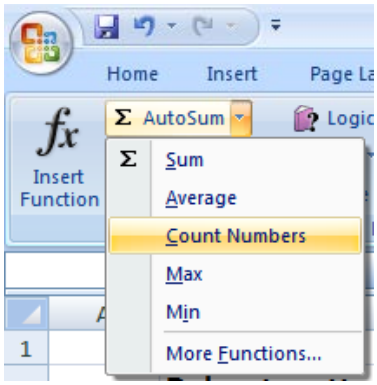
**=MIN(C4:C7)**

- 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** next to (or under) 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.

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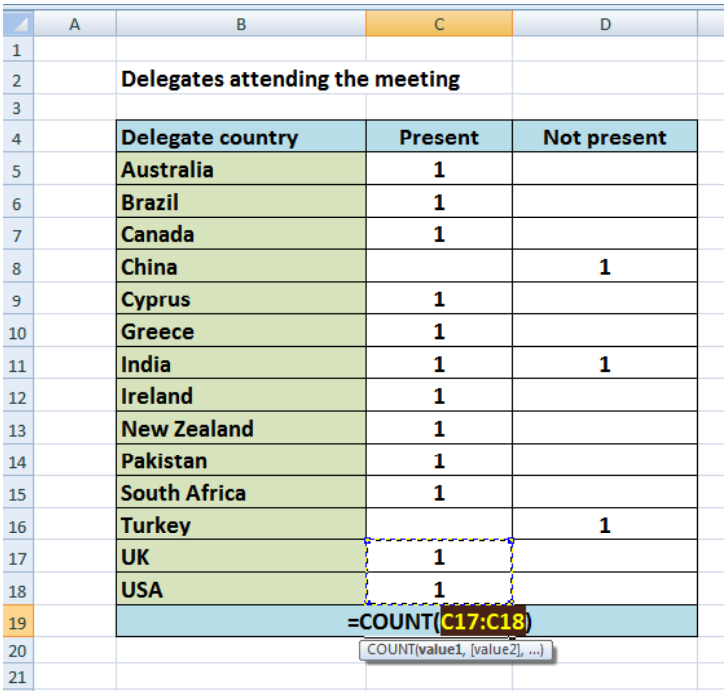

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | Delegates attending the meeting | | |
| 3 | | | | |
| 4 | | Delegate country | Present | Not present |
| 5 | | Australia | 1 | |
| 6 | | Brazil | 1 | |
| 7 | | Canada | 1 | |
| 8 | | China | | 1 |
| 9 | | Cyprus | 1 | |
| 10 | | Greece | 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 | | | =COUNT(C17:C18) | |
| 20 | | | COUNT(value1, [value2], ...) | |
| 21 | | | | |

- **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 extents 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.

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | Delegates attending the meeting | | |
| 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 | | | =COUNT(C5:C18) | |
| 20 | | | COUNT(value1, [value2], ...) | |

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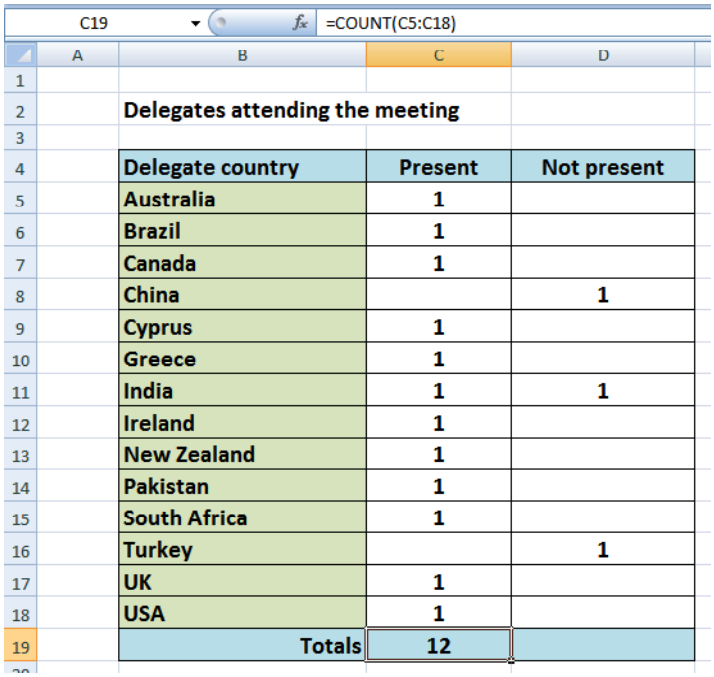
- Press the **Enter** key and you will see the count value displayed in cell **C19**.

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | Delegates attending the meeting | | |
| 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 | |

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



C19 =COUNT(C5:C18)

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | Delegates attending the meeting | | |
| 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

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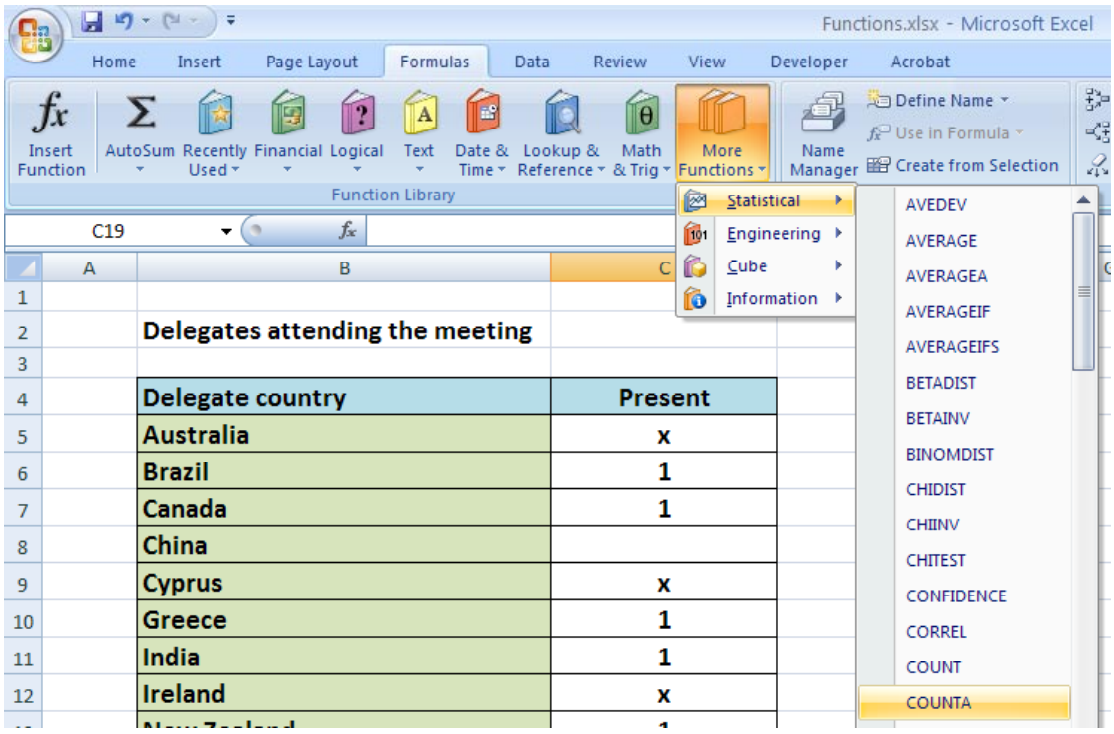
try again.

- 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). 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 **Functions Arguments** dialog box, as illustrated.

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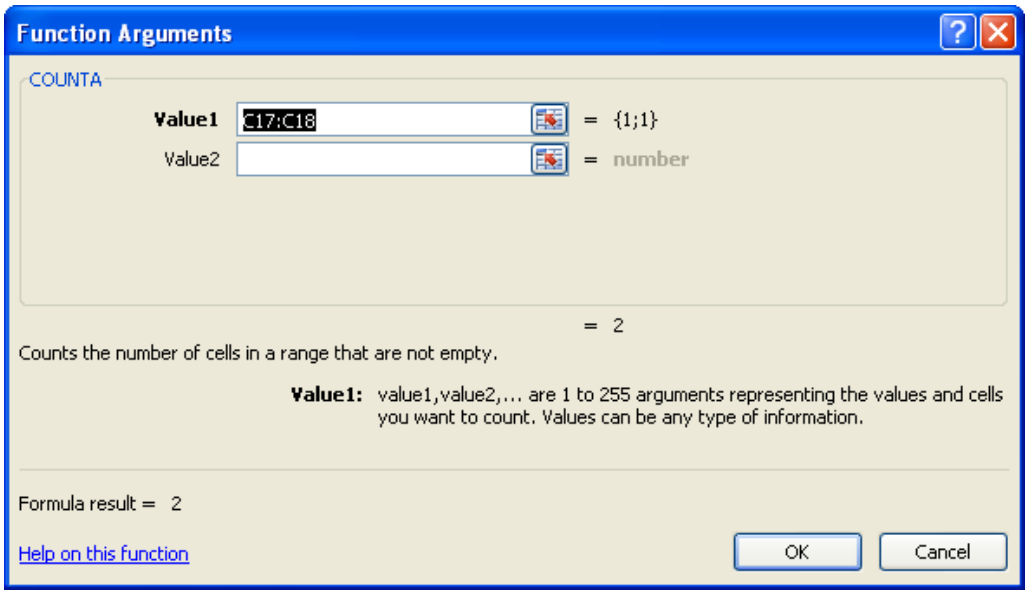
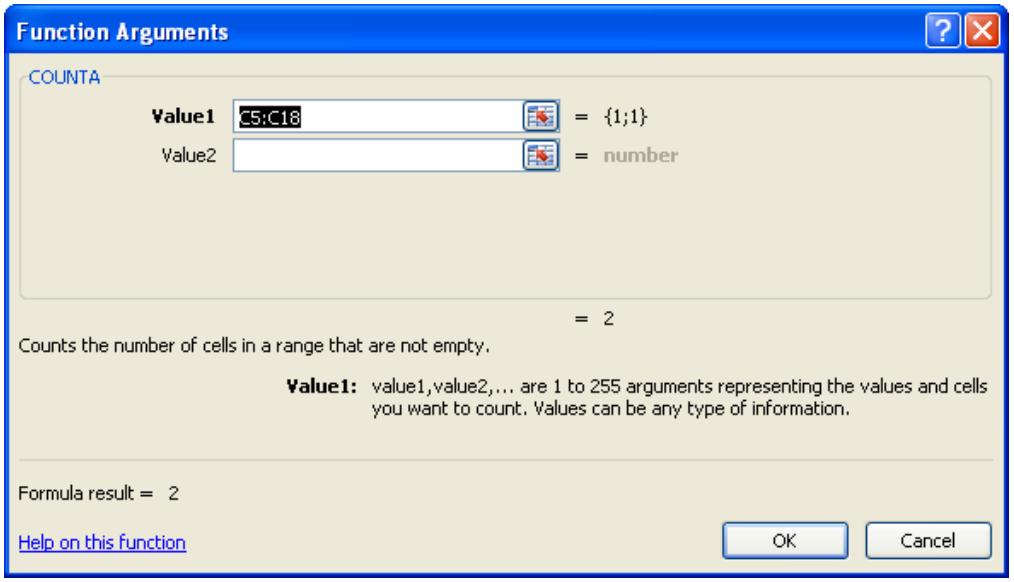



- If necessary move the dialog box to one side and then select the cell range **C5:C18**, as illustrated.




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

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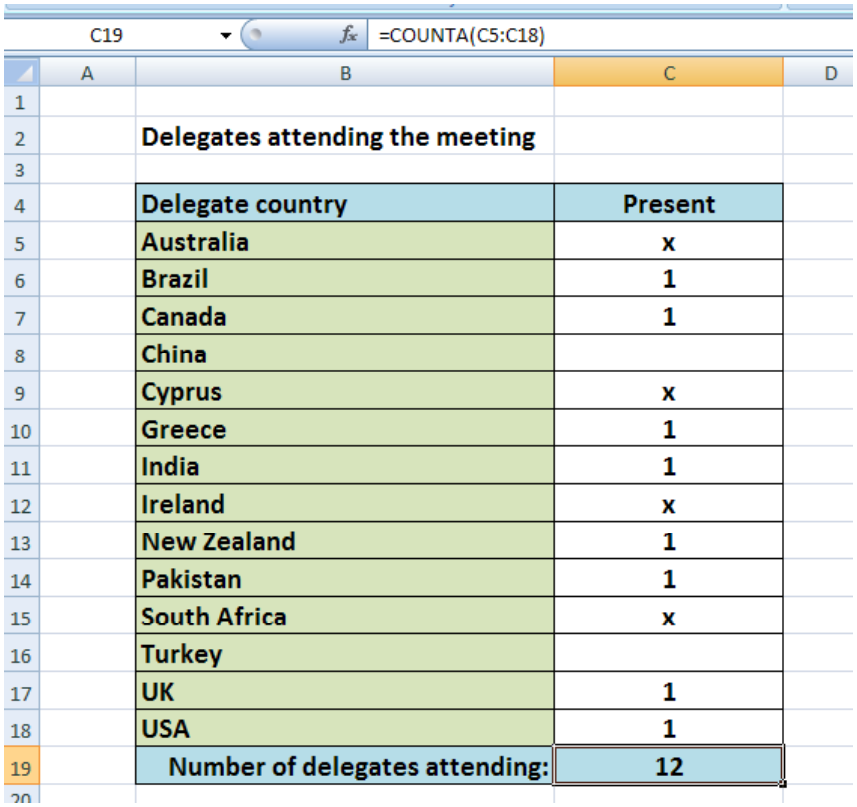


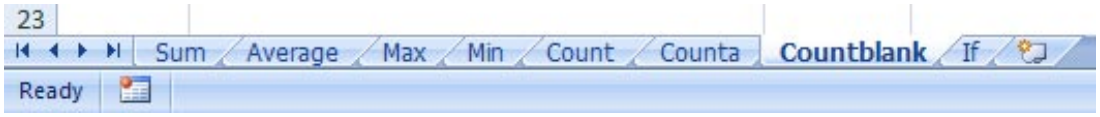
C19 =COUNTA(C5:C18)

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | | | |
| 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).

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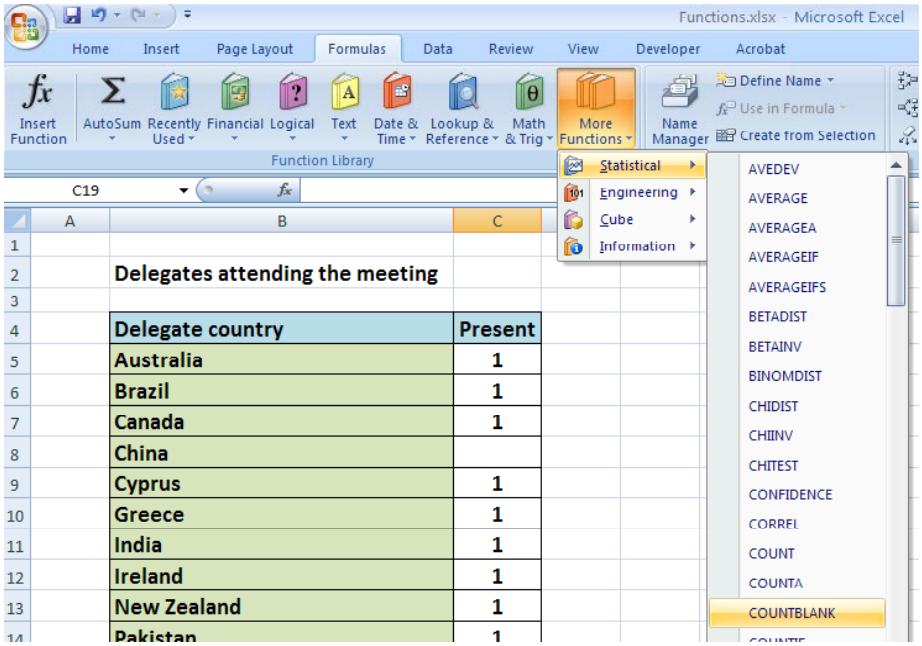
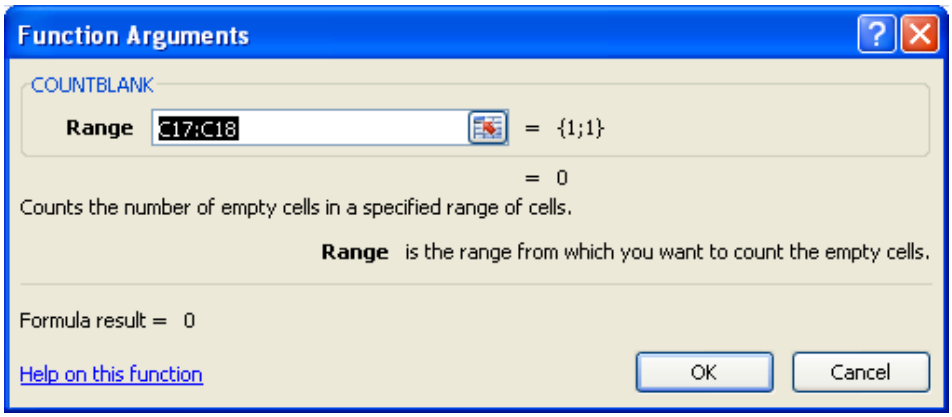
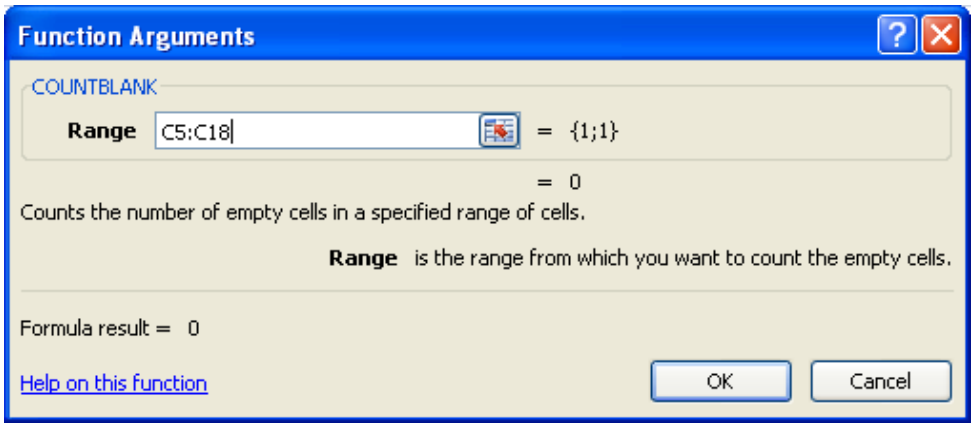



- From the drop down displayed, select **Statistical**. From the submenu select **Countblank**. This will display the **Functions Arguments** dialog box, as illustrated.




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

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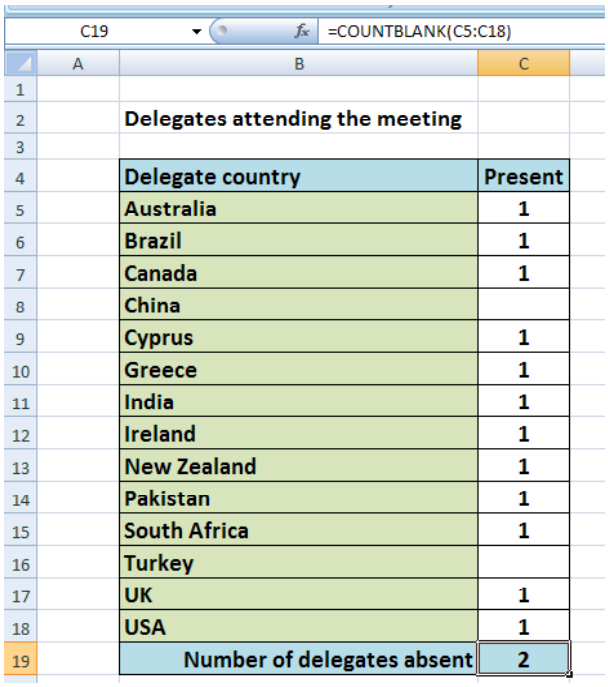
- Click on the **OK** button and you will see the following.



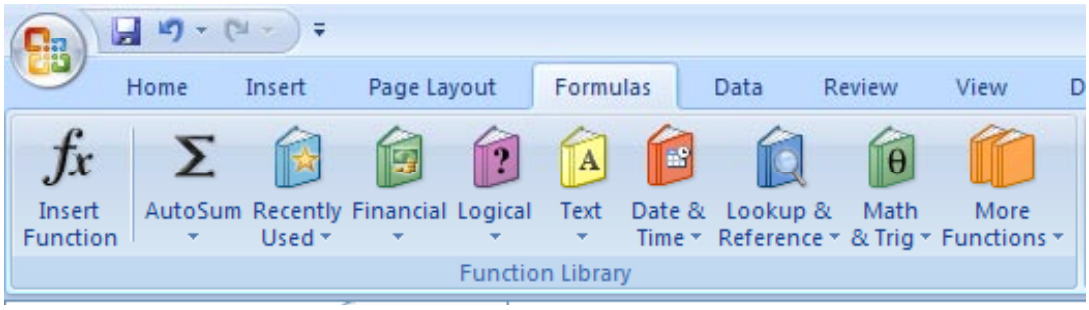
C19 =COUNTBLANK(C5:C18)

| | A | B | C |
|---|---|---|---|
| 1 | | | |
| 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** | **2** |

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

## The Round function

- This function rounds a number to a specified number of digits.
- Click on the **Round** worksheet tab.
- Click on cell **D3**.
- Click on the **Formulas** tab.




- Click on the **Math & Trig** button and from the drop down displayed select the **Round** command, as illustrated.

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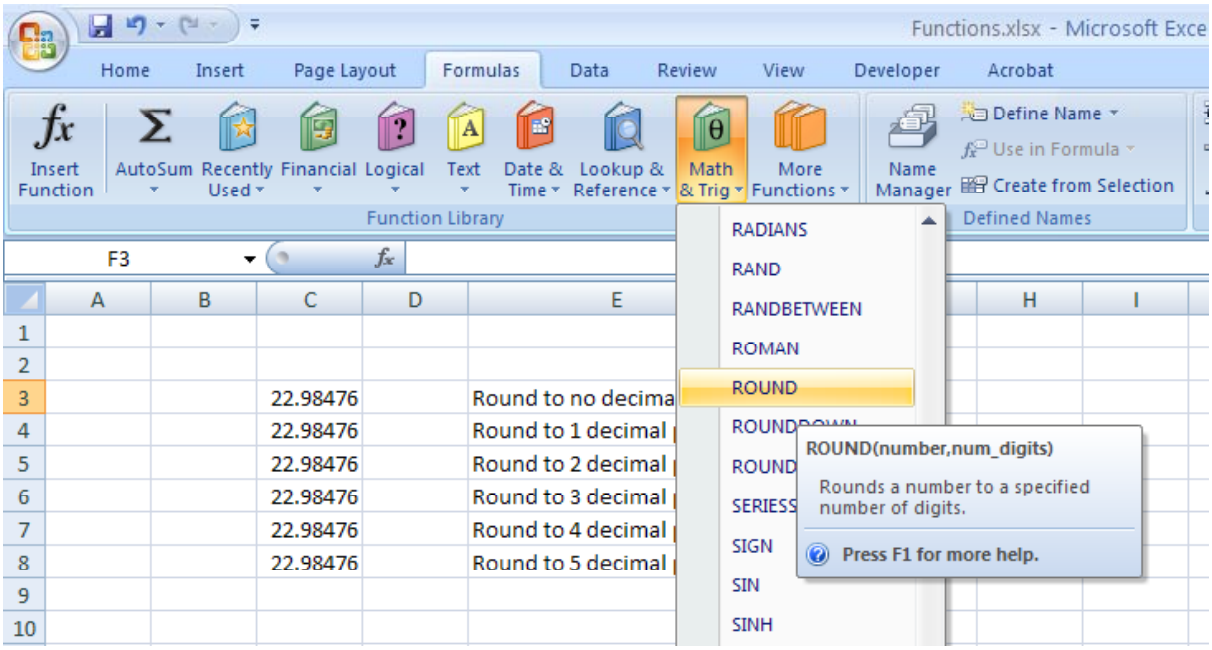
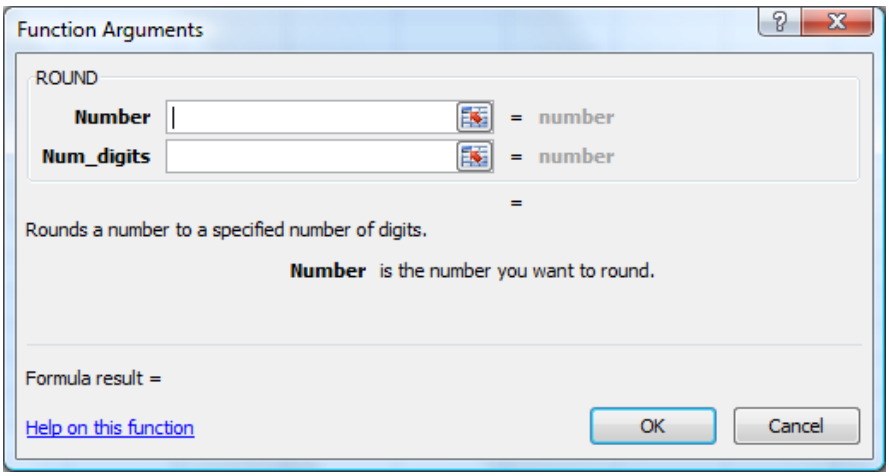
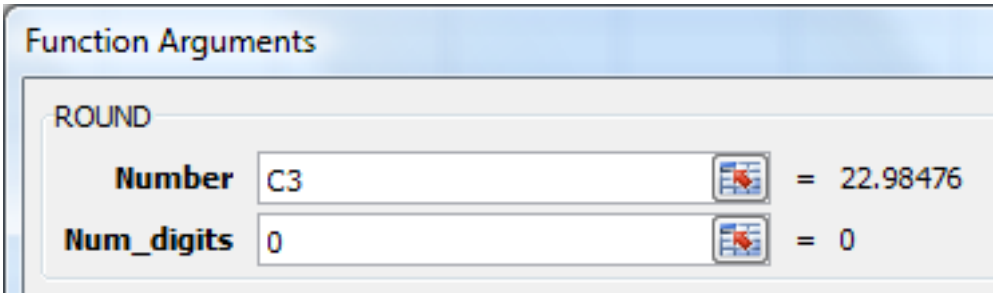



- This will display the **Function Arguments** dialog box.




- Click within the **Number** section of the dialog box and enter the cell reference **C3**.
- Click within the **Num_digits** section of the dialog box and enter the number **0**, as illustrated.

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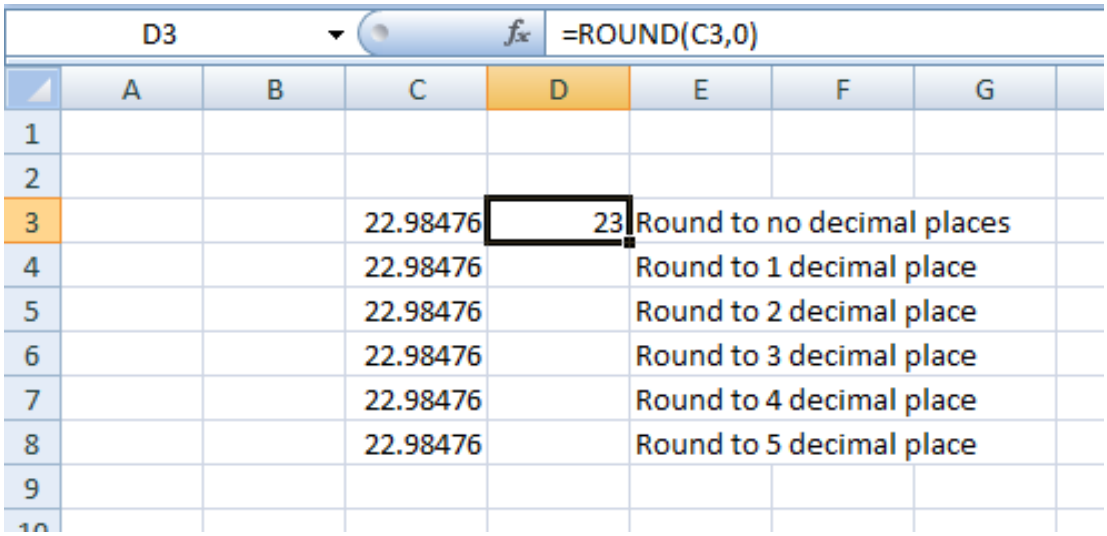
- Your worksheet will now look like this. The data in cell **D3** displays no decimal places. Notice the syntax of the function code displayed above the data.




- Click on cell **D4** and set the cell to display the contents of cell **C4** using **1** decimal place.
- Click on cell **D5** and set the cell to display the contents of cell **C5** to **2** decimal places.
- Click on cell **D6** and set the cell to display the contents of cell **C6** to **3** decimal places.
- Click on cell **D7** and set the cell to display the contents of cell **C7** to **4** decimal places.
- Click on cell **D8** and set the cell to display the contents of cell **C8** to **5** decimal places.

## 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

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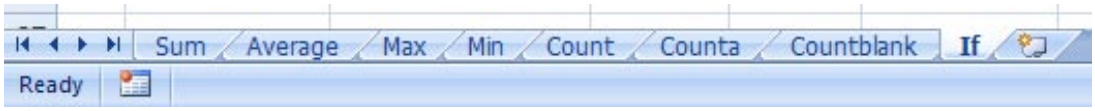
| Logical operators | | Values for Evaluation A=10 B=5 C=15 D=10 | Result |
|---|---|---|---|
| | = (Equal to) | A=B | FALSE |
| | | A=D | TRUE |
| | > (Greater than) | A>B | TRUE |
| | | A>C | FALSE |
| | < (Less than) | A<B | FALSE |
| | | A<C | TRUE |
| | >= (Greater than or Equal to) | A>=B | TRUE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

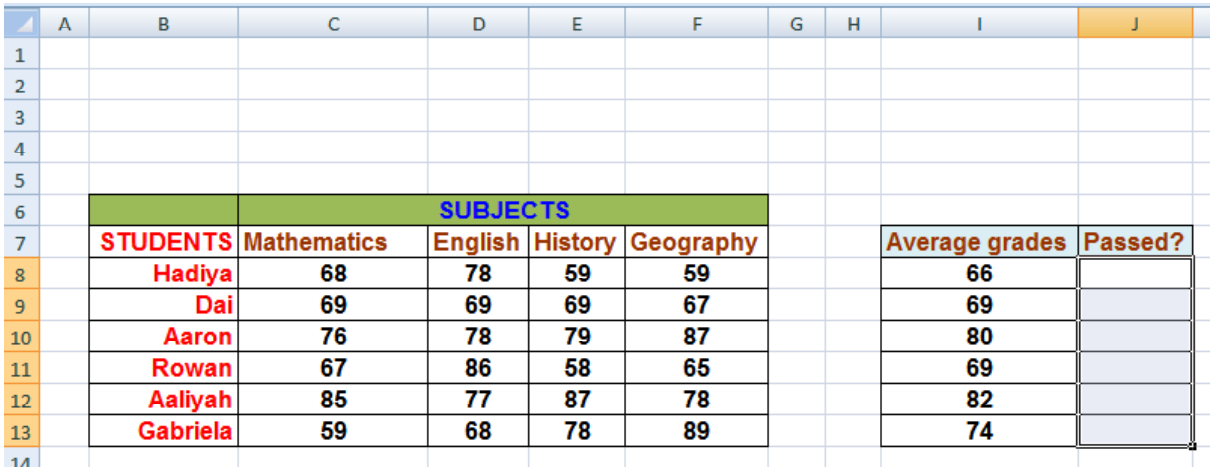
  **ACTION_IF_FALSE**
  Action_if_false can be a value or an operation. Whichever, the result is placed in the cell which contains the IF( ) Function if the logical_test is false.

## 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%.**



| | SUBJECTS | | | | | |
|---|---|---|---|---|---|---|
| STUDENTS | Mathematics | English | History | Geography | Average grades | Passed? |
| Hadiya | 68 | 78 | 59 | 59 | 66 | |
| Dai | 69 | 69 | 69 | 67 | 69 | |
| Aaron | 76 | 78 | 79 | 87 | 80 | |
| Rowan | 67 | 86 | 58 | 65 | 69 | |
| Aaliyah | 85 | 77 | 87 | 78 | 82 | |
| Gabriela | 59 | 68 | 78 | 89 | 74 | |

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

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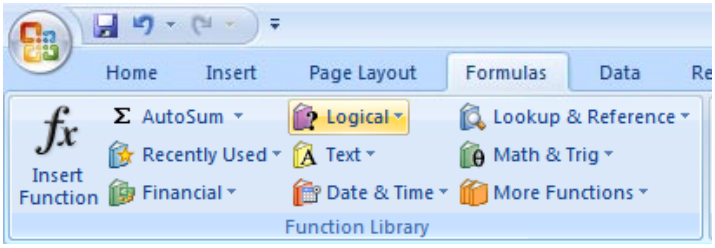
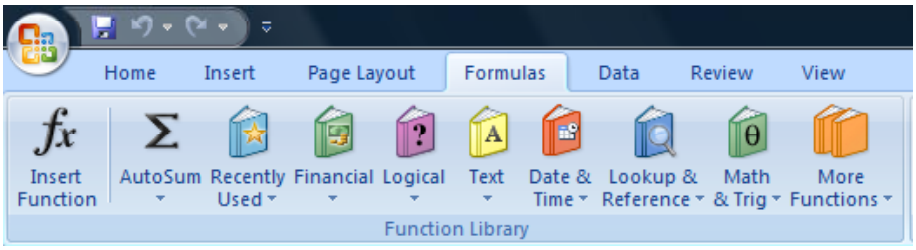
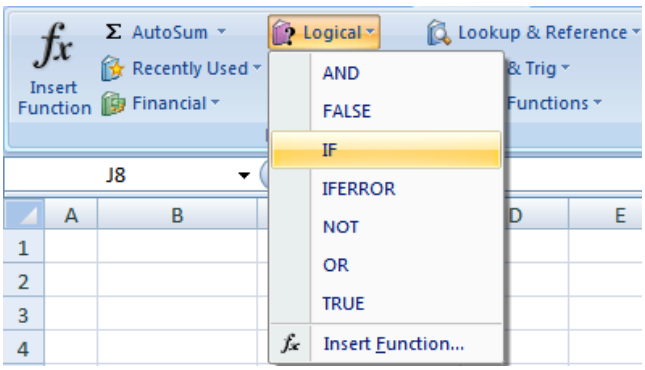


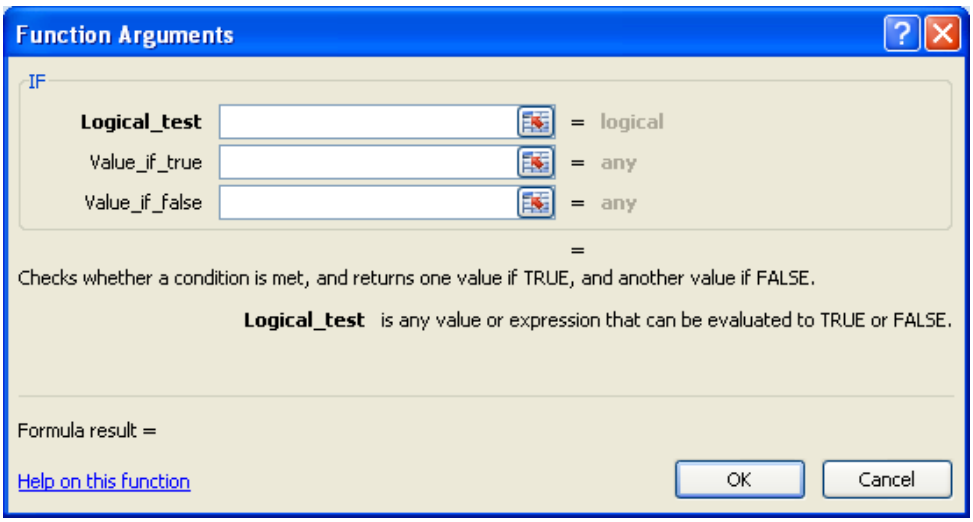

**TIP**: Remember that depending on the configuration of your PC, the **Function Library** may look like this.




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




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

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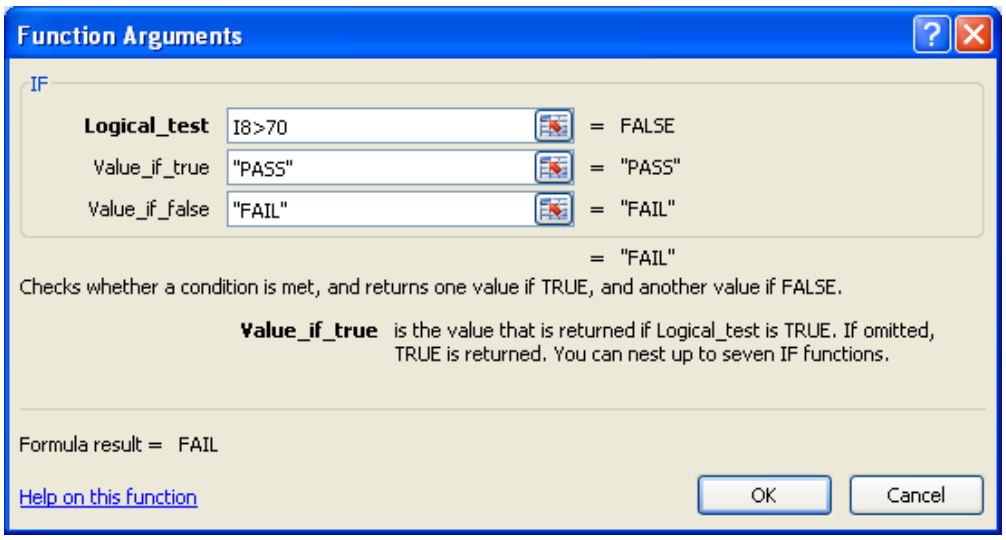
- In the **LOGICAL_TEST** section of the dialog box, we enter the logical test, i.e. **I8>70**

  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.

| | SUBJECTS | | | | | |
|---|---|---|---|---|---|---|
| STUDENTS | Mathematics | English | History | Geography | Average grades | Passed? |
| Hadiya | 68 | 78 | 59 | 59 | 66 | FAIL |
| Dai | 69 | 69 | 69 | 67 | 69 | |
| Aaron | 76 | 78 | 79 | 87 | 80 | |
| Rowan | 67 | 86 | 58 | 65 | 69 | |
| Aaliyah | 85 | 77 | 87 | 78 | 82 | |
| Gabriela | 59 | 68 | 78 | 89 | 74 | |

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

| | SUBJECTS | | | | | |
|---|---|---|---|---|---|---|
| STUDENTS | Mathematics | English | History | Geography | Average grades | Passed? |
| Hadiya | 68 | 78 | 59 | 59 | 66 | FAIL |
| Dai | 69 | 69 | 69 | 67 | 69 | FAIL |
| Aaron | 76 | 78 | 79 | 87 | 80 | PASS |
| Rowan | 67 | 86 | 58 | 65 | 69 | FAIL |
| Aaliyah | 85 | 77 | 87 | 78 | 82 | PASS |
| Gabriela | 59 | 68 | 78 | 89 | 74 | PASS |

- Save your changes and close the workbook.

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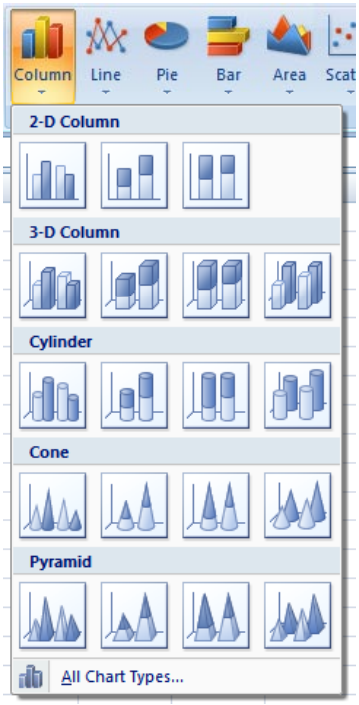
# CHARTS

## Inserting a column chart

- Open a workbook called **Chart**.
- If necessary, click on the **Column Chart** worksheet tab (at the bottom-left of your screen).

- Click within the table of data.
- Click on the **Insert** tab and you will see the **Charts** group displayed within the Ribbon.

- Click on the **Column** icon and you will see a drop down displaying a range of column chart options.




- Click on the first option, the **2-D Clustered** format, as illustrated.

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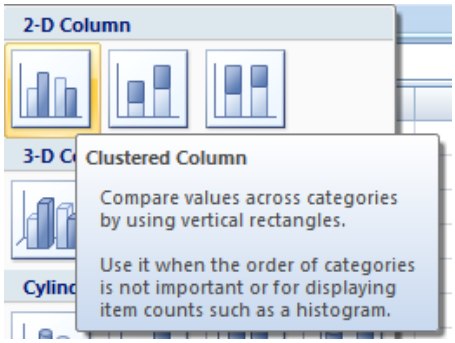
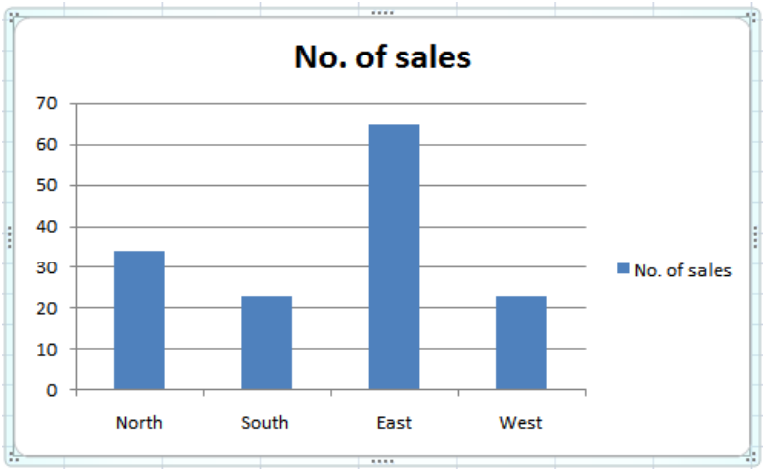
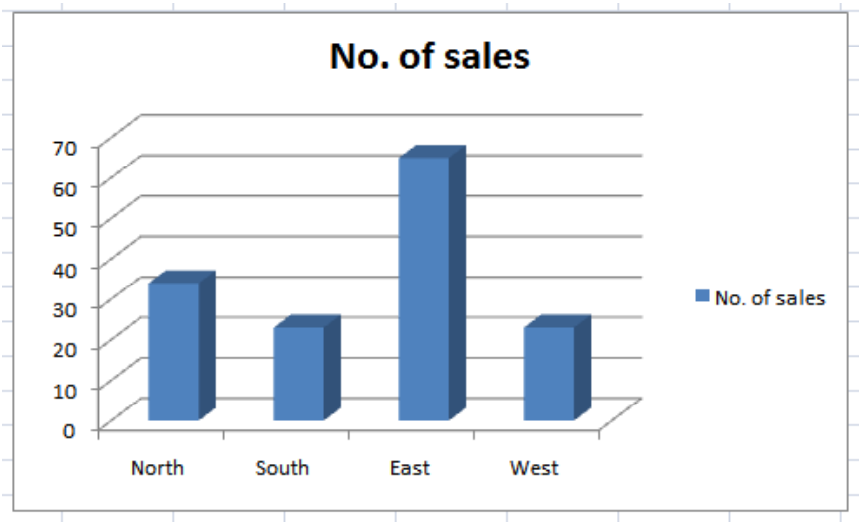



- You will see the following chart inserted into your worksheet.




- Click on the **Undo** icon (top-left of your screen), and experiment with inserting other types of column chart such as a **3-D chart**, as illustrated below.




## Inserting a line chart

- Click on the **Line Chart** worksheet tab at the bottom of your screen.

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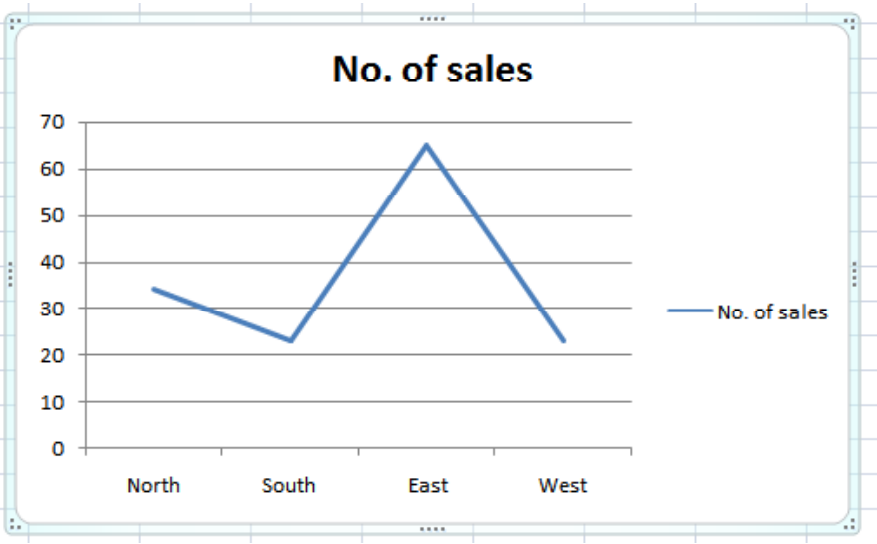
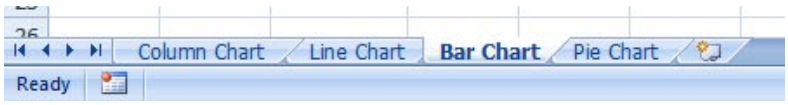
- Experiment with inserting different types of line chart. An example is illustrated below.

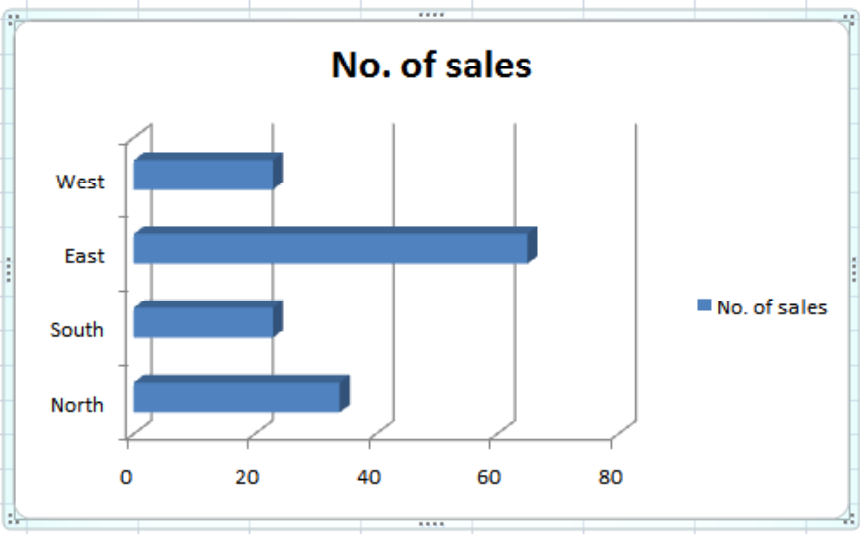



## Inserting a bar chart

- Click on the **Bar Chart** worksheet tab at the bottom of your screen.




- Experiment with inserting different types of bar chart. An example is illustrated below.

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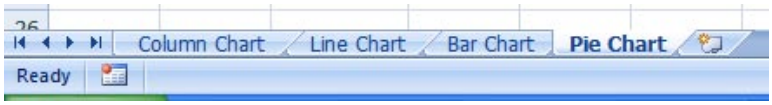
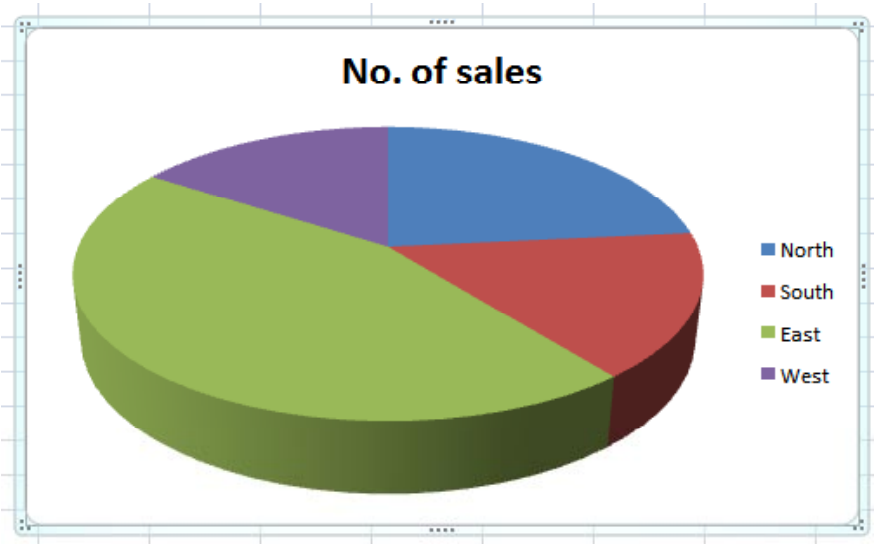
## Inserting a pie chart

- Click on the **Pie Chart** worksheet tab at the bottom of your screen.




- Experiment with inserting different types of pie chart. An example is illustrated below.




- Save your changes and close the workbook.

## Resizing a chart

- Open a workbook called **Chart Manipulation**.
- To resize a chart click on it to select it.
- Move the mouse pointer to one of the four corners of the chart. You will notice that the mouse pointer changes to the shape of a diagonal line with an arrow at each end. When you see the mouse pointer change, press the mouse button and while keeping the button pressed move diagonally across the screen. Move away from the centre of the chart to make the chart larger and toward the centre of the chart to make the chart smaller. When you release the mouse button the chart will be resized.

## Deleting a chart

- Select the chart and press the **Del** key.
- Save your changes and close the workbook.

## Chart title or labels

- Open a workbook called **Modifying charts**.

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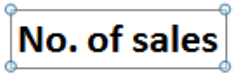
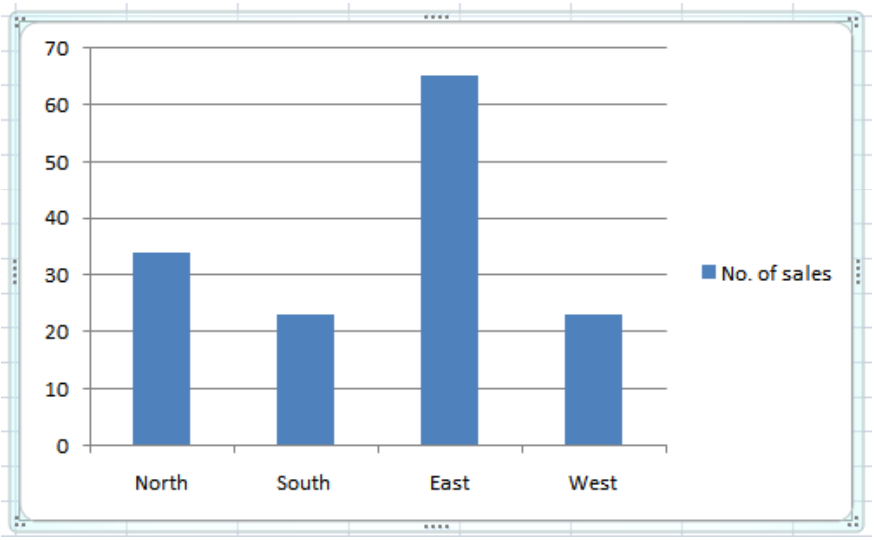
- If necessary, click on the **Modifying a Chart** worksheet tab (at the bottom-left of your screen).

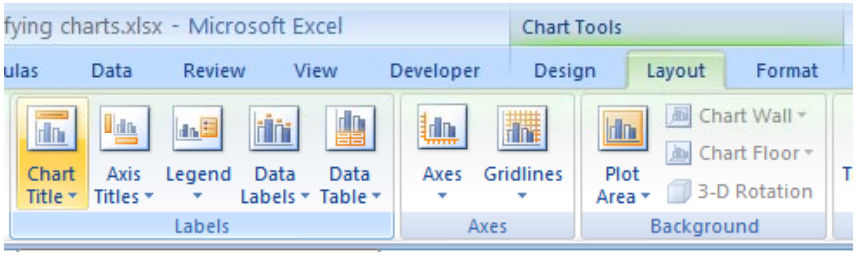
- You can see a column chart displayed within the workbook. Select the chart title, as illustrated.




- Press the **Del** key to remove the chart title. Your chart will now look like this.




- To insert a chart title, click on chart and then click on the **Layout** tab. Click on the **Chart Title** icon within the **Layout** Ribbon.




- Select the required option from the drop down list displayed, such as **Above Chart**.

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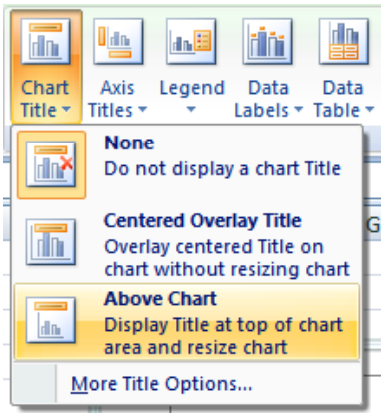
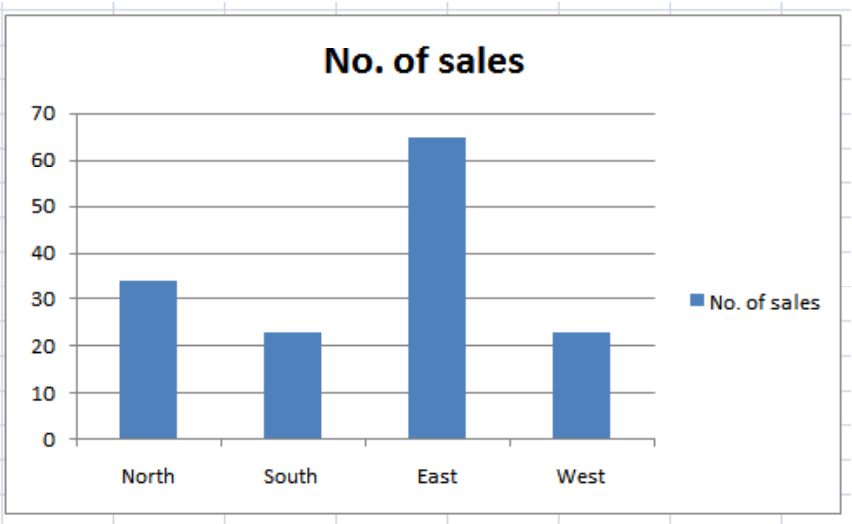
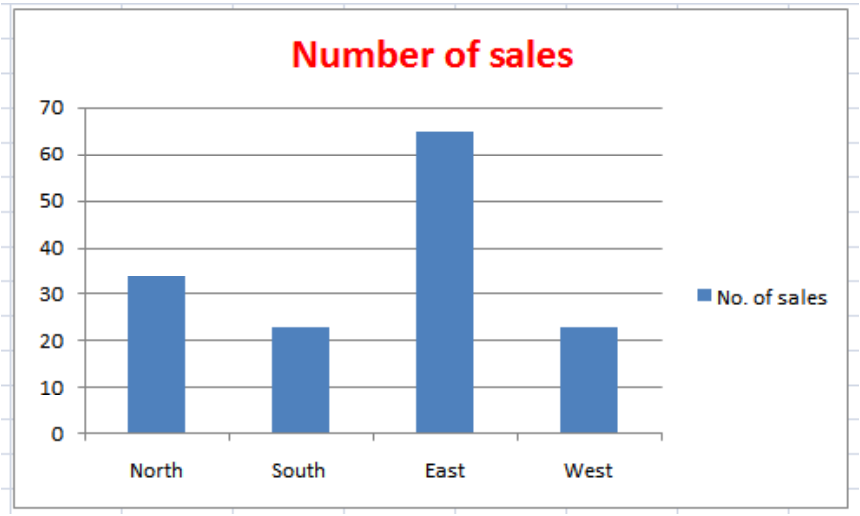



- Your chart title is once again displayed, as illustrated.




**TIP**: To modify the chart title text, click within the **Chart Title** and simply edit the text in the normal way. You can also apply text formatting to the Chart Title as required. An example is shown below.

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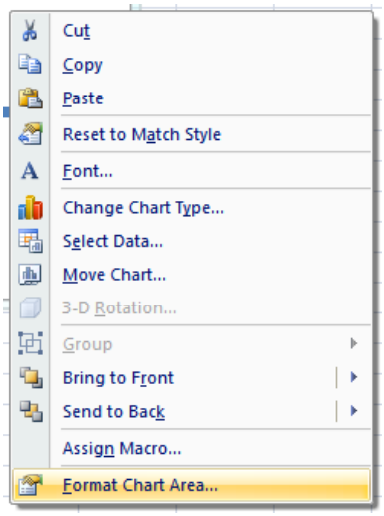
## Changing the chart background colour

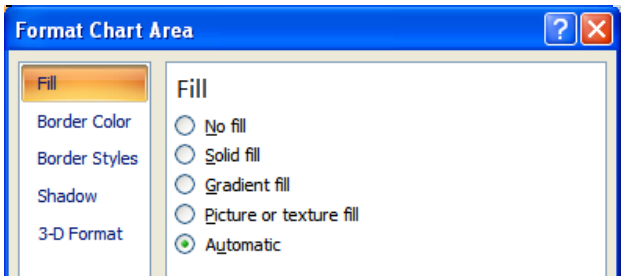
- Click on the chart to select it. Right click over an empty part of the chart background, and you will see a popup menu displayed.



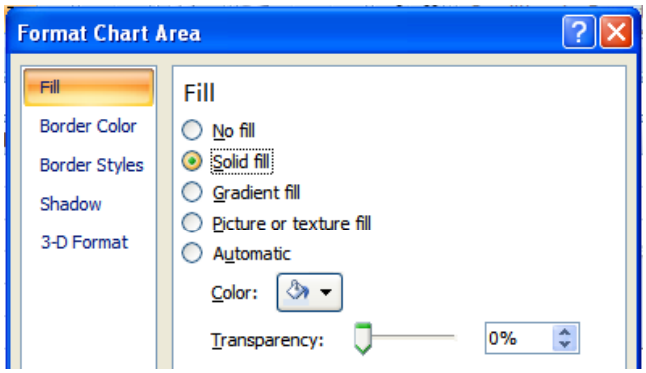

- Click on the **Format Chart Area** command.

  **TIP**: If you do not see this command, right click on a different, empty part of the chart, until you do see this command.

- You will see the **Format Chart Area** dialog box displayed.




- If necessary, click on the **Solid fill** button and you will see extra controls displayed within the dialog box.

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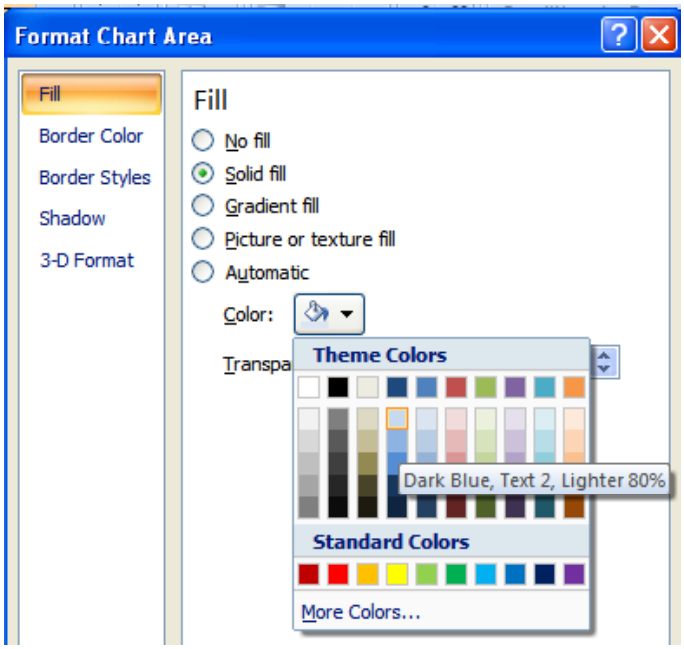
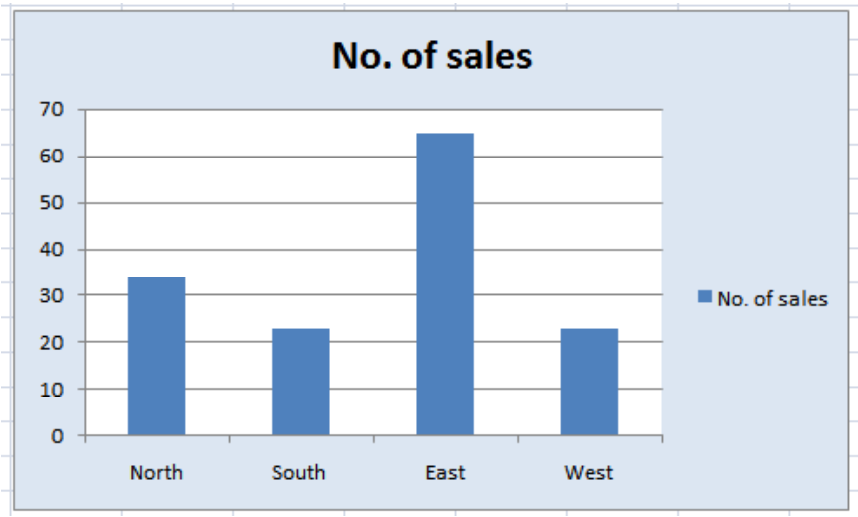
- Click on the **down arrow** next to the **Color** control and select a light colour from the options displayed.




- Click on the **Close** button to apply the colour, as illustrated below.




## Changing the column, bar, line or pie slice colours in a chart

- Click on the second worksheet tab, called **Column Chart**.

- Click on one of the columns within the chart. You should see all the columns are selected, as illustrated.

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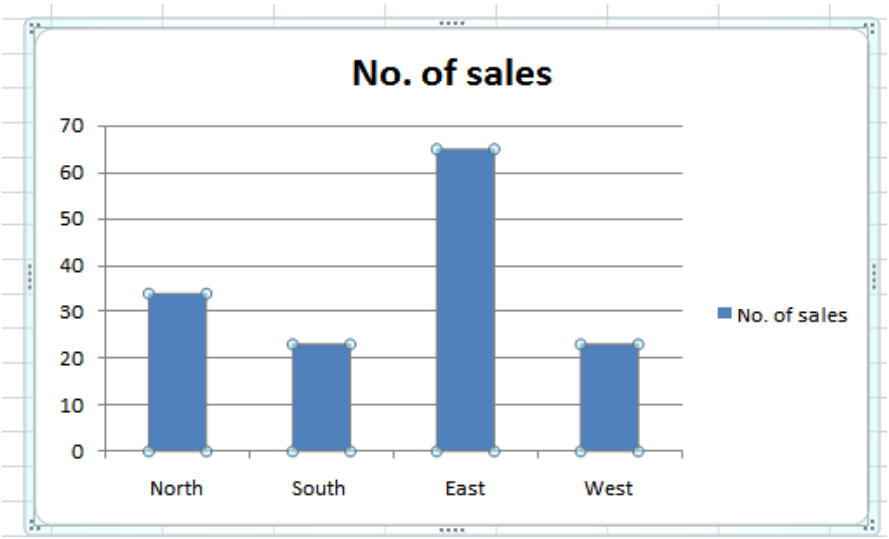
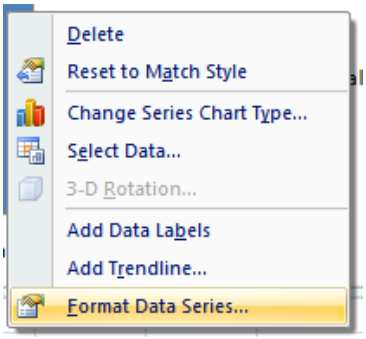
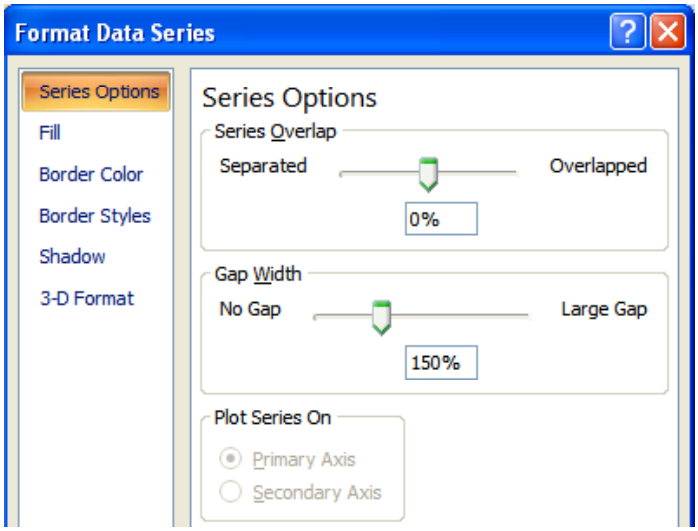



- Right click over one of the selected columns and from the popup menu displayed select the **Format Data Series** command.




- This will display the **Format Data Series** dialog box.




- Click on the **Fill** command within the dialog box, as illustrated.

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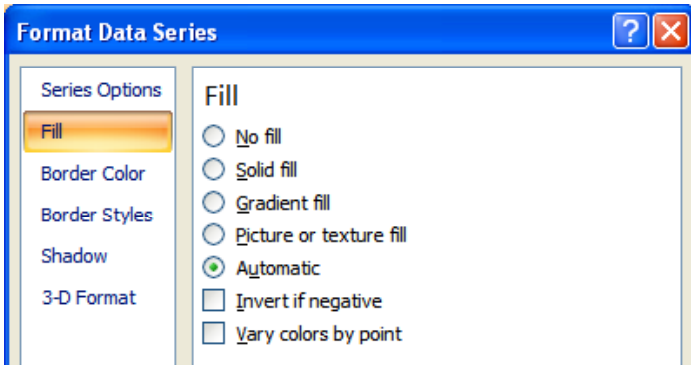
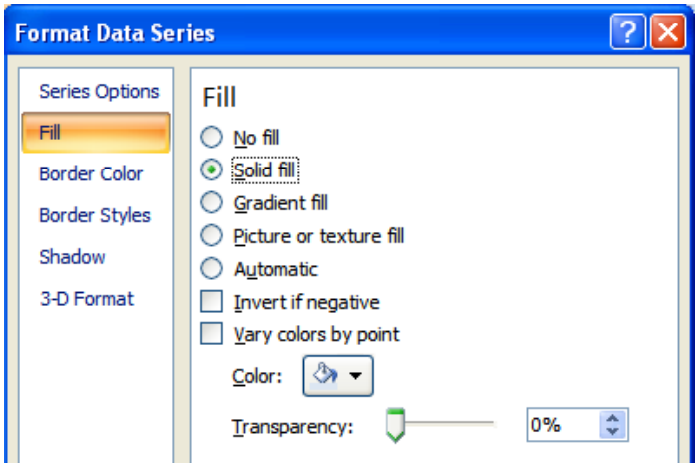
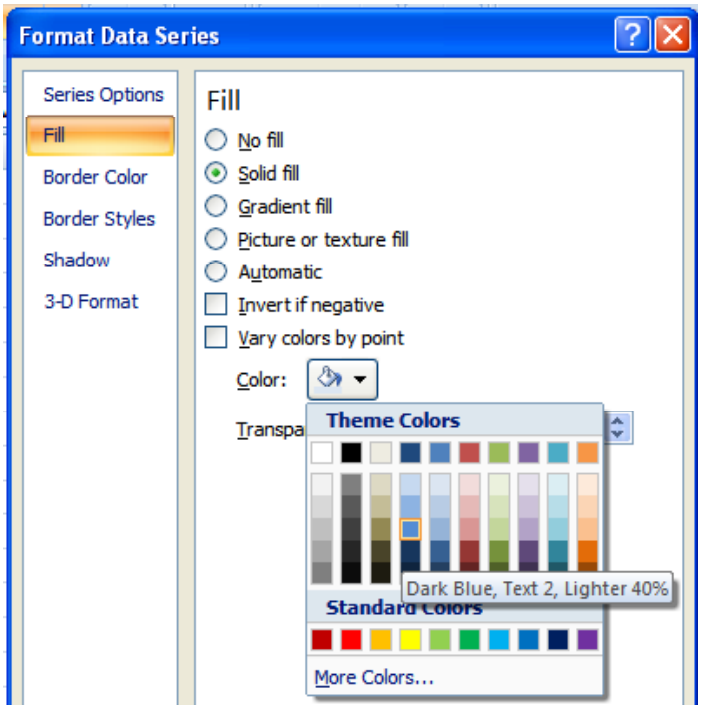



- Click on the **Solid fill** command and extra controls will be displayed, as illustrated.




- Click on the **down arrow** in the **Color** section and select a colour for your columns.

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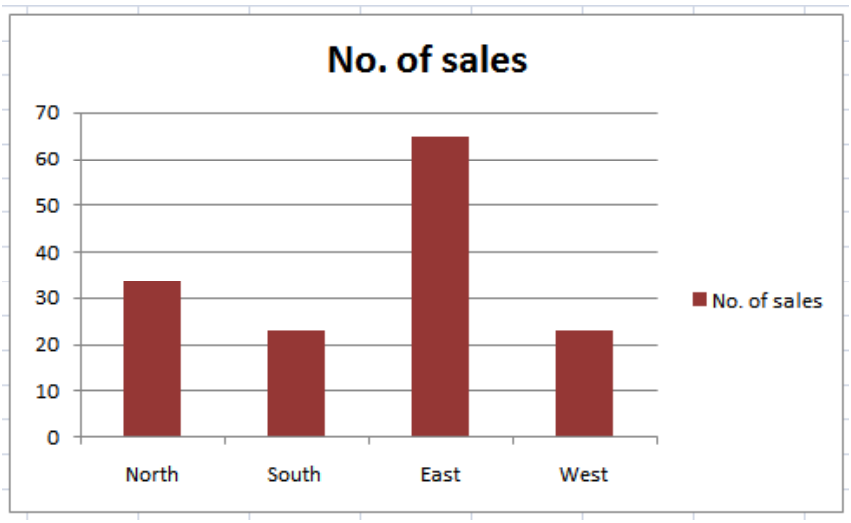
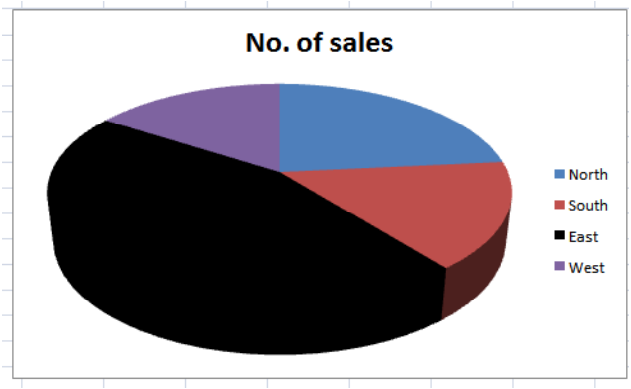
- When you click on the **Close** icon the selected colour will be applied, as illustrated.




- Click on the **Line Chart** worksheet tab and change the colour of the line.
- Click on the **Bar Chart** worksheet tab and change the colour of the bars.

- Click on the **Pie Chart** worksheet tab to display the pie chart. The whole point of a pie chart is that each segment of the pie chart should be a different colour. Bearing this is mind click once on the pie chart to select all the segments within the pie chart. Then click again on a particular segment to select just that segment. At this point you can then right click and change the colour of just that segment. An example is illustrated below.




- Save your changes and close the workbook.

## Modifying the legend fill colour

- Open a workbook called **Legend**.
- Select the legend within the chart, as illustrated.

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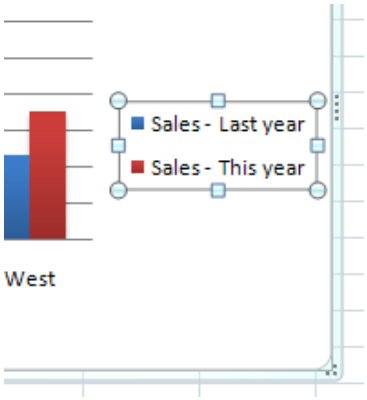
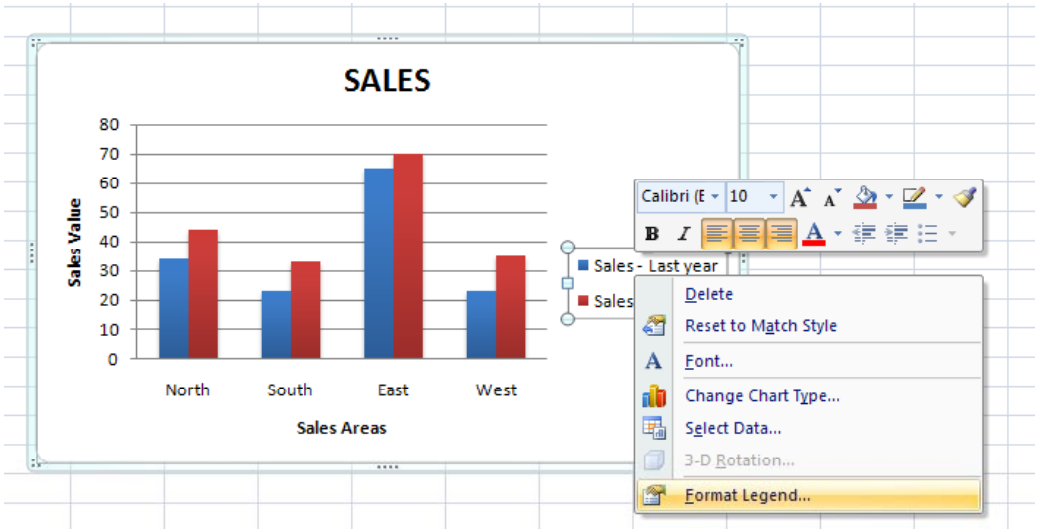
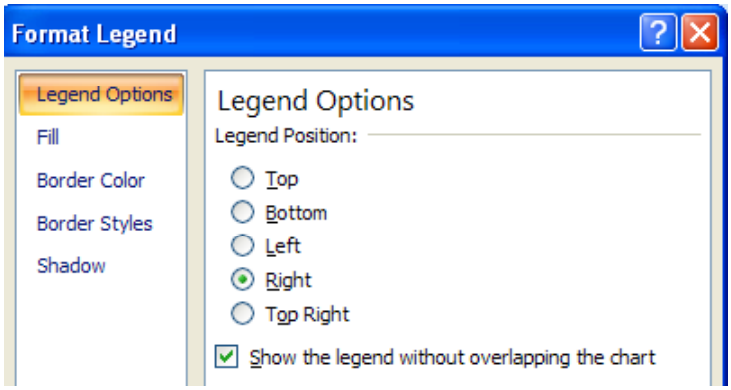



- Right click over the selected legend and from the popup menu displayed select the **Format Legend** command.




- This will display the **Format Legend** dialog box, as illustrated.




- Select the **Fill** tab. Select the **Solid fill** button and you will see the following.

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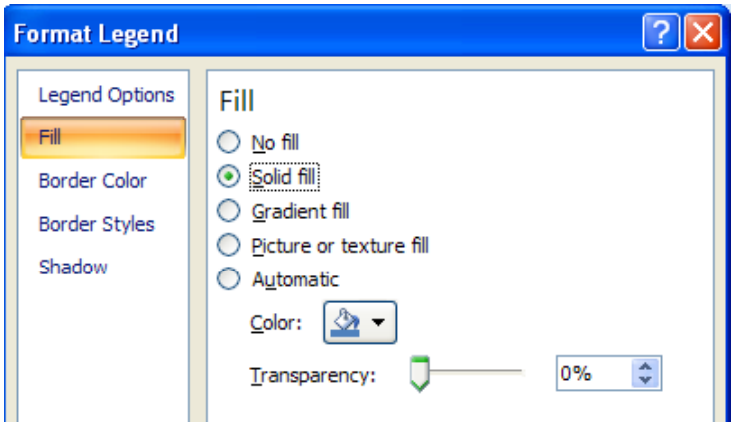
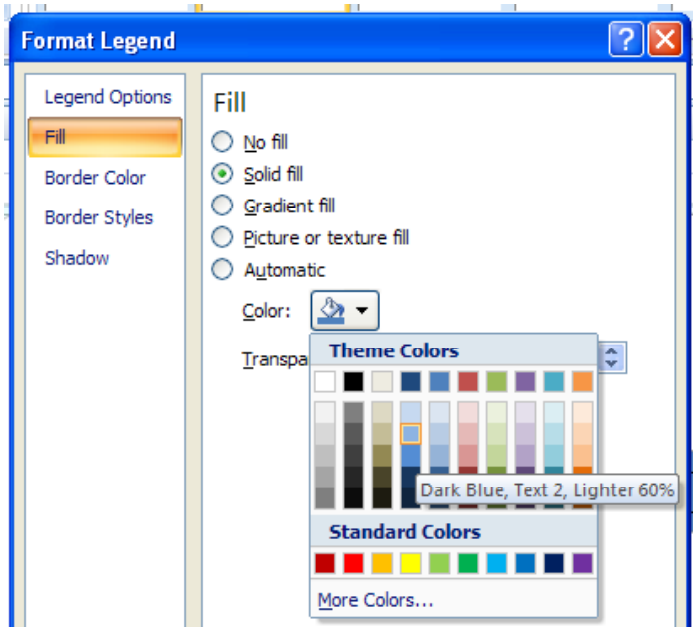



- Click on the **down arrow** in the **Color** control and select a colour as illustrated below.




- Click on the **Close** button to apply the formatting and close the dialog box.
- If you have time try experiment with some of the other options within the **Fill** section of the **Format Legend** dialog box, such as **Gradient Fills** or adjusting the fill transparency.

- Save your changes and close the workbook.

## Changing the chart type

- Open a workbook called **Changing charts**. This workbook contains a column chart. Click on the chart to select it. Click on the **Design** tab. Click on the **Change Chart Type** icon displayed within the **Type** group of the **Design** Ribbon.

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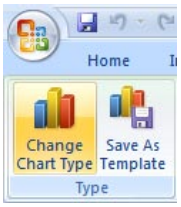
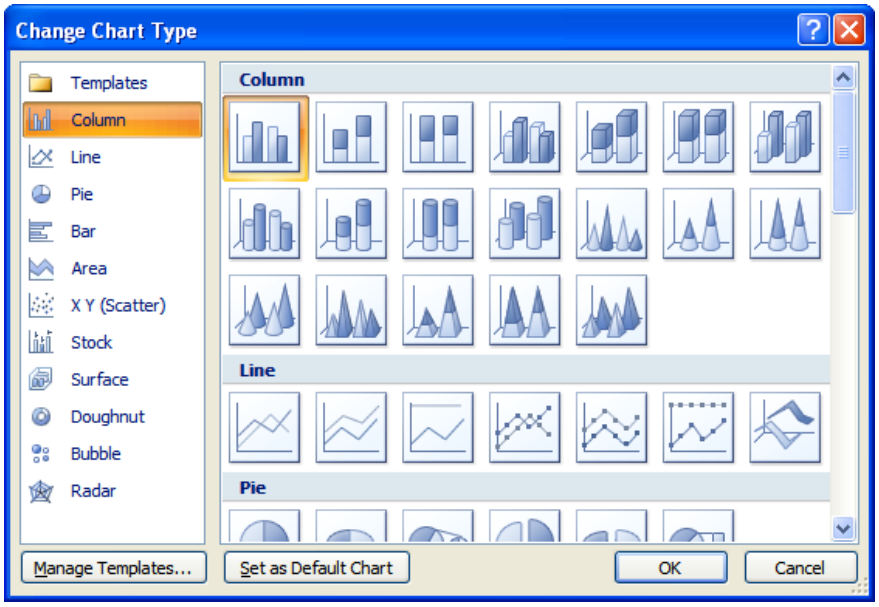
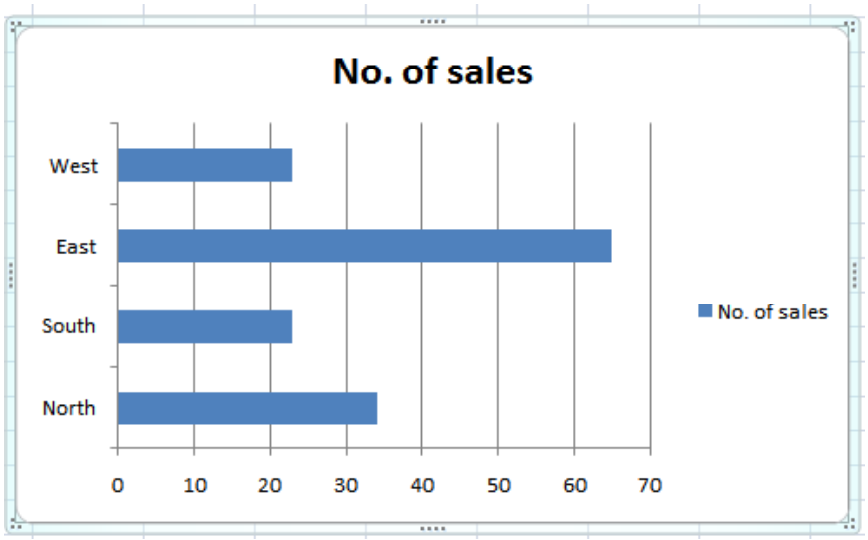



- This will display the **Change Chart Type** dialog box.




- Select a different type of chart, such as a **Bar** chart and then click on the **OK** button.




- Experiment with applying different types of chart.
- Save your changes and close the workbook.

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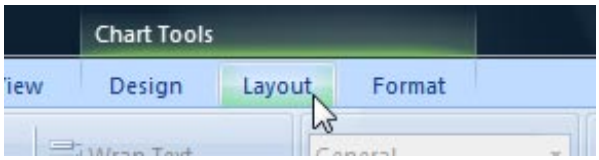
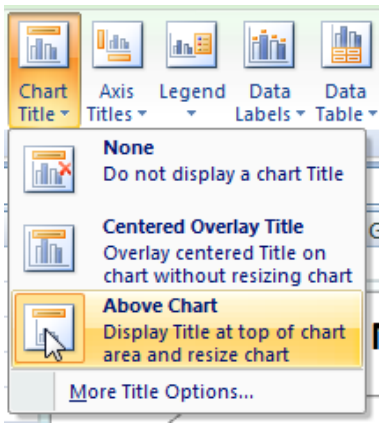
## Modifying charts using the Layout tab

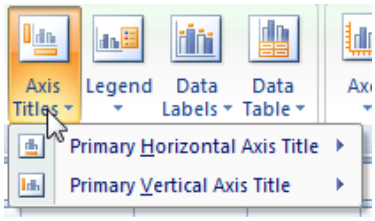
- Open a workbook called **Formatting Charts**.
- Select the chart and then click on the **Layout** tab.




- The Layout tab includes many options for controlling how the various chart elements are displayed.
- Click on the **Chart Title** button in the **Labels** group of the Ribbon. A menu will be display allowing you to control where or if the chart title is displayed. The default is **Above Chart**, try selecting the other options and observe the effect on the chart.




- Click on the **Axis Titles** button in the **Labels** group of the Ribbon. A menu will be display allowing you to control how the labels for each axis are displayed. Experiment with some of the available options and view their effect on the chart.




- Click on the **Legend** button in the **Labels** group of the Ribbon. A menu will be display allowing you to control where the chart legend is displayed. Experiment with some of the available options and view their effect on the chart.

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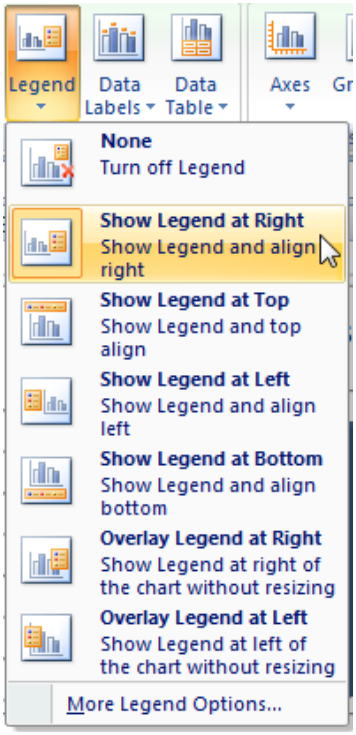
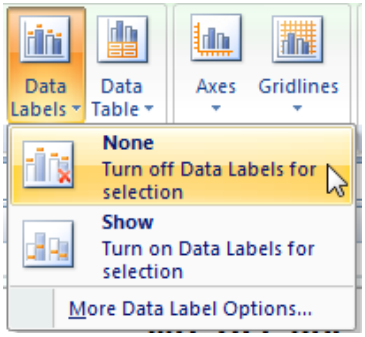
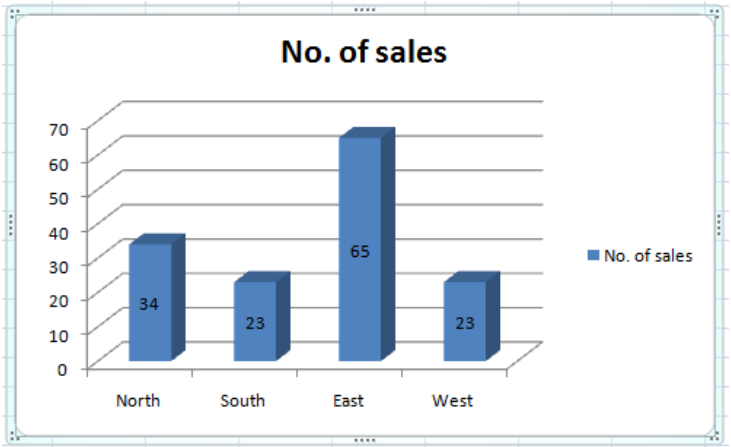



- Click on the **Data Labels** button in the **Labels** group of the Ribbon. A menu will be displayed allowing you to choose if labels should be applied to data in the chart.




- Click on the **Show** option. The chart should now look something like this.

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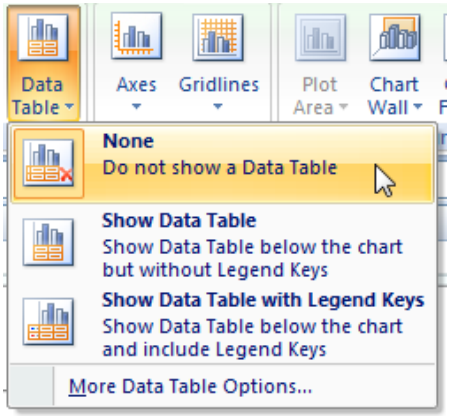
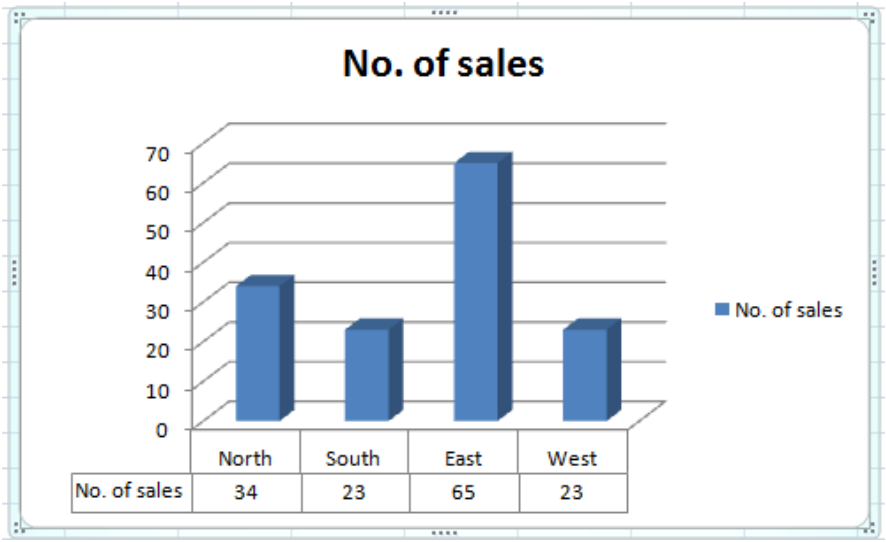
Notice that each column is now labelled with its value.

- Click on the **Data Table** button in the **Labels** group of the Ribbon. A menu will be display allowing you to show the data used to create the chart.




- Click on the **Show Data Table with Legend Keys** option. A small table will be displayed below the chart containing the relevant data.




- Click on the **Gridlines** button in the **Axes** group of the Ribbon. A menu will be display allowing you to control how the gridlines for each axis are displayed. Experiment with some of the available options and view their effect on the chart.

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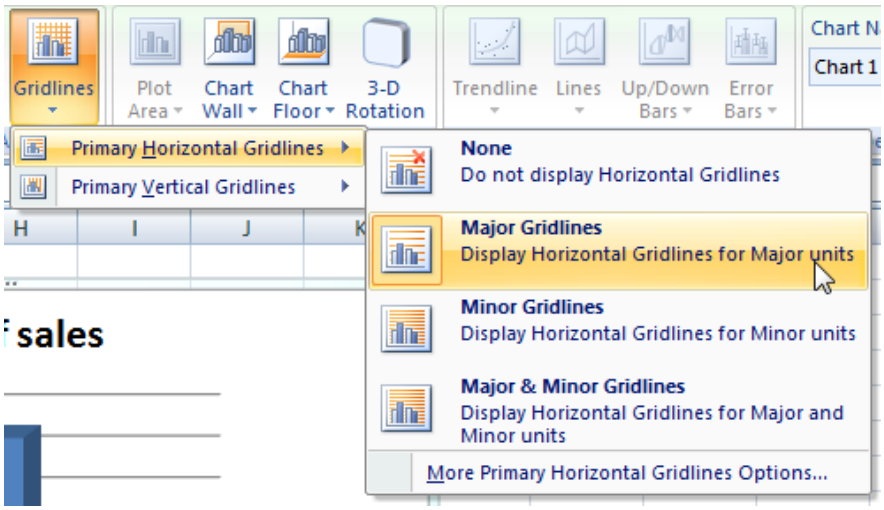



- Close the workbook and save any changes you may have made.

## Copying and moving charts within a worksheet

- Open a workbook called **Copying and moving charts 1**.
- Click on the chart to select it.

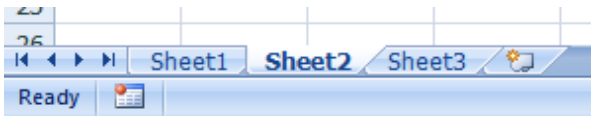
- To move the chart within the worksheet, click on the chart and drag the chart to a new position in the worksheet.

- To copy the chart within the worksheet, click on the chart to select it and press **Ctrl+C** to copy the chart to the Clipboard. Deselect the chart and then press **Ctrl+V** to paste the chart from the Clipboard. You should now see two copies of the chart. You can move them so that they are not layered on top of each other.

## Copying and moving charts between worksheets

- Click on the chart to select it.

- **To copy the chart to another worksheet within the workbook**, click on the chart to select it and press **Ctrl+C** to copy the chart to the Clipboard.
- Click on the **Sheet2** tab at the bottom of the worksheet.




- Press **Ctrl+V** to paste the chart from the Clipboard. You can move the chart if required within this worksheet.

- **To move the chart to another worksheet within the workbook**, click on the **Sheet1** tab at the bottom of the worksheet. Click on the chart to select it and press **Ctrl+X** to cut (i.e. move) the chart to the Clipboard.

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- Click on the **Sheet3** tab at the bottom of the worksheet.
- Press **Ctrl+V** to paste the chart from the Clipboard. You can move the chart if required within this worksheet.

## Copying and moving charts between workbooks

- Select a chart within the workbook. Press **Ctrl+C** to copy the chart to the Clipboard. Open a second workbook called **Copying and moving charts 2**. Press **Ctrl+V** to paste the chart into the second workbook.

  **NOTE**: To move a chart between workbooks, use the same procedure, but **Cut** rather than **Copy** the chart, using the **Ctrl+X** keyboard shortcut for cutting a selected item to the Clipboard.

- Close all open workbooks and save any changes you have made.

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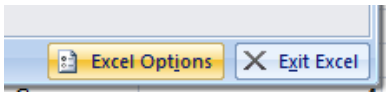
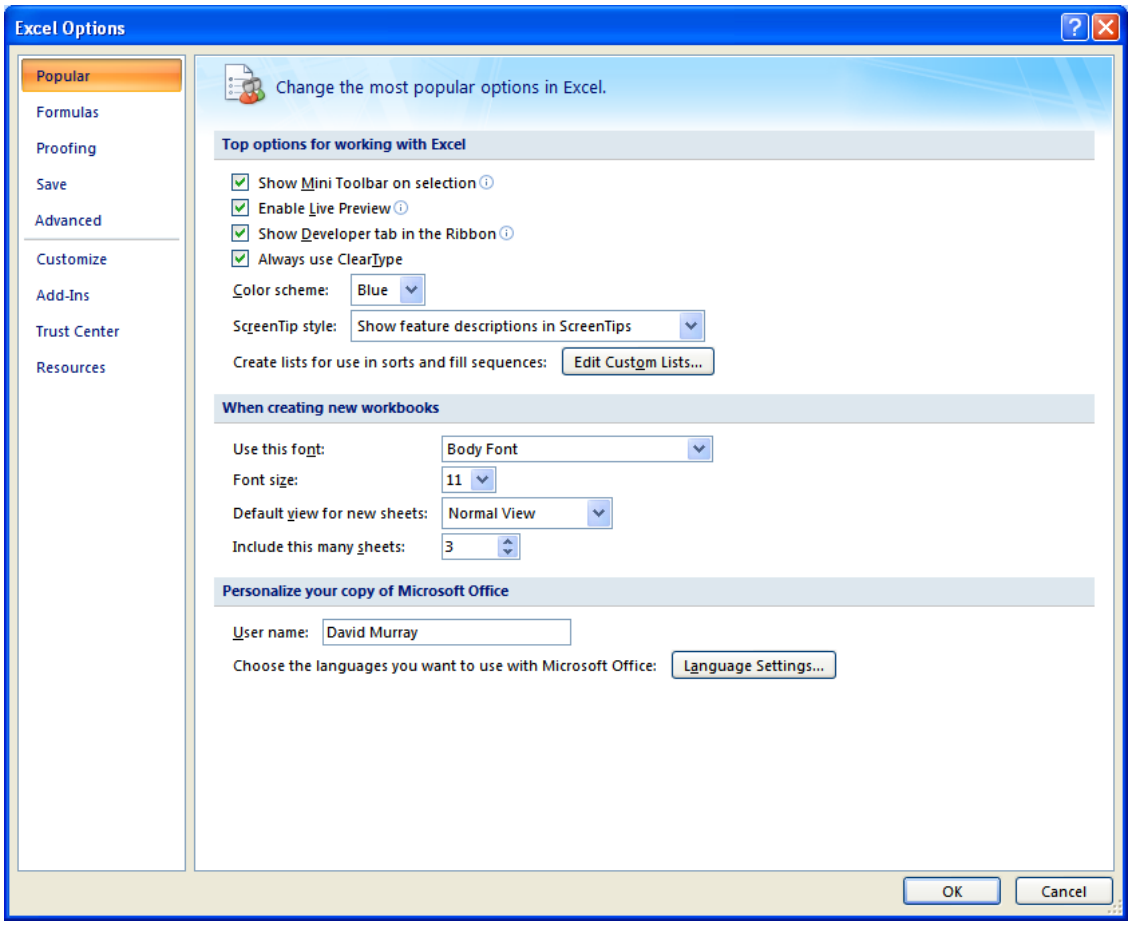
# Customising Excel

## Modifying basic Excel options

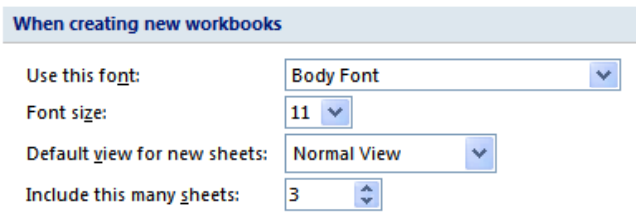
- You can customize the way Excel looks and performs. To do this click on the **Microsoft Office button** and within the dialog box displayed click on the **Excel Options** button (bottom-right of the dialog box).




- This will display the **Excel Options** dialog box.




- You can use this to customise items such as the type of font used, the font size used and the number of worksheets displayed within a new workbook.

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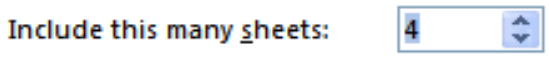
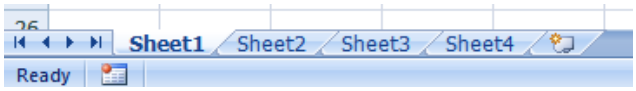
- Try altering the number of worksheets contained within a new workbook to 4 rather than 3.



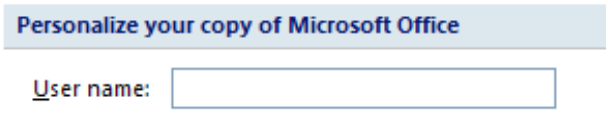

Then close the dialog box and press **Ctrl+N** to create a new workbook. You should see 4 worksheets, as illustrated.



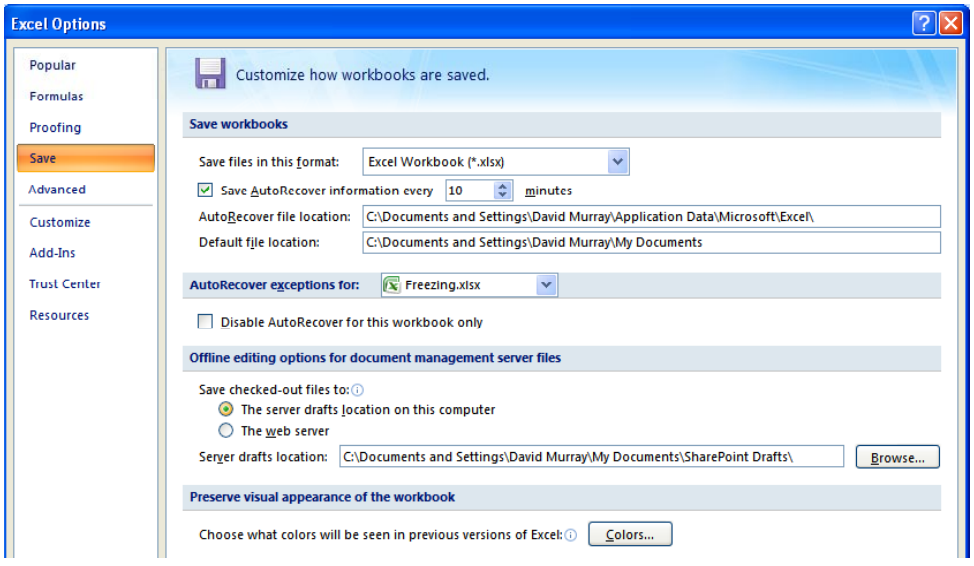

Close the new workbook without saving any changes you have made.

Reset the default for new workbooks, back to 3 worksheets per workbook.

- Re-open the **Excel Options** dialog box and view the **Popular** options. Towards the bottom of the dialog box you will see a section allowing you to personalise your copy of Microsoft Office. If there is no name displayed here, insert your name. If someone else's name is displayed, replace it with your name. This '**user name**' information can be used by many application programs to automatically insert your details in to a document.




- Click on the **Save** option (displayed down the left side of the dialog box).




You can use this page to set the default folder location to be used when saving your workbooks. Make a note of the path displayed within the **Default file location** section.

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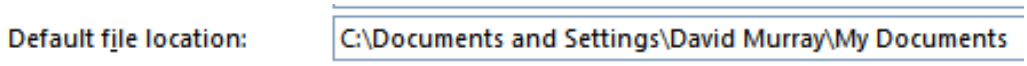


Change this to **C:** and then click on the **OK** button., which will mean that in future Excel will, by default open files from the root folder and also save files to the root folder.

To see the effect of the new default folder location, press **Ctrl+O** to display the **Open** dialog box. You will notice that by default the root folder is displayed (C:\).

Use the method outlined above to reset the default folder back to its original location.

- As you can see there are lots more useful options that you can customise to make your use of Excel easier and more productive. If you have time investigate some of the other customisation options available.

- Before you move on, click on the **Resources** button (within the left part of the dialog box). As you can see this has an option that allows you to check for updates.

- Close the dialog box before continuing.

## Minimising the Ribbon

- Sometimes you want 'more writing space'. To help achieve this you can right click over the Ribbon and from the popup menu displayed, click on the **Minimize the Ribbon** command.

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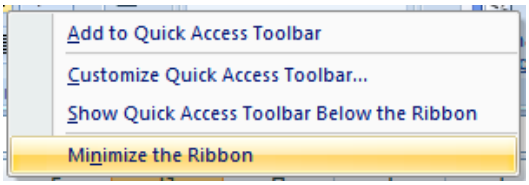
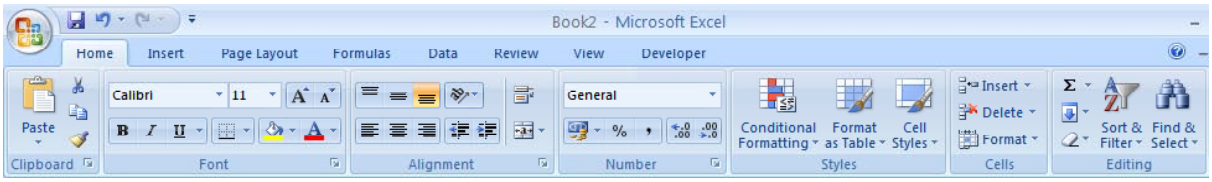
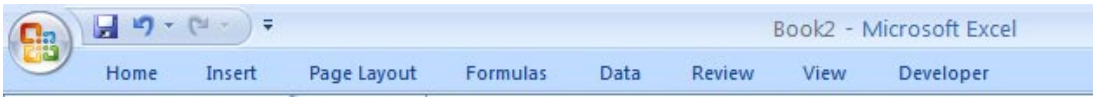


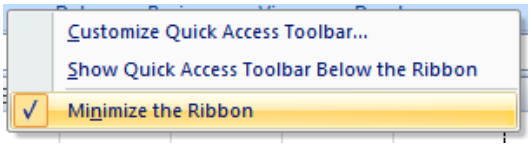

- The Ribbon display will change from this.




To this.

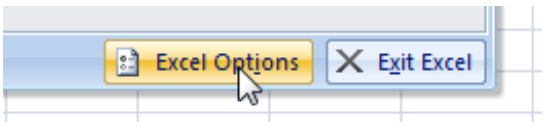



- To display the Ribbon again, right click over any of the tab commands and from the popup menu displayed, re-click on the **Minimize the Ribbon** command (to remove the tick).




## AutoCorrect options

- Microsoft Excel has an AutoCorrect facility that allows common typing errors to be automatically corrected. For instance if you type in '**the**' instead of '**the**', Microsoft Excel will automatically correct your spelling error.
- To open the **AutoCorrect** dialog box, click on the **Office Button** (top-left of your screen). Click on the **Excel Options** button at the bottom of the dialog box.




- Click on the **Proofing** option, and then click on the **AutoCorrect Options** button.

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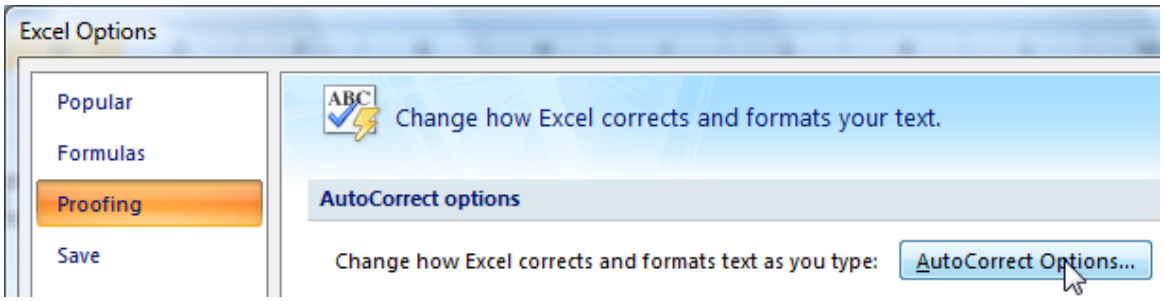
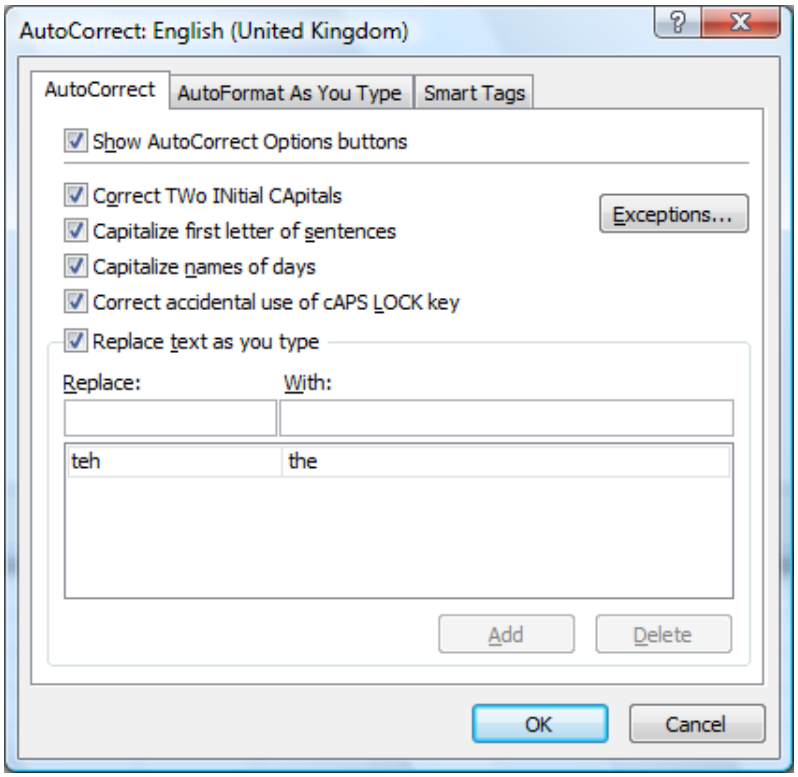



This will display the **AutoCorrect** dialog box.




- As you can see this has a number of options such as the ability to correct words where you have accidentally typed in the first two letters in capitals. It will also automatically capitalise the first letter within a sentence and also the first letter within a table cell and the days of the week. A very useful feature is to automatically correct the effect of accidentally pressing the **Caps Lock** key.

- In the lower part of the dialog box is a scrollable section which tells you what Microsoft Excel will act on and change automatically.

- Add some words that you commonly spell incorrectly, into the **Replace** section of the dialog box, along with the correct spelling in the **With** section of the dialog box.

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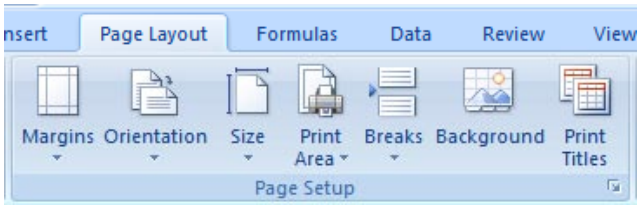
# Printing

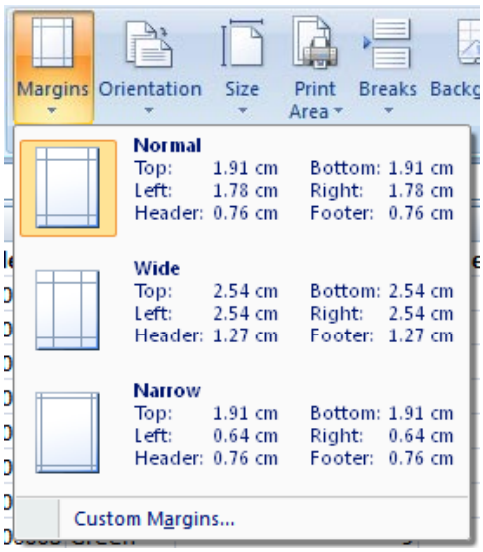
## Worksheet Setup

### Worksheet margins

- Open a workbook called **Print setup**.
- Click on the **Page Layout** tab, and from within the **Page Setup** group of the Ribbon, click on the **Margins** icon.




- This will display a drop down from which you can select **Normal**, **Wide** or **Narrow**.




- Clicking on the **Custom Margins** command displays the **Margins** tab within the **Page Setup** dialog box. You can use this dialog box to set custom top, bottom, left and right margins.

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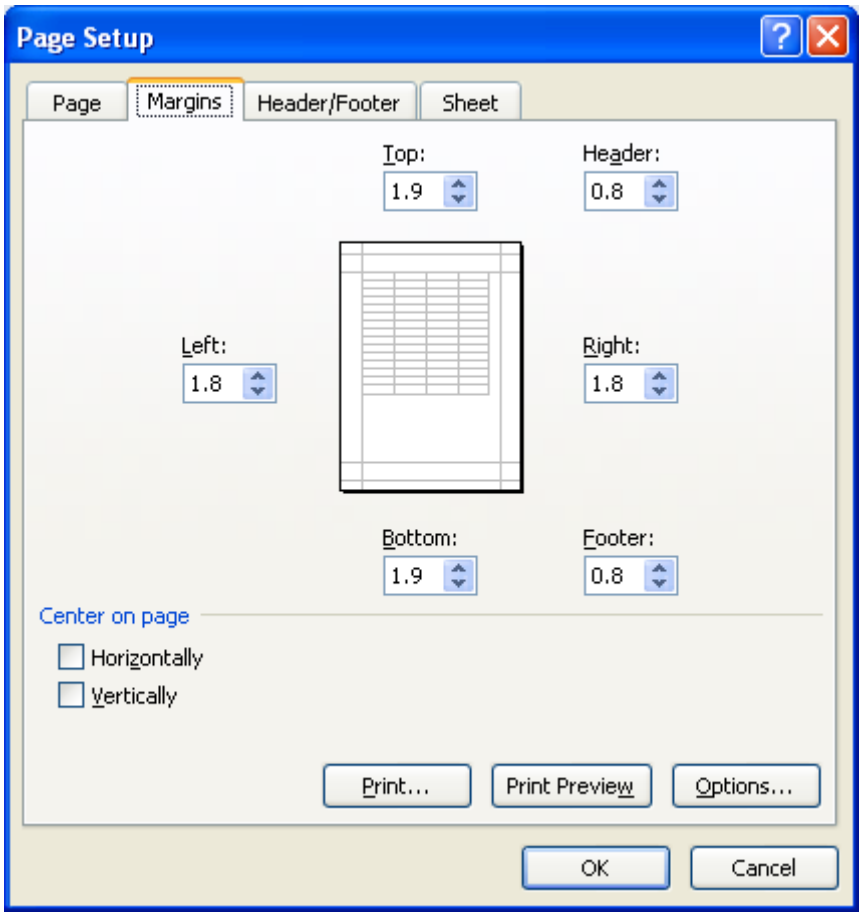


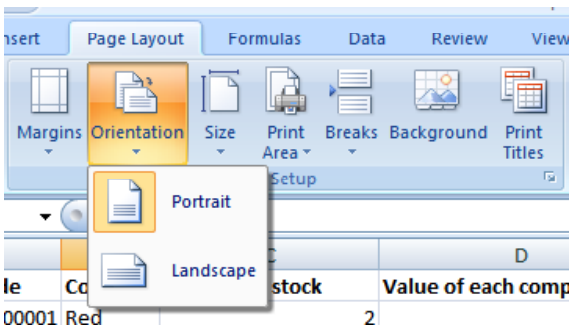

**TIP**: You can also use this dialog box to set Header and Footer values, as well as options to centre the table on the page vertically and / or horizontally.

Experiment with setting margins.

**TIP**: Be sure not to make the margin size to small or you may have problems printing the worksheet.

## Worksheet orientation

- Click on the **Page Layout** tab, and from within the **Page Setup** group of the Ribbon, click on the **Orientation** icon. You can select either **Portrait** or **Landscape** orientation, as illustrated.

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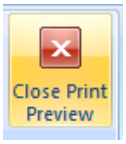
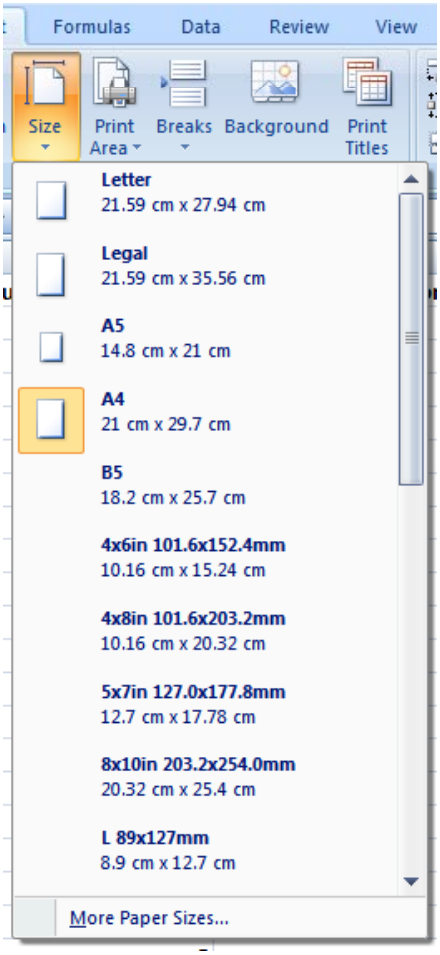
- Try setting the orientation to **Landscape**. To see the effect in **Print Preview** mode, press the **Ctrl+F2** keyboard shortcut. To return to the previous view, click on the **Close Print Preview** icon.




- Before continuing reset the orientation back to **Portrait**.

## Worksheet page size

- Click on the **Page Layout** tab, and from within the **Page Setup** group of the Ribbon, click on the **Size** icon. You can select the required page size from the drop down options displayed, as illustrated.




## Headers and footers

- Click on the **Insert** tab and from within the **Text** group of the Ribbon, click on the **Header & Footer** icon.

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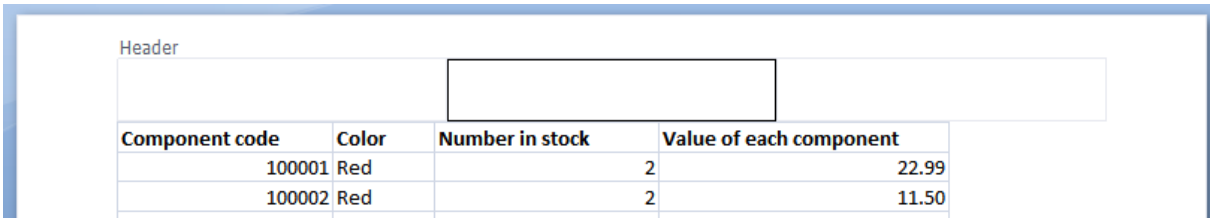
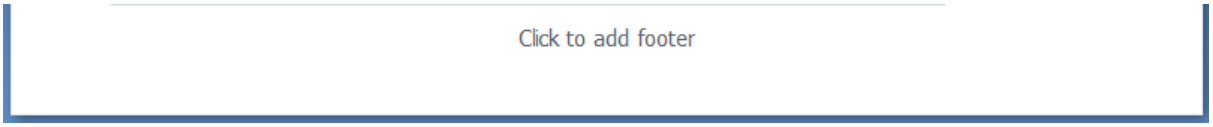
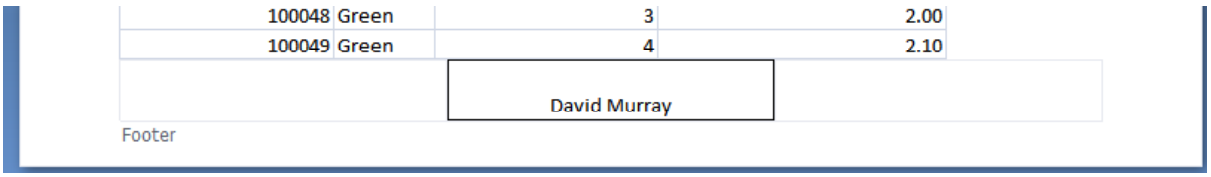
- You will see the Header area displayed at the top of the worksheet, as illustrated.




- Type in the text for you header, such as '**Stock Levels for January**'.
- If you scroll down the page you will see the message '**Click to add footer**' displayed at the bottom of the worksheet.

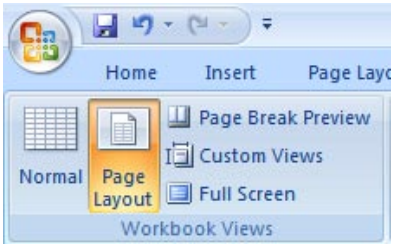



- Click within the footer area and type in your name. As example is illustrated below.




- To modify a header or footer at any time just click over an existing header or footer and edit as required.

  **TIP**: Remember that to see headers and footers, you may need to click on the **View** tab and then click on the **Page Layout** icon.




  To change back to the normal view click on the **View** tab and then click on the **Normal** icon.

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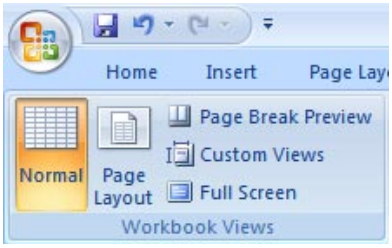
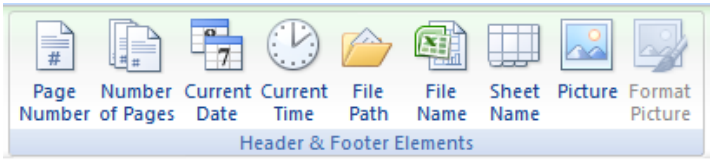



## Header and footer fields

- When you are inserting or editing a footer or header, you will notice that you see the **Header and Footer Tools** Ribbon. Within this Ribbon is the **Header & Footer Elements** group, as illustrated below.




- You can use the icons in this section in insert an Excel field, such as the Page Number. The great thing about fields is that they automatically update when required. For instance if you insert a **Page Number** field, then as you add more pages, the page number displayed on each page will increment.
- Another very useful field is the **File Name** field. This displays the file name of the document in your header or footer, when you print, and is very useful when you have printed out a copy of a worksheet and then several months later are trying to remember the file name you used to save the worksheet as.

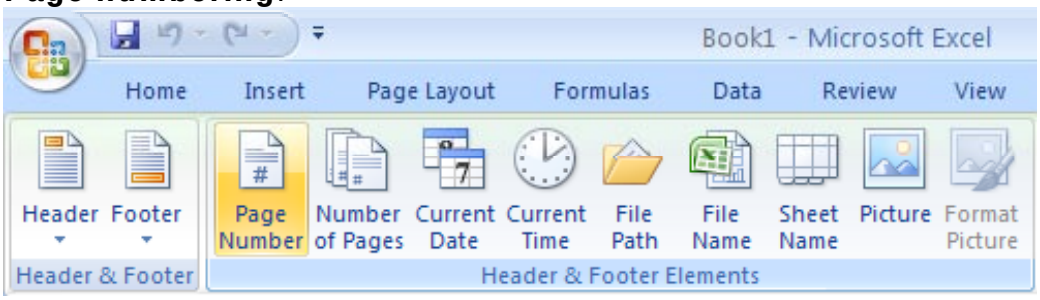
  **NOTE**: When you insert a field, such as the **File Name** field, you may see the field code rather than the actual file name. When you print the worksheet however, this code is replaced by the actual file name.

- The **File Path** will display the file name and also the path to the folder in which the file is stored.

- Experiment with inserting different fields into your header or footer.

  Make sure that you have experimented with all of the following field types:

  **Page numbering**:

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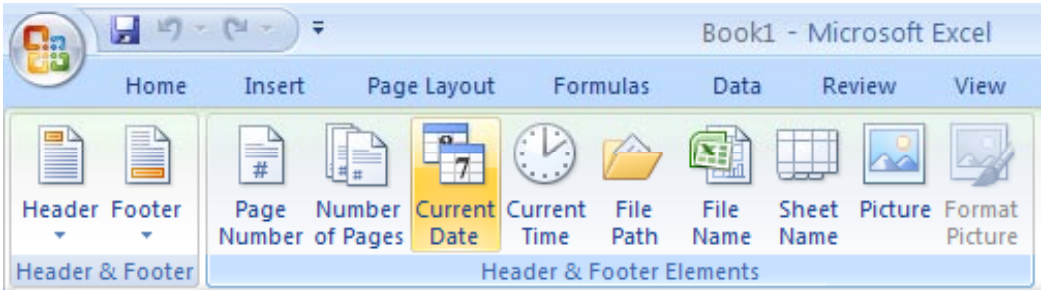
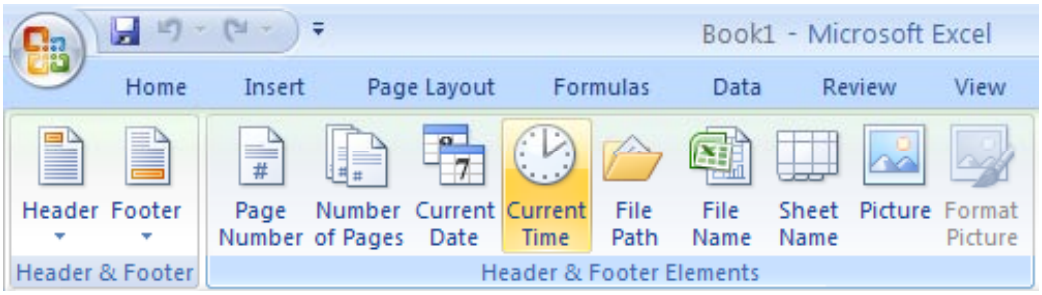
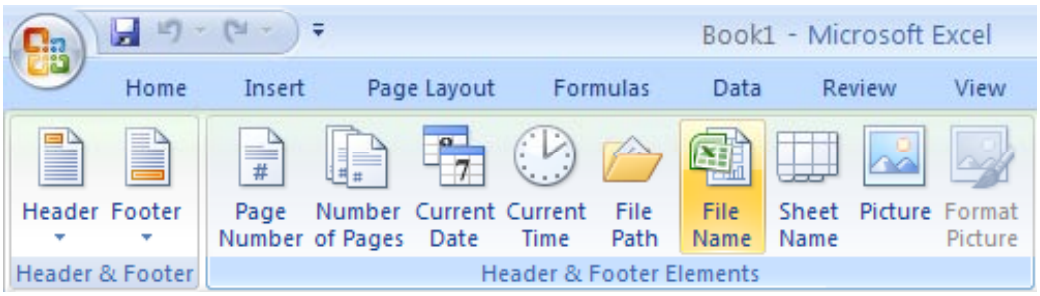
**Date**:



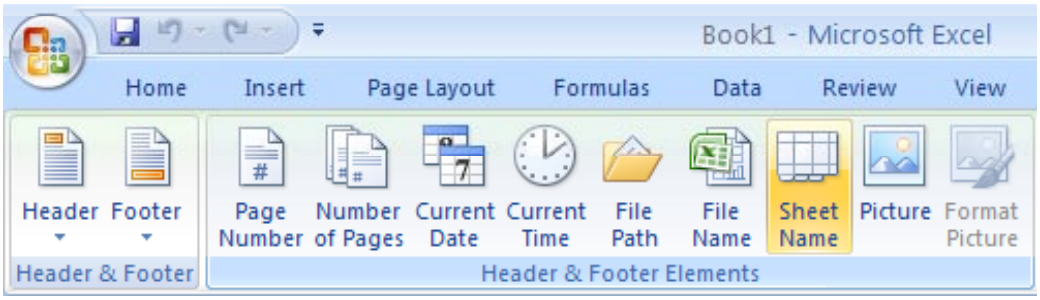

**Time**:




**File name**:




**Worksheet name**:




**NOTE**: To remove a header or footer field, select the field you wish to remove and press the **Del** key.

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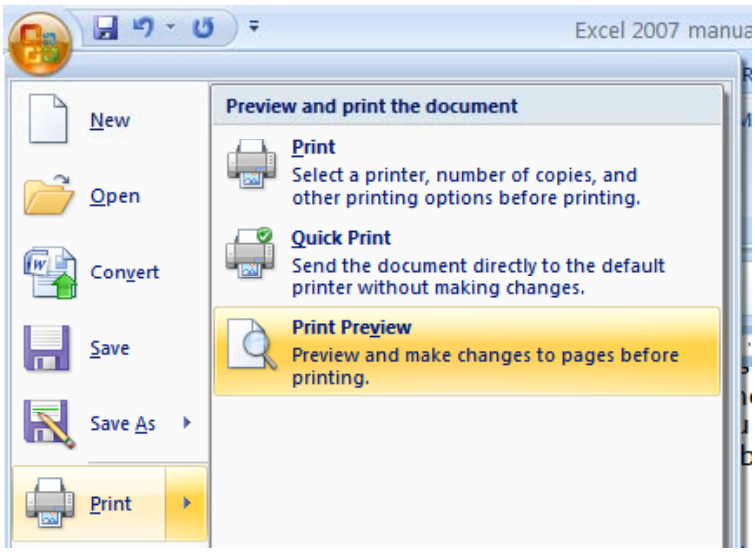
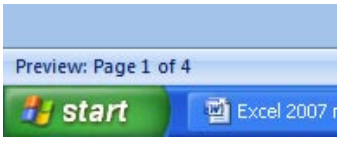
## Scaling your worksheet to fit a page(s)

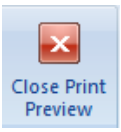
- Click on the **Microsoft Office Button** and then click on the **arrow** next to the **Print** command. From the submenu, select **Print Preview**.



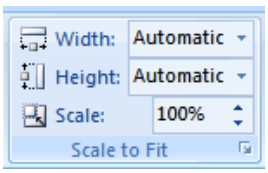

- If you look at the bottom-left of the screen you will notice that in the example shown, the data requires a total of 4 pages to print.




- To close the **Print Preview** view, click on the **Close Print Preview** button




- Excel has a facility that lets you determine how many pages you want the data to print over. If required you can shrink the size of the data so that it all fits on one page. It may be hard to read due to the small type size, but you can do this. Click on the **Page Layout** tab and within the **Scale to Fit** group to display the following options.




- Click on the **down arrow** to the right of the **Width** control, and select **1 page**.

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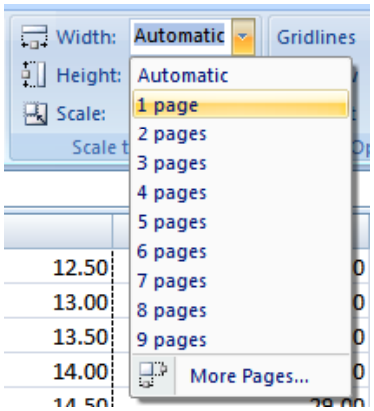
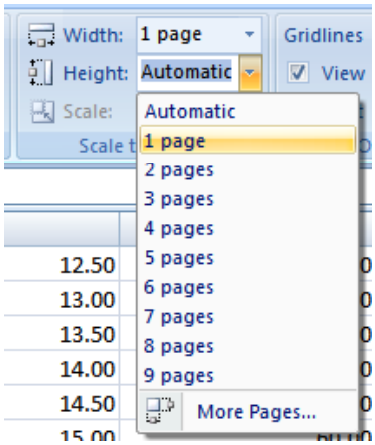



- Click on the **down arrow** to the right of the **Height** control, and select **1 page**.




- Display the worksheet in **Print Preview** view and you should see that the worksheet will now print on a single page.

- Close the **Print Preview** view.
- Save your changes and close the workbook.

# Preparing to print a worksheet

## Visually check your calculations

- Open a workbook called **Printing**.
- Click on cell **E2**. Clearly the formula within this cell is wrong. The formula it contains is

**=C2*F2**

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It should be:

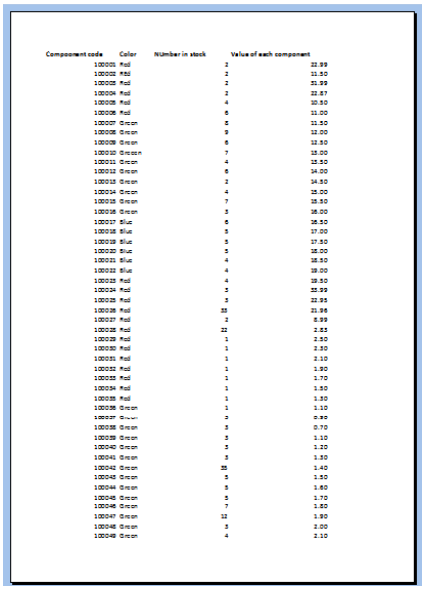
**=C2*D2**

Fix the formula.

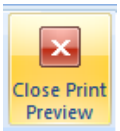
Always visually check over worksheet data and try to look for formula calculation results that do not make sense.

## Displaying gridlines when printing

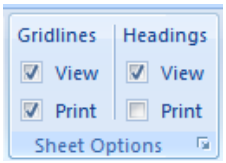
- To see how the worksheet will look when printed view the worksheet in Print Preview view. To do this click press **Ctrl+F2**. As you can see the worksheet will print without displaying gridlines.



- Click on the **Close Print Preview** button to exit from the Print Preview mode.




- Click on the **Page Layout** tab. Within the **Sheet Options** group, click on the **Print** check box under the **Gridlines** heading, as illustrated.




- View the worksheet in **Print Preview** view by pressing **Ctrl+F2**. As you can see the worksheet will now print displaying gridlines.

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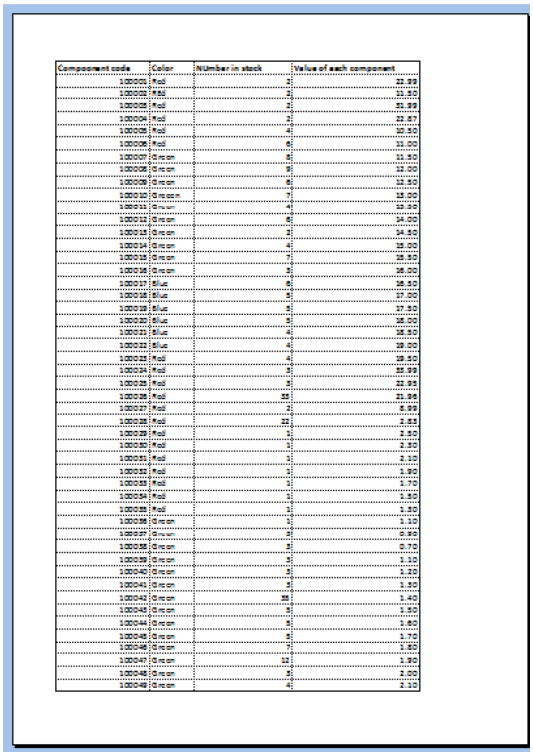


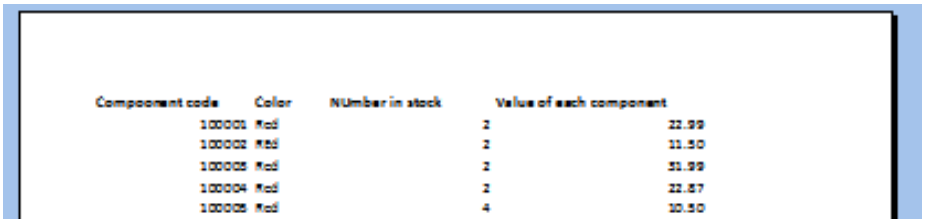
| Compoonent code | Color | NUmber in stock | Value of each component |
|---|---|---|---|
| 100001 | Red | 2 | 22.99 |
| 100002 | Red | 2 | 11.50 |
| 100003 | Red | 2 | 31.99 |
| 100004 | Red | 2 | 22.67 |
| 100005 | Red | 4 | 10.50 |
| 100006 | Red | 6 | 11.00 |
| 100007 | Green | 5 | 11.50 |
| 100008 | Green | 5 | 12.00 |
| 100009 | Green | 6 | 12.50 |
| 100010 | Green | 7 | 13.00 |
| 100011 | Green | 4 | 13.50 |
| 100012 | Green | 6 | 14.00 |
| 100013 | Green | 2 | 14.50 |
| 100014 | Green | 4 | 15.00 |
| 100015 | Green | 7 | 15.50 |
| 100016 | Green | 3 | 16.00 |
| 100017 | Blue | 6 | 16.50 |
| 100018 | Blue | 3 | 17.00 |
| 100019 | Blue | 5 | 17.50 |
| 100020 | Blue | 3 | 18.00 |
| 100021 | Blue | 4 | 18.50 |
| 100022 | Blue | 4 | 19.00 |
| 100023 | Red | 4 | 19.50 |
| 100024 | Red | 3 | 33.99 |
| 100025 | Red | 3 | 22.95 |
| 100026 | Red | 33 | 21.96 |
| 100027 | Red | 3 | 8.99 |
| 100028 | Red | 22 | 2.65 |
| 100029 | Red | 1 | 2.50 |
| 100030 | Red | 1 | 2.30 |
| 100031 | Red | 1 | 2.10 |
| 100032 | Red | 1 | 1.90 |
| 100033 | Red | 1 | 1.70 |
| 100034 | Red | 1 | 1.50 |
| 100035 | Red | 1 | 1.30 |
| 100036 | Green | 1 | 1.10 |
| 100037 | Green | 3 | 0.95 |
| 100038 | Green | 1 | 0.70 |
| 100039 | Green | 5 | 1.10 |
| 100040 | Green | 5 | 1.20 |
| 100041 | Green | 5 | 1.30 |
| 100042 | Green | 28 | 1.40 |
| 100043 | Green | 4 | 1.50 |
| 100044 | Green | 5 | 1.60 |
| 100045 | Green | 5 | 1.70 |
| 100046 | Green | 7 | 1.80 |
| 100047 | Green | 12 | 1.90 |
| 100048 | Green | 3 | 2.00 |
| 100049 | Green | 4 | 2.10 |

- Exit the Print Preview view.

- Before continuing, re-click on the **Print** Gridlines check box so that the worksheet will print without displaying gridlines.

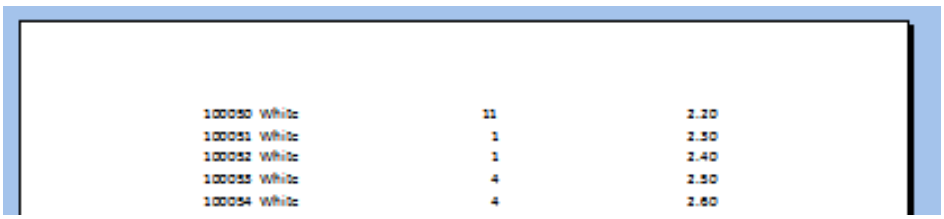
## Printing titles on every page when printing

- View the worksheet in **Print Preview** view by pressing **Ctrl+F2**. As you can see the top row, containing the column titles is displayed on the first page.



| Compoonent code | Color | NUmber in stock | Value of each component |
|---|---|---|---|
| 100001 | Red | 2 | 22.99 |
| 100002 | Red | 2 | 11.50 |
| 100003 | Red | 2 | 31.99 |
| 100004 | Red | 2 | 22.67 |
| 100005 | Red | 4 | 10.50 |

- Press the **Page Down** key to view the second page. As you can see the columns are displayed without a top row explaining what each column relates to.



| | | | |
|---|---|---|---|
| 100050 | White | 11 | 2.20 |
| 100051 | White | 1 | 2.50 |
| 100052 | White | 1 | 2.40 |
| 100053 | White | 4 | 2.50 |
| 100054 | White | 4 | 2.60 |

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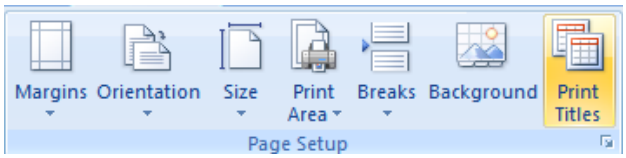
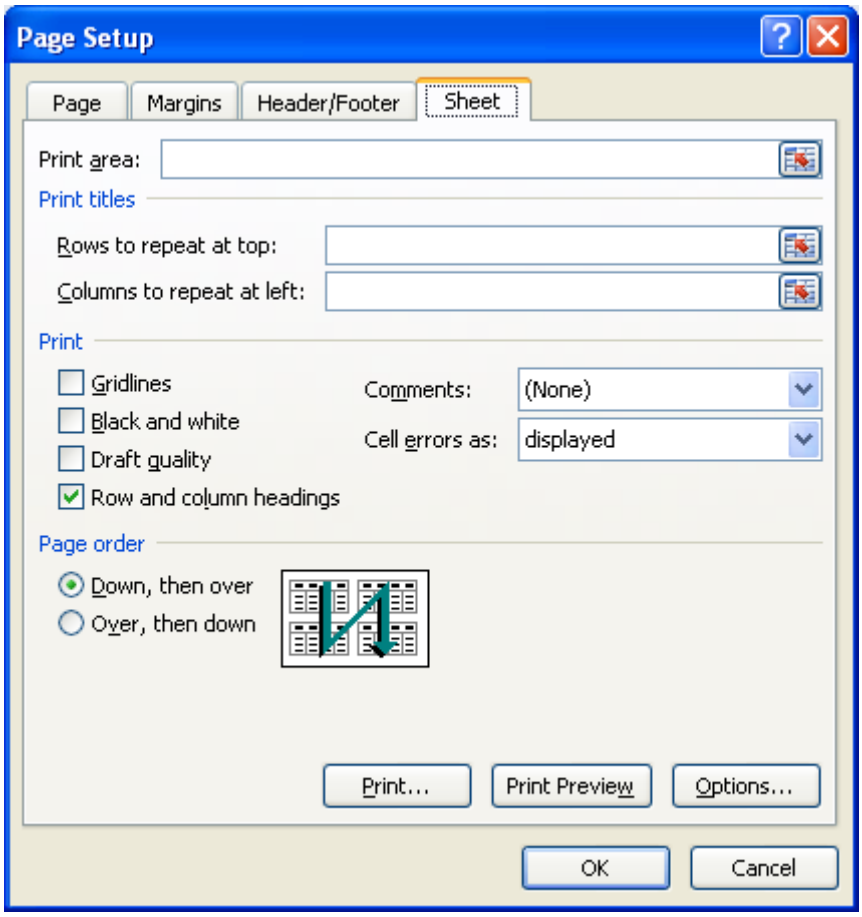
- We need to fix this as it would be very inconvenient to print out a long report and always have to refer to the first page to know what each column relates to. Close the **Print Preview** view.

- Click on the **Page Layout** tab. Within the **Page Setup** group, click on the **Print Titles** icon, as illustrated.



- This will display the **Page Setup** dialog box.




- If necessary move dialog box so that you can see the title row within the worksheet.

  **TIP**: To move a dialog box, click on the **Title Bar** at the top of the dialog box and while pressing the mouse button, drag with the mouse. When you release the mouse button the dialog box will have moved.

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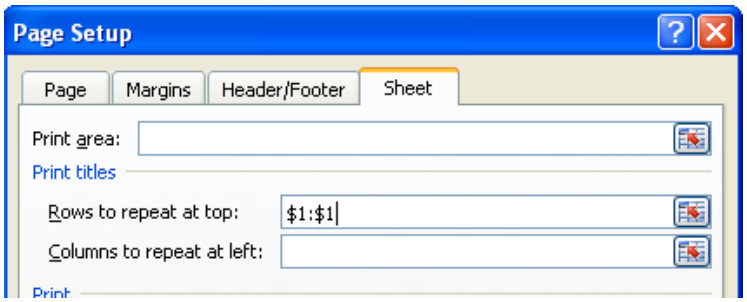
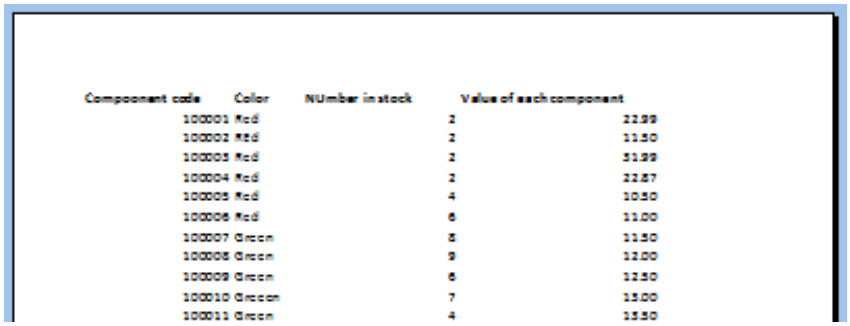
- Click in the **Rows to repeat at top** box, within the dialog box.

- Click within the top row and your dialog box will look like this.

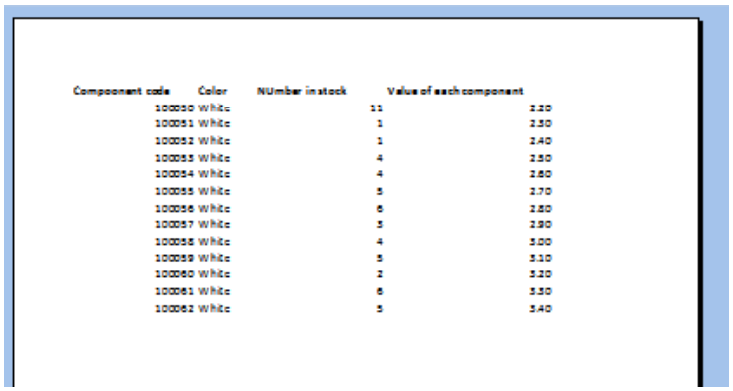



- Click on the **OK** button to close the dialog box.

- Press **Ctrl+F2** to see the worksheet in **Print Preview** view. As you would expect the title row is displayed across the top of the data.




- Press the **Page Down** key to view the second page, and now, as you can see this page also displays a title row at the top of the data.




- Press **Esc** to exit from Print Preview view.

**TIP**: You can use the same technique the repeat both rows and columns on every page.

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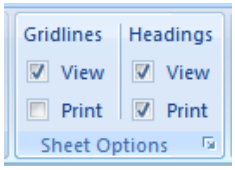
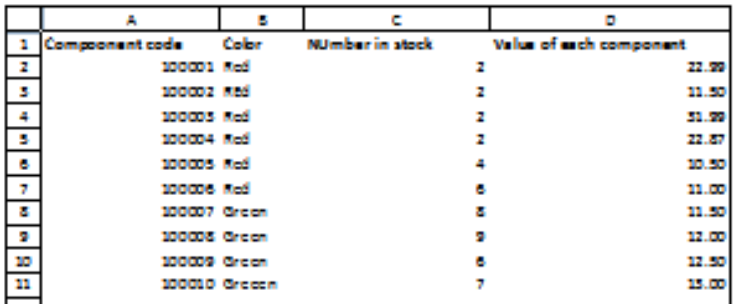
## Printing the Excel row and column headings

- Click on the **Page Layout** tab. Within the **Sheet Options** group, click on the **Print** check box under the **Headings**, as illustrated.




- Press **Ctrl+F2** to view the worksheet in **Print Preview** view. As you can see the row and column heading are displayed, and would print like this.

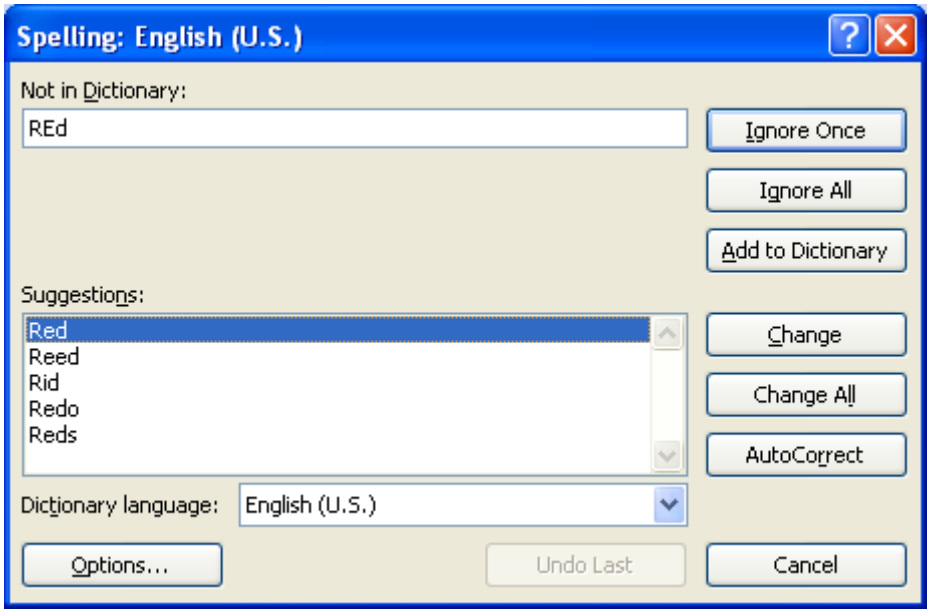


| | A | B | C | D |
|---|---|---|---|---|
| 1 | Component code | Color | NUmber in stock | Value of each component |
| 2 | 100001 | Red | 2 | 22.99 |
| 3 | 100002 | Red | 2 | 11.50 |
| 4 | 100003 | Red | 2 | 51.99 |
| 5 | 100004 | Red | 2 | 22.57 |
| 6 | 100005 | Red | 4 | 10.50 |
| 7 | 100006 | Red | 6 | 11.00 |
| 8 | 100007 | Green | 8 | 11.50 |
| 9 | 100008 | Green | 9 | 12.00 |
| 10 | 100009 | Green | 6 | 12.50 |
| 11 | 100010 | Green | 7 | 15.00 |

- Press **Esc** to exit from Print Preview view.

## Spell checking

- Press **F7** to start the spell checker (or click on the **Review** tab and click the **Spelling** icon).
- You will see the **Spelling** dialog box displayed. Follow the onscreen prompts.

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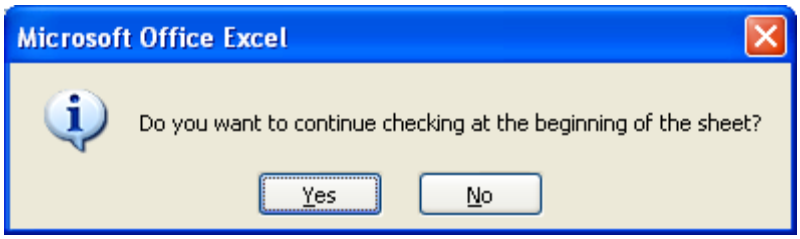
- You may see the following dialog box, in which case click on the **Yes** button.




## Previewing a worksheet

- Always view a workbook in **Print Preview** mode prior to printing it. It allows you a quick visual check over how the worksheet will look when printed.
- Click on the **Microsoft Office Button** and then click on the arrow next to the **Print** command. From the submenu, select **Print Preview**.
- Save your changes and close the workbook.

## Comparing workbooks side by side

- This feature allows you to compare two versions of a workbook, side by side. Open a document called **Side by Side 1**. Open a second document called **Side by Side 2**.
- Click on the **View** tab and click on the **View Side by Side** command (located within the **Window** group under the **View** tab).

This will display the two workbooks side by side. As you scroll down one worksheet, the other worksheet also scrolls down the screen. Try scrolling through each worksheet to practice using this feature.

- Close both worksheets before continuing.

## Zooming the view

- Open a workbook called **Zoom**. This workbook contains text of various sizes, and may be unreadable at the normal viewing zoom level. You can use the Zoom control to magnify the display of data on the screen (or to reduce the size of data of the screen). You can see the **Zoom** slider control displayed at the bottom-right of your screen.

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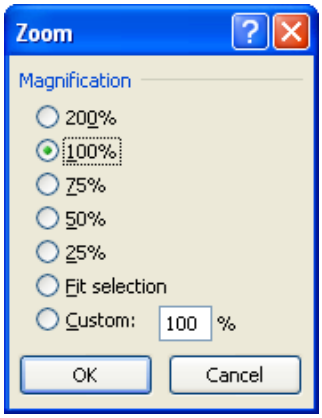
- Click on the **Plus** or **Minus** button, or drag the slider using the mouse to adjust the zoon levels.

- If you click on the **Zoom** value (100% in the example show above), you will display the **Zoom** dialog box. You can use this to set exact zoom levels.

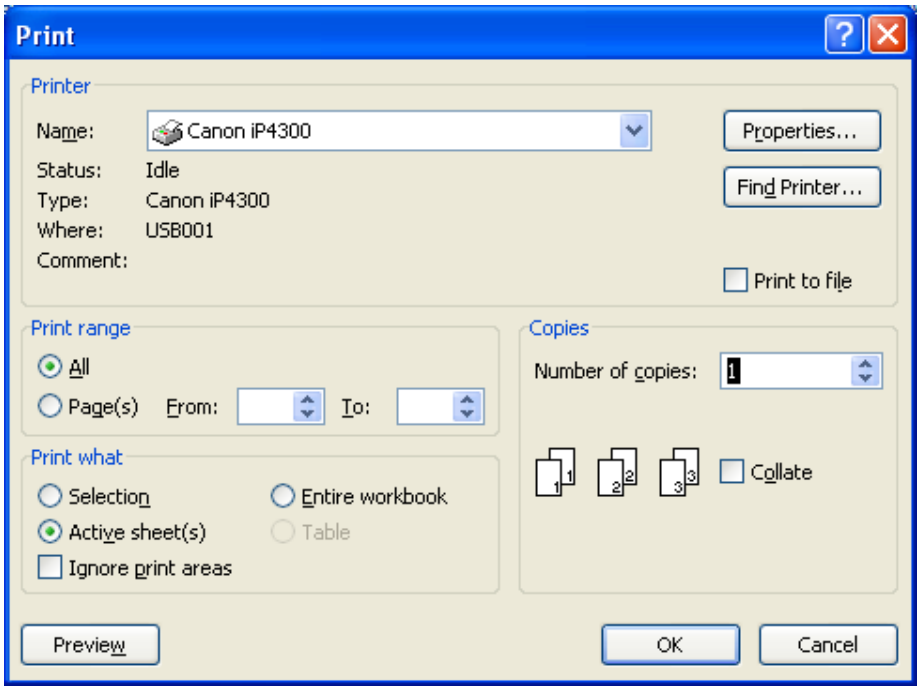



- Before continuing set the **Zoom** level back to **100%** and close the workbook.

## Printing options

- Open a workbook called **Printing options**.
- To print the entire worksheet, click on the **Microsoft Office button** and then click on the **Print** icon. This will display the **Print** dialog box.

  **TIP**: The keyboard shortcut to display the **Print** dialog box is **Ctrl+P**.




- Within the **Print Range** group of the dialog box, the default is **All**. Use this option to print the entire worksheet.

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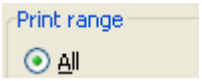
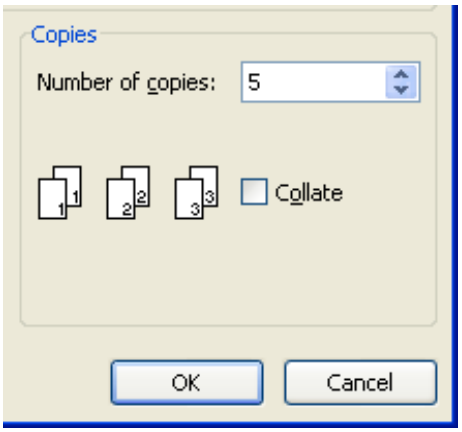
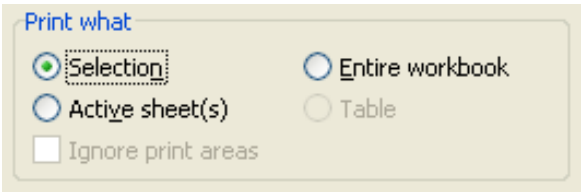



- If you only want to print certain pages, click on the **Pages** button and then specify the pages you want to print.

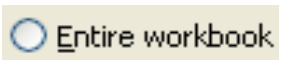
- If you want to print multiple copies of a worksheet, you can enter a number into the **Number of Copies** section of the dialog box. In the example illustrated we have chosen to print five copies.




- If you select a range of data, prior to opening the **Print** dialog box, then the **Selection** button will be active within the **Print What** group of the dialog box, allowing you to just print the selected range.




- If your workbook contains multiple worksheets and you want to print all the individual worksheets, click on the **Entire workbook** button.




- Investigate these options, but do not actually print anything, as you should always try and minimize wasted paper.

- Click **Cancel** to close the **Print** dialog box.

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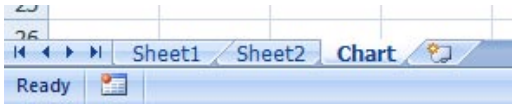
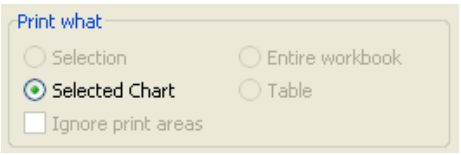
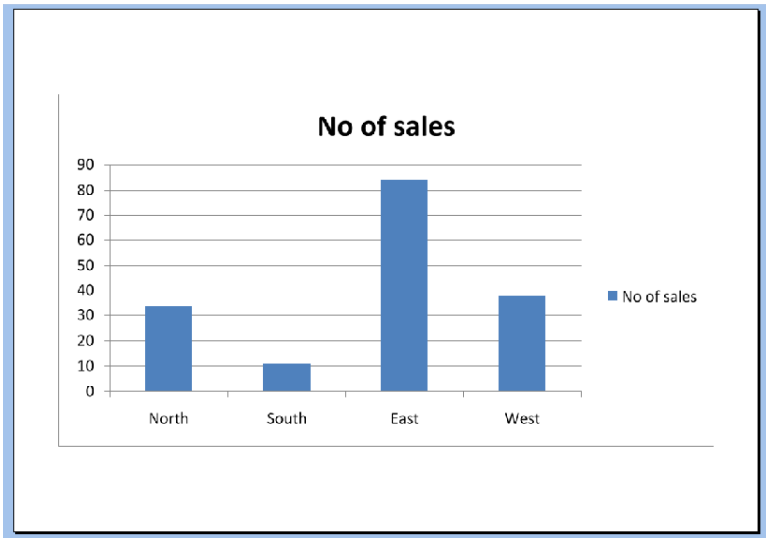
- Click on the **Chart** worksheet tab. This worksheet contains a chart.




- Click once on the chart to select it. Press **Ctrl+P** to display the **Print** dialog box. You should see that the **Selected Chart** button is selected. Click on the **OK** button to print the chart.




- The chart should print like this:




**TIP**: If you print a worksheet, which contains a chart, then the chart will be printed as displayed within the worksheet. You only need to use the method outlined above, if you want to print the chart on a separate page to your worksheet data.

- Close the workbook and save any changes you may have made.

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