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Office 2007

Excel

Getting Started

May 2011

CONTENTS

INTRODUCTION

This introductory level course is aimed at those who want to learn spreadsheet basics using Microsoft Excel.

Knowledge assumed

experience of using a computer, for example keyboard and mouse familiarity

experience of using Windows, for example familiarity with icons, loading software and opening files

Areas covered

worksheet structure

formatting cells

printing

using formulae and functions

multiple worksheets

formatting the worksheet

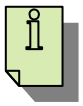
charts

Document signposts

Instructions for you to type

Bold text

Shortcuts



Reminders

Notes

Exercises

WHAT IS A SPREADSHEET?

A spreadsheet enables you to enter and store data in a series of rows and columns. Once the data is entered, you can perform numerical and statistical calculations and analyses.

A spreadsheet file contains one or more sheets called 'worksheets'. Excel uses the term 'workbook' to describe a spreadsheet file. A worksheet is the primary document that you use to store and work with data. Worksheets are always stored in a workbook.

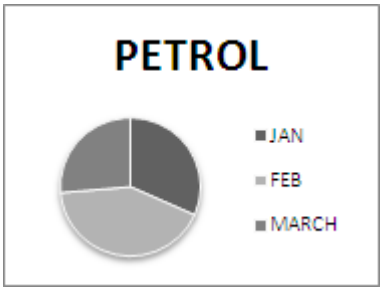
You can enter and edit data on several worksheets simultaneously and perform calculations based on data from more than one worksheet. When you create a chart, you can place the chart on the same worksheet as its related data, or on a separate chart sheet.

Worksheets can be used to present a wide variety of information such as budgets, petty cash records, stock control, and loan payments. As well as using the information to create charts, you can also export it into a Word report, a PowerPoint presentation, or an Access table, as well as emailing it directly using Outlook.

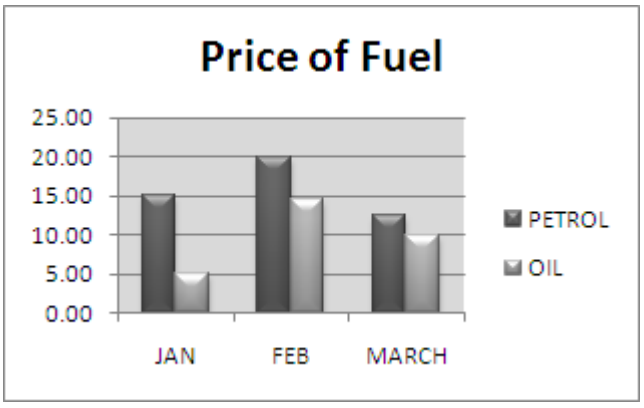
EXAMPLES OF OUTPUT

	A	B	C	D
1		JAN	FEB	MARCH
2	PETROL	15.00	20.00	12.50
3	OIL	5.00	14.50	10.00

A Worksheet



A Pie Chart



A Column Chart

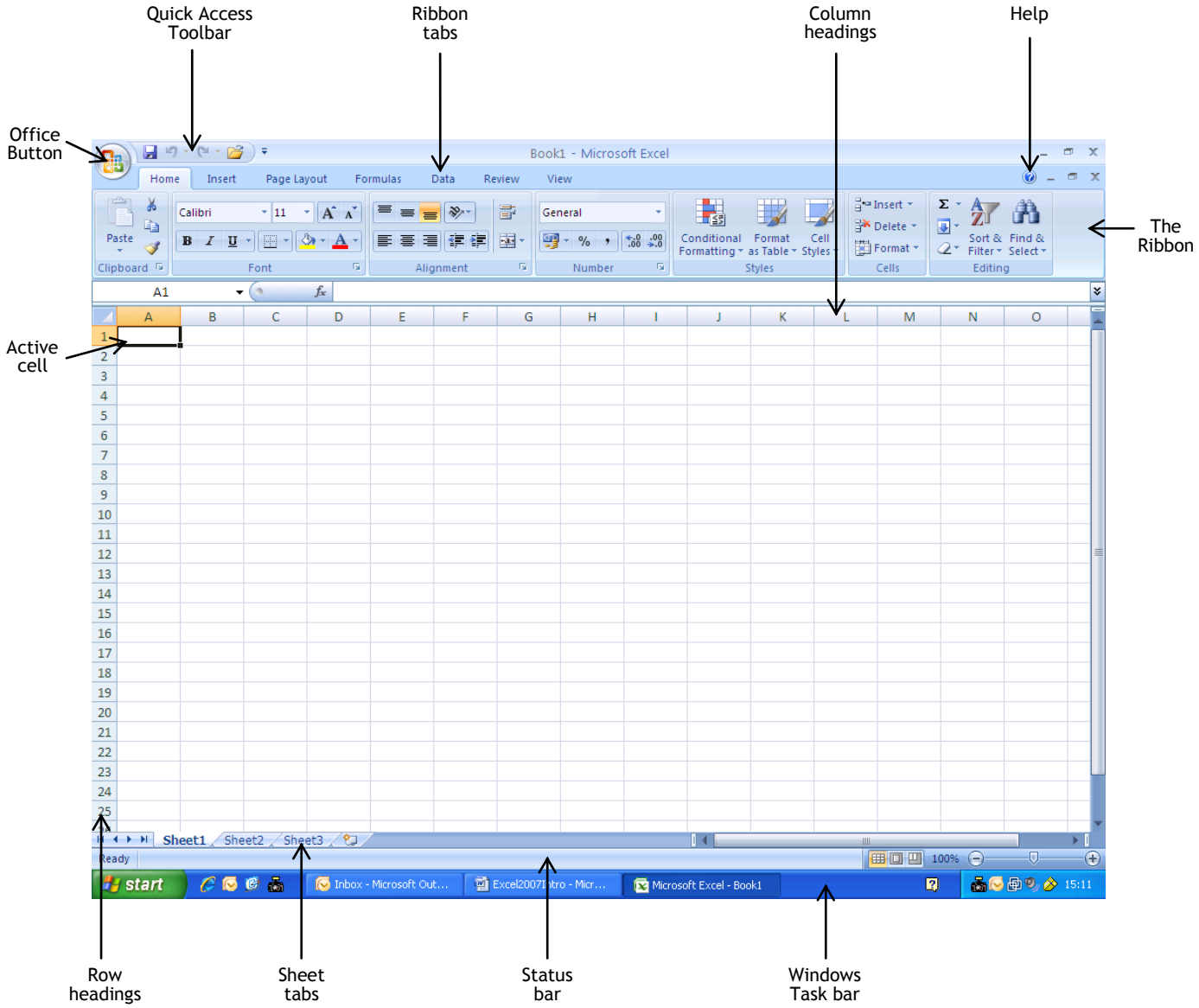
GETTING STARTED

- Double click the Microsoft Excel 2007 icon on the desktop

Or

- Click the **Start** button 
- All Programs
- Microsoft Office
- Microsoft Office Excel 2007

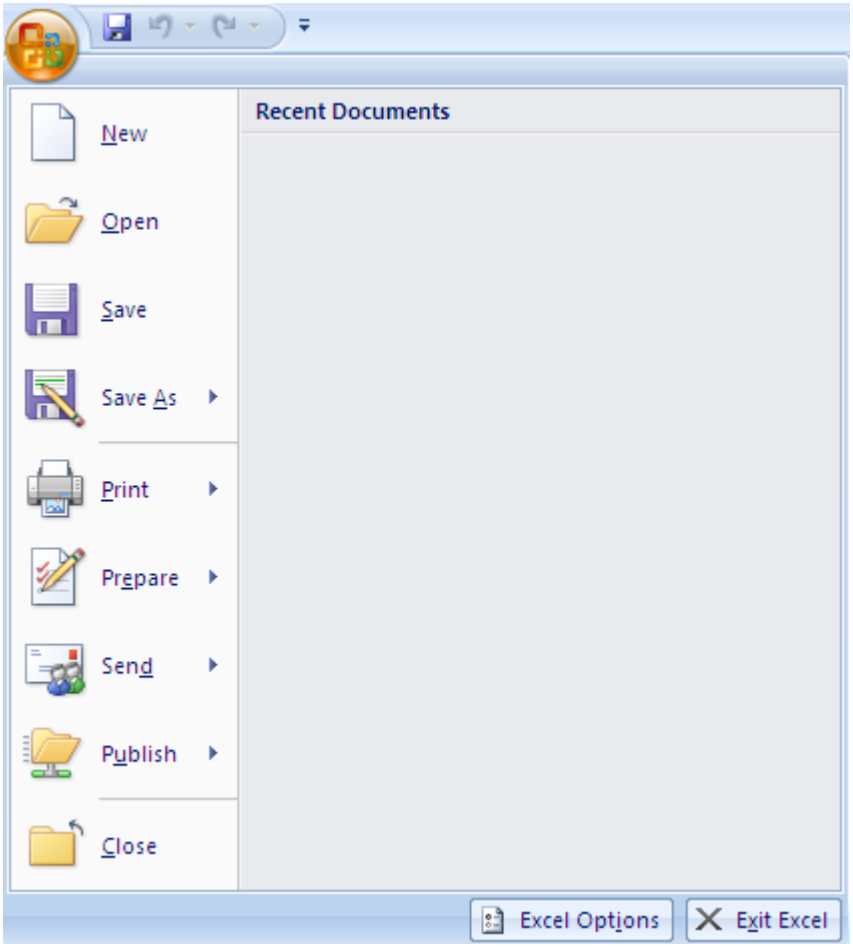
A blank worksheet is automatically opened ready for use.



THE OFFICE BUTTON

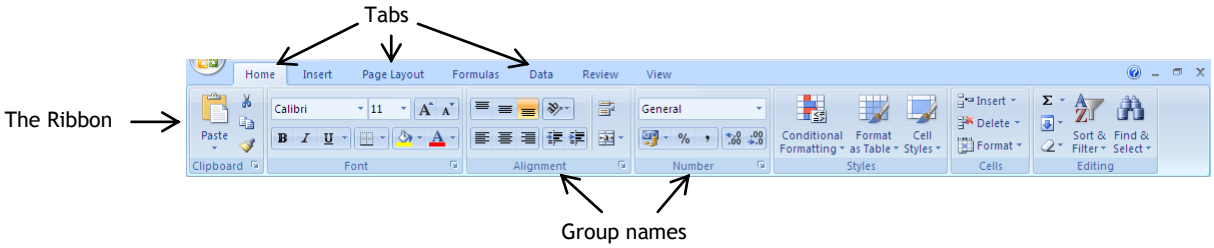
The Office Button is located in the top left corner of the application window.

When this button is selected it provides access to tools that allow you to perform general tasks with files, such as opening, saving and printing files. It also provides a quick access point for the most recent documents that you have worked on.



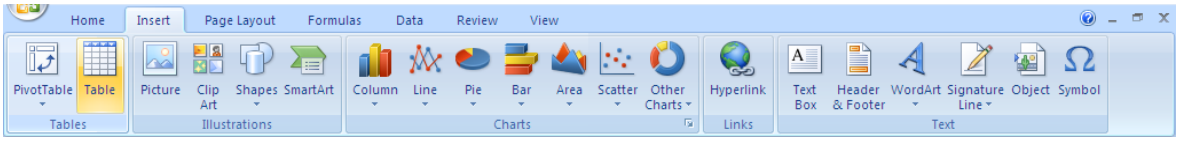
THE RIBBON

Excel's commands can be accessed through the various tabs and groups of buttons, menus and galleries on the Ribbon that is located at the top of the window.

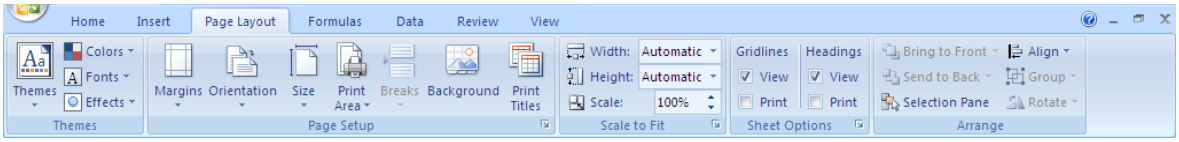


The **Home tab** is selected by default. This section of the ribbon was designed to have the commands that are likely to be used most frequently and includes commands for carrying out general formatting tasks.

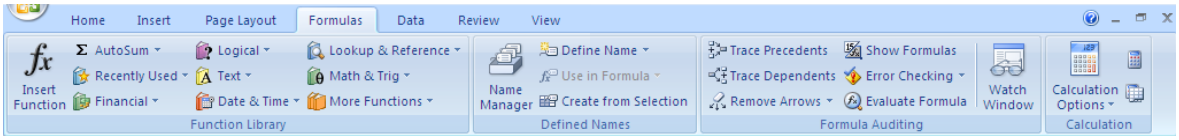
The **Insert tab** shows commands for working with tables, graphics, charts, and other objects that can be inserted into a worksheet.



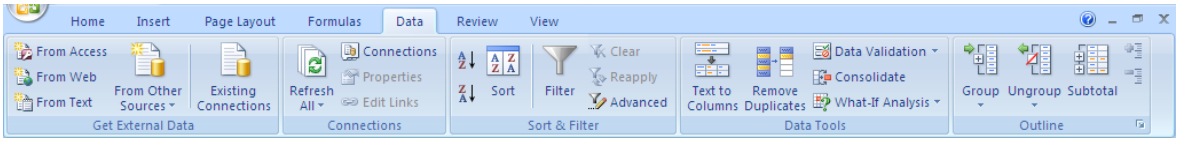
The **Page Layout tab** shows commands that enable you to set the paper size, margins and other aspects of layout and print settings.



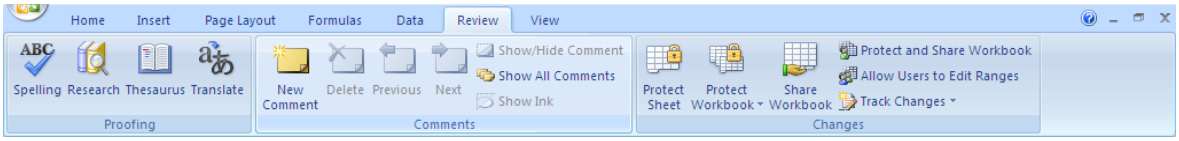
The **Formulas tab** displays groups of commands for working with functions and formulas.



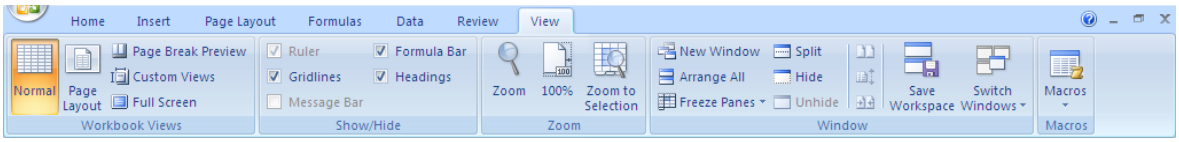
The **Data tab** shows commands for importing, sorting, filtering and analysing data.



The **Review tab** displays commands for working with comments, workbook security and also spellchecking and other proofing tools.

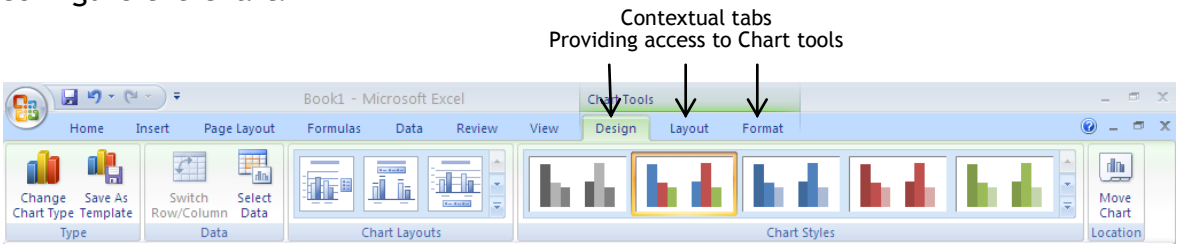


The **View tab** gives access to commands for setting and changing how the worksheet, workbook and window are viewed.



➢ Click on each of the tabs in turn, to see different sections of the Ribbon

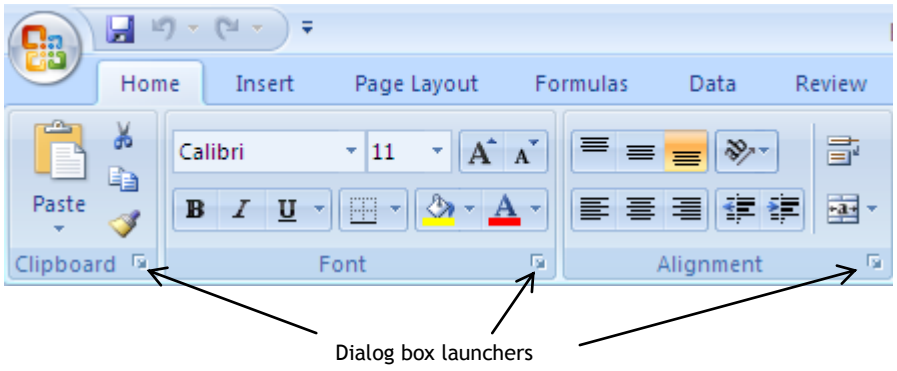
Apart from these seven tabs, other contextual tabs exist and appear when they are needed. For example, when a chart on a worksheet is selected, three additional tabs are shown. These provide access to commands that allow you to configure the chart.



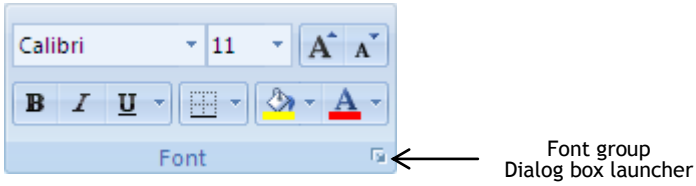
When the chart is no longer selected the chart contextual tabs are removed from the ribbon.

Some of the command groups have an arrow icon in the bottom right corner.  This is a Dialog Box Launcher and is used to open a dialog box or task pane that gives further options for that group.

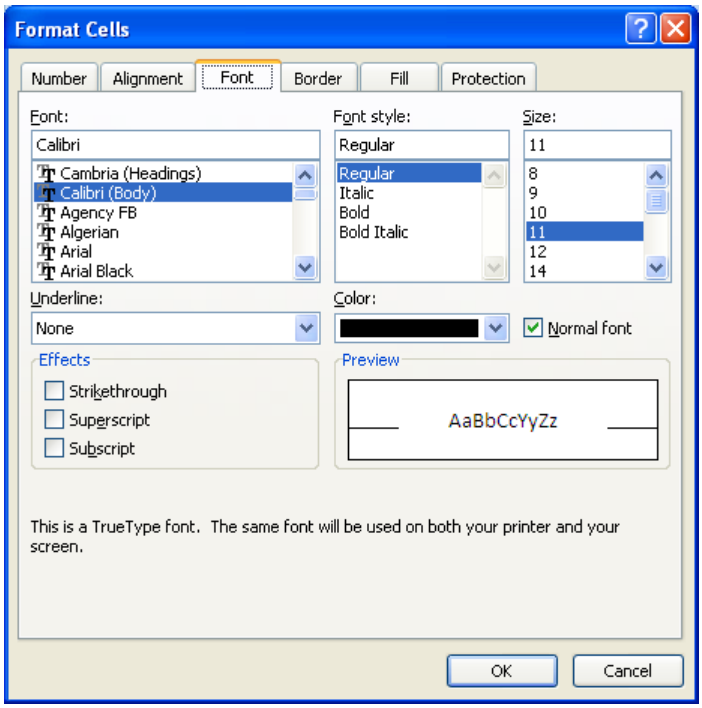
➢ Select the Home tab



➢ Click the dialog box launcher for the Font group



The Format Cells dialog box is displayed:



➢ Click Cancel to close the Format Cells dialog box

THE QUICK ACCESS TOOLBAR

The Quick Access toolbar  is located next to the Office Button.

There are just three buttons on the Quick Access Toolbar by default, but it can be customised to include some of the commands that you use frequently.

Any command on the Ribbon may be put onto the Quick Access Toolbar.

For example, to add the Paste command to the Quick Access Toolbar:

- Ensure that the Home tab is selected
- Click the right mouse button on the Paste command 

in the Clipboard group

A shortcut menu is displayed:

From the shortcut menu,

- Select **Add to Quick Access Toolbar**

The Paste command is now added to the Quick Access Toolbar.

To remove the Paste button from the Quick Access Toolbar:

On the Quick Access Toolbar,

- Click the right mouse button on the Paste button

A shortcut menu is displayed:

From the shortcut menu,

- Select **Remove from Quick Access Toolbar**

GETTING HELP

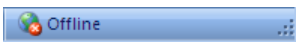
Whether or not you are connected to the internet, help files are available that can provide you with instruction, guidance and useful tips, or remind you of a particular procedure.

However, when connected to the internet you gain access to even more files that are part of Microsoft's Online Help system, stored on their servers.

➢ Click the help button in the top right corner of the window 

The Excel Help window is displayed

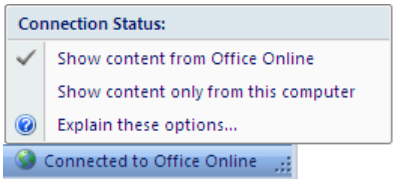
If you are connected to the internet, then Excel Help connects you to Online Help by default and the Connection Status button shows Connected to Office Online.

If you are connected to the internet but the Connection Status button shows Offline, 

to connect to the Online Help:

➢ Click the Connection Status button

The Connection Status Menu is displayed.



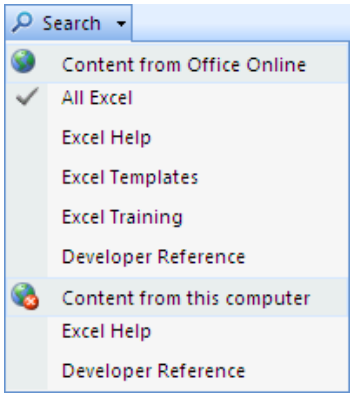
From the Connection Status Menu choose:

- **Show content from Office Online**

Help can now be accessed by either browsing through the Table of Contents, or using the Search facility to get help on a specific topic.

To search for help on creating charts in Excel,

- Key in **creating charts** in the Search text box
- Click the down arrow by the Search button



To ensure that all relevant files, including multimedia training files, are searched,

- Select **All Excel**
- Click the **Search** button
- Select one of the links from the list of search results

To browse through the help files for information about how to insert graphics in an Excel worksheet:

- Click the **Home** button  to return to the start page
- Select the **Working with graphics** link
- Follow other appropriate links to see how a picture or clipart can be put onto a worksheet
- Close the Help window

WORKSHEET STRUCTURE

The worksheet is divided into rows and columns, and the box formed by the intersection of a row and a column is called a cell.

ROW

A horizontal line of cells across the worksheet. Each row has a reference *number*.

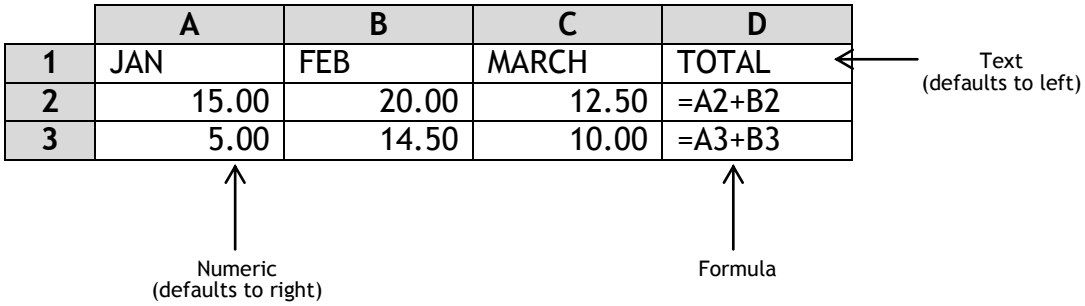
COLUMN

A vertical line of cells down the worksheet. Each column is referenced by a *letter*.

CELL

A single 'box' on the worksheet. Each cell has a *reference*.

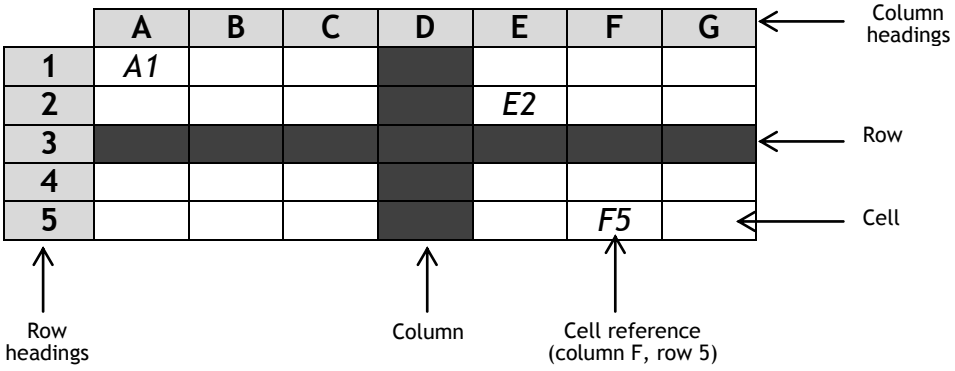
Amongst the types of data that may be entered in a cell are:



CELL REFERENCE

The cell reference consists of the column letter and the row number.

For example, **A1** is the reference for the cell in the top left corner of the worksheet.

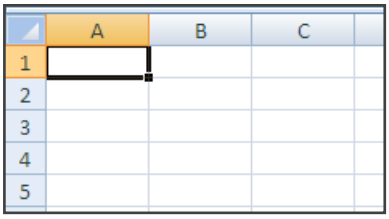


ENTERING DATA

You are going to create a worksheet to record the number of hours that staff in the Jumble Sales Corporation have worked and their wages.

- Look at the worksheet and notice that the active cell is highlighted

In a new worksheet this will be cell **A1**.



- To move to the next cell press the Tab key 

- To move around the rest of the worksheet you can either use the Arrow keys (←↑→↑) or click in the relevant cell using the left mouse button

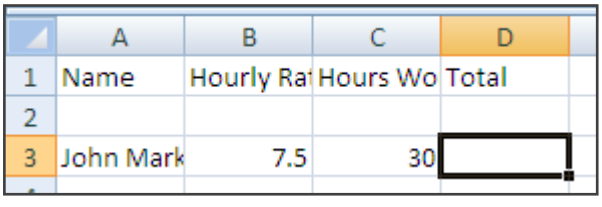
- Ensure that cell **A1** is the active cell

- Type the data below into the worksheet

(Don't worry that the columns are not wide enough to display all of the data – you will learn how to widen them shortly – just ensure that you enter the data in the correct cell).

	A	B	C	D
1	Name	Hourly Rate	Hours Worked	Total
2				
3	John Markshaw	7.5	30	

Your worksheet will look something like this:



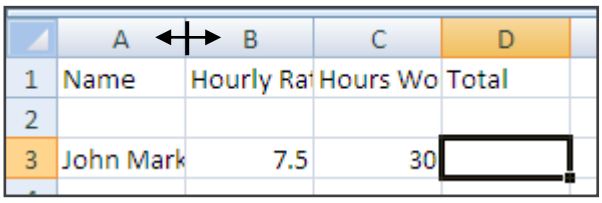
Notice that Excel recognises the values in the Hourly Rate and Hours Worked columns as numerical data and automatically right aligns them.

COLUMN WIDTH

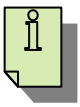
You will probably find it necessary to increase the width of some columns in the worksheet to enable the data in cells containing long words or values to be displayed fully. This can also be done to enhance the presentation of the worksheet.

To widen the **Name** column in your worksheet:

- Move the mouse pointer on to the boundary between column headings **A** and **B** until it changes into a black cross with a double arrow (column width indicator)



- Click and hold the left mouse button, and drag the mouse pointer to the right until the column is wide enough to display all of the data
- Release the mouse button
- Repeat this action for the **Hourly Rate** and **Hours Worked** columns



ADJUSTING THE COLUMN WIDTH TO BEST FIT

- Follow the instructions above until the mouse pointer changes to a black cross with a double arrow over the dividing line
- Double click the left mouse button

The cell will automatically widen to accommodate the longest line in the column. This action must be repeated when data containing more characters is added to the column.

- Continue the spreadsheet by entering the following data:

	A	B	C	D
1	Name	Hourly Rate	Hours Worked	Total
2				
3	John Markshaw	7.5	30	
4	Susan Jones	5.5	15	
5	Brenda Kent	7	25	
6	Nita Sonhil	8	37	
7	Roy Barker	15	37	
8	Tony Bare	10.75	10	
9	Penelope East	6.15	17	
10	Rupert Marks	10.75	35	
11	James Colins	8	20	
12	Sophie Doige	7.5	37	
13	Mike Burns	6.50	17	
14	Jasbir Bonsal	7.5	10	
15	Marie Kaur	5.5	12	

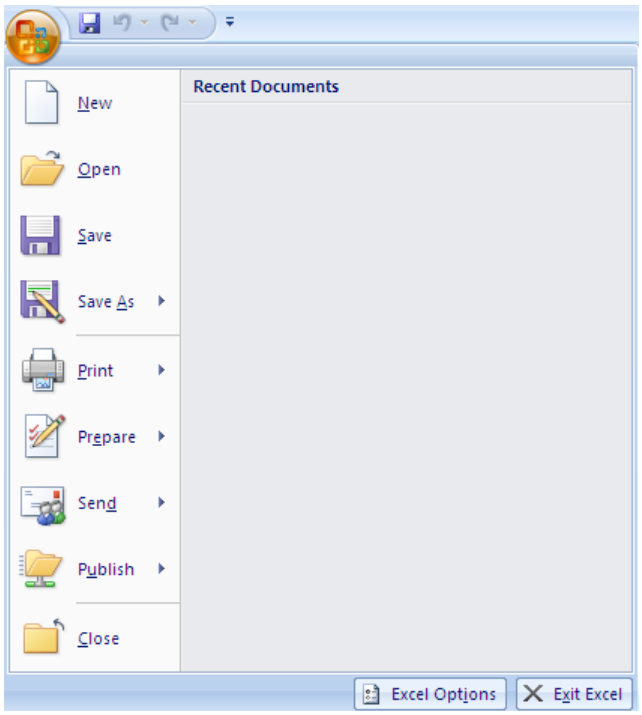
- Ensure that the columns are wide enough to display all of the data

SAVING A WORKBOOK

It is very important that you remember to save your workbook regularly.

You have entered data into a worksheet which is part of a workbook.

- Click the Office Button



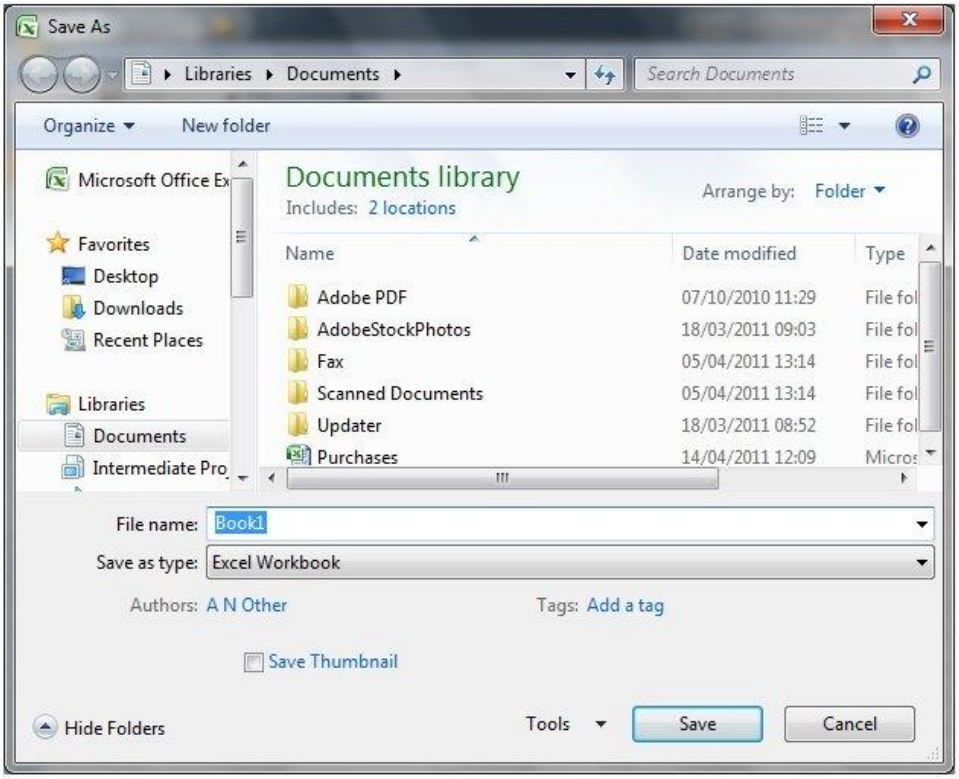
From the list of the Office Button commands choose:

- Save 

Or

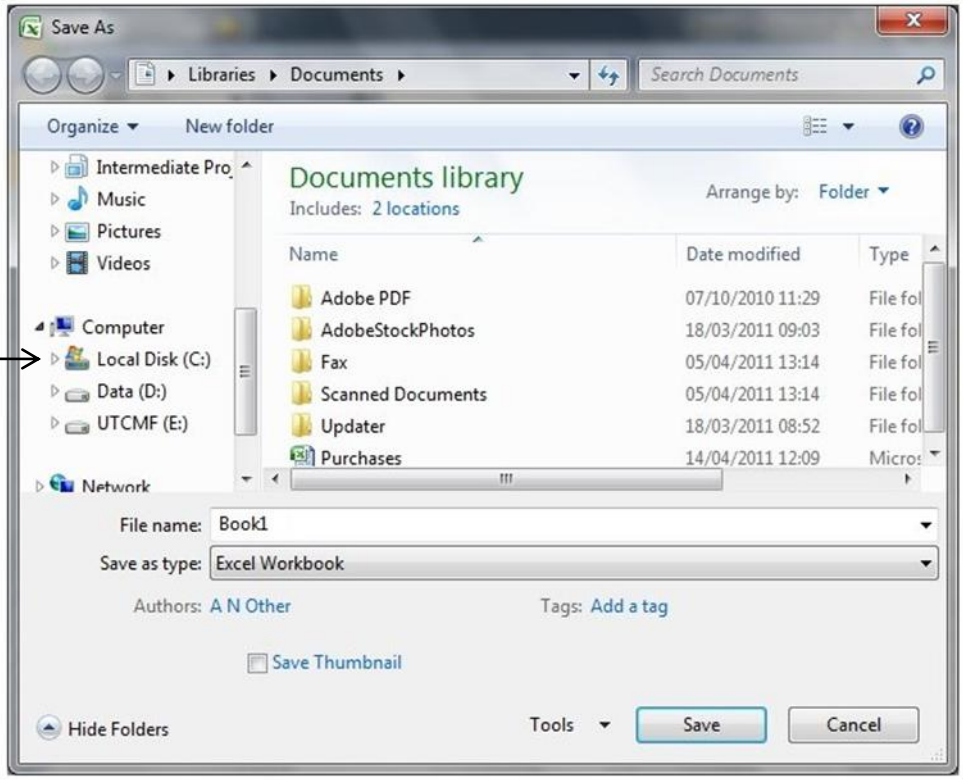
- Select the Save button  on the Quick Access Toolbar

The Save As dialog box is displayed.

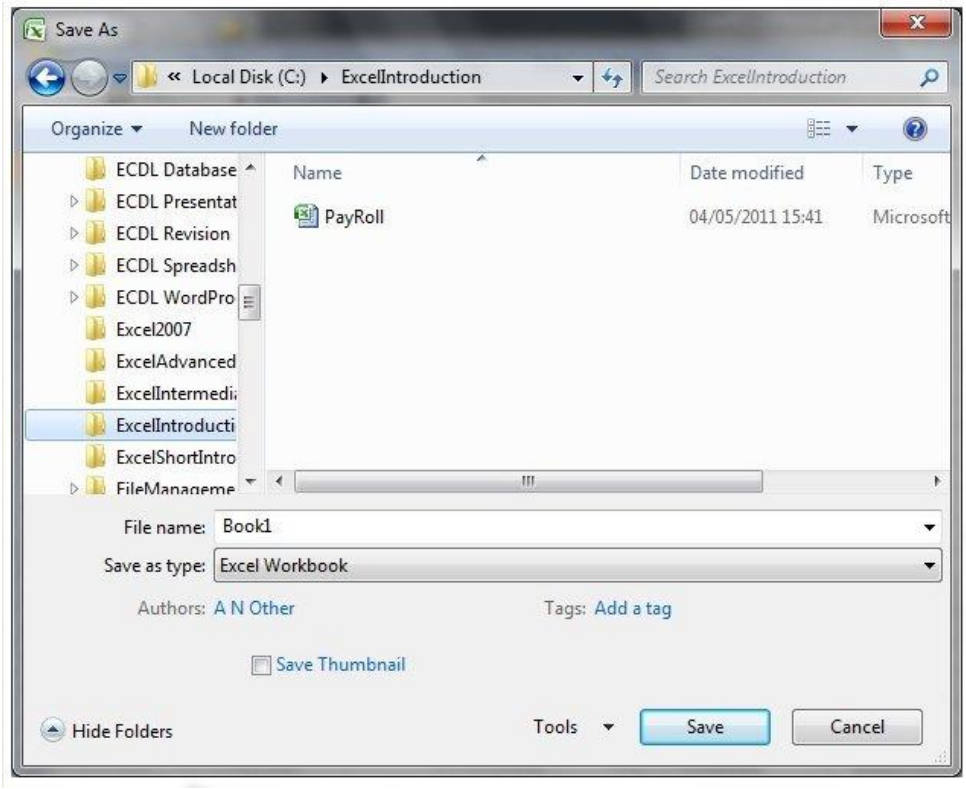


- Scroll down the list in the left hand (navigation) pane to locate **Computer**

Click the arrow next to Local Disk (C:) to display the folders



- Locate and select the **ExcelIntroduction** folder on drive C



- In the File name box, replace the default filename (Book1) with **Pay1**

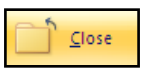
- Click the Save button

Excel automatically adds the file extension .xlsx to the filename.

To close the workbook:

- Click the Office Button

From the list of the Office Button commands choose:

- Close 

OPENING A WORKBOOK

You will now open the workbook **Pay1.xlsx** that you saved in the **ExcelIntroduction** folder on drive **C**.

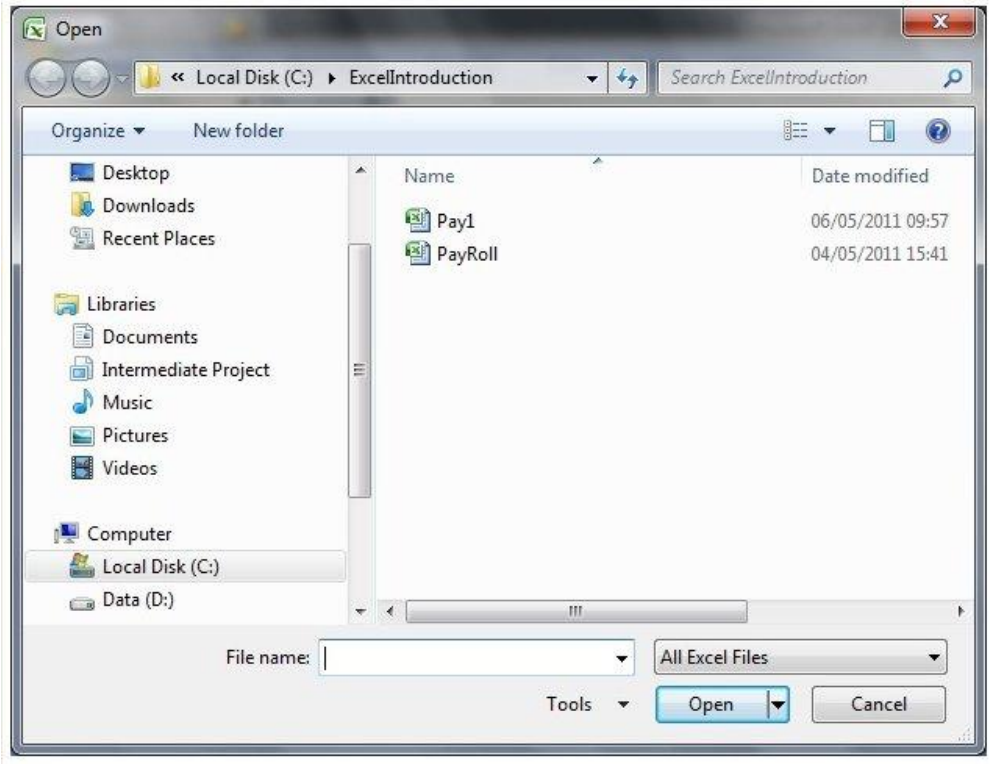
- Click the Office Button

From the list of Office Button commands choose:

- Open 

The Open dialog box is displayed.

- Locate and open the **ExcelIntroduction** folder on drive C



- Select **Pay1**
- Click **Open**

The Pay1 workbook is now open and ready for further editing.

EDITING DATA

SELECTING CELLS

- To select a single cell simply point to it and click the left mouse button
- To select a range of cells, point to a cell, click and hold the left mouse button, and drag the pointer over the cells

INSERTION POINT SHAPES

 indicates **SELECT**

 indicates **EDIT**

 indicates **COPY**

 indicates **MOVE**

EDITING A CELL

If you spot an error in your worksheet it is possible to edit it in one of two ways:

Amending the error by typing in the cell:

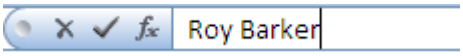
- Double click on cell **A7**

The insertion point is now inside the cell.

- Change 'Barker' to Barber'
- Click away from the cell

Amending the error by typing in the Formula Bar:

- Click once on cell **A7**
- Click on the Formula Bar



- Change 'Barber' to 'Barker'
- Click away from the cell

INSERTING AND DELETING COLUMNS AND ROWS

You may find that the need arises to insert a column or row into an existing worksheet.

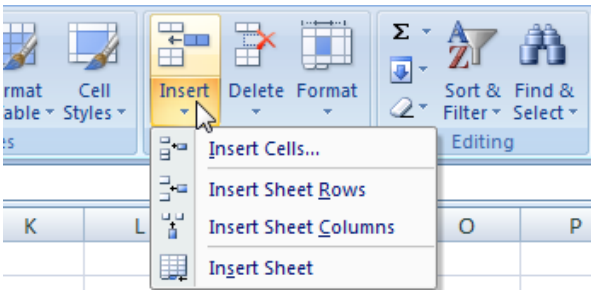
INSERTING A ROW OR COLUMN

A new column or a row is inserted **before** the column or row where the insertion point is positioned.

- Position the insertion point anywhere in row 9 – the row containing Penelope East's details

In the Cells group of commands on the Home tab,

- Click the **Insert** down arrow



From the displayed list of Insert commands,

- Choose **Insert Sheet Rows**

The new row is inserted above row 9, and the rows below move down.

IMPORTANT TO REMEMBER

When you insert a row, it will be positioned directly before the row containing the active cell.

For example, if you want to insert a row between rows 6 and 7, the mouse pointer must be in row 7.

Similarly, if you want to insert a column between columns D and E, the mouse pointer must be positioned in column E.

DELETING A ROW OR COLUMN

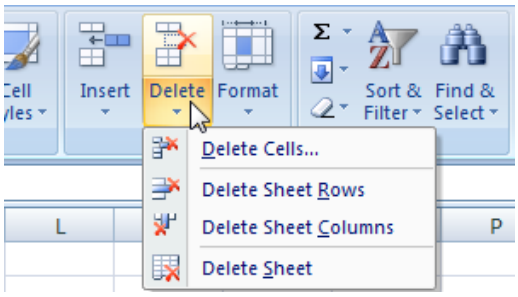
To delete a row (or column), you must first select any cell in the row (or column).

You will delete row 5.

- Select any cell in row 5

In the Cells group of commands on the Home tab,

- Click the **Delete** down arrow



- Select **Delete Sheet Rows**

Row 5 is deleted.

- **Sophie Doige** has changed from full-time to part-time employment. Amend her hours worked to 20
- **Marie Kaur** has been given a pay rise – change her hourly rate to 7.5
- In the new row between **Tony Bare** and **Penelope East** add the following information about a new member of staff:

(Name)	(Hourly Rate)	(Hours Worked)	(Total)
Belinda Miles	**8**	**25**	

- Save the workbook

FORMULAS

Formulas are what make a spreadsheet so useful. Using formulas lets you calculate results from the data stored in the worksheet.

When you create a formula, you use cell references to identify the data to be included in the calculation. By using cell references, rather than the values themselves, you ensure that any changes to the values in the cells referenced by the formulas automatically result in an updated answer.

A formula always commences with an equals sign (=) to indicate that what follows is an instruction, not a value.

EXAMPLES OF FORMULAS

In the example worksheet below, cells D2 and D3 both contain formulas to add the respective cells in columns B and C.

	A	B	C	D
1		JAN	FEB	TOTAL
2	PETROL	15.00	20.00	=15.00+20.00
3	OIL	5.00	14.50	=B3+C3

- Look at cell D2

The intention of this formula is to add together the values in cells B2 and C2 (15 plus 20). If the value in either cell changes, the formula will not take this into account and you will need to remember to alter the values in D2, otherwise the resulting figure will no longer be correct. This formula, therefore, is not very useful.

- Look at cell D3

The formula specifies the cell references (B3 and C3) rather than the current values of these cells. If you change the values in either or both cells, there is no need to worry about the formula in D3. Because the formula uses cell references, the resulting figure will be updated automatically.

ARITHMETIC OPERATORS

When creating formulas the following arithmetic operators are used:

Operator	Example
+ (plus sign)	Addition (3+3)
- (minus sign)	Subtraction (3-1)
	Negation (-1)
* (asterisk)	Multiplication (3*3)
/ (forward slash)	Division (3/3)
% (percent sign)	Percent (20%)
^ (caret)	Exponentiation (3^2)

ADDITION

For example, say cell B5 contained the value 9 and cell B6 contained the value 11. If you wanted to add these values together, then, in an empty cell, you would enter the formula:

=B5+B6

The cell references indicate where the values that are to be used in the calculation are located. The result of the above formula would be 20 (9+11).

After you have created a formula, any changes to the cells in the formula, automatically result in an updated answer.

So if, in this case, the value in cell B5 was altered to 7, then the answer in the cell containing the formula would automatically change to 18 (7+11).

MULTIPLICATION

You can, of course, multiply a value in a cell.

For example, say you wanted to multiply the value in cell B6 by 12, the formula you would enter into an empty cell would be:

=B6*12

If cell B6 contains the value 11, then the result would be 132.

Notice that an asterisk is used to indicate multiplication.

Amend the worksheet

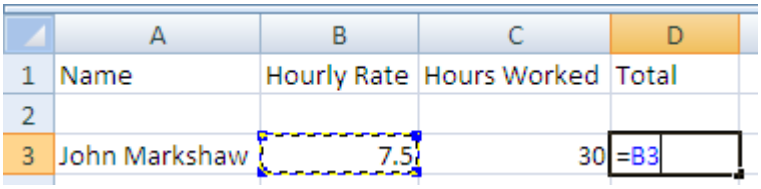
In cell D3 you are going to enter the formula to calculate the Total for John Markshaw (Hourly Rate * Hours Worked)

- Type =

While you can type the cell reference (for example B3) it is easier to point to the cell you require.

- Point to cell **B3** and click the mouse button

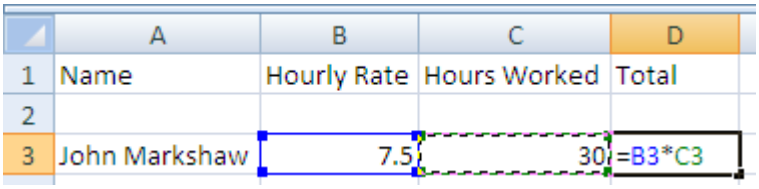
The cell is highlighted and its reference is added to the formula in D3.



- Type ***

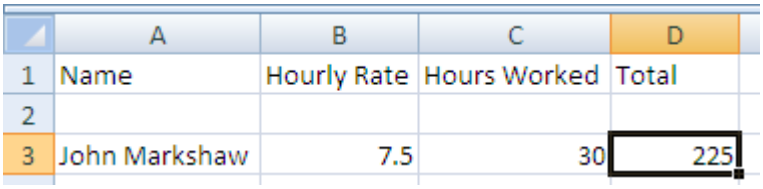
- Point to cell **C3** and click

The cell is highlighted and its reference is added to the formula in D3.



- Press **Enter**

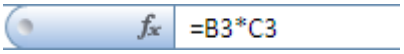
The following result is displayed:



FORMULA BAR

As well as entering or editing a formula in a cell, you can also use the Formula bar. This is particularly useful for editing.

- Click on the cell **D3**
- Look at the Formula bar



The formula is displayed and you can edit it, if necessary.

COPYING DATA

You can copy the contents of one cell, or a range of cells, from one part of the worksheet to another. This works in different ways depending on the contents of the cell that you are copying.

COPYING A VALUE

For example, say you have a worksheet in which the cell A1 has a value of 10. If you copy cell A1 to cells A2 to A4, each of those cells will also display the value 10.

	A
1	10
2	10
3	10
4	10

COPYING A FORMULA

If you are copying a formula (remember that you usually see the result of the formula rather than the formula itself), the cell references change automatically *relative* to the row and column of the cell it is being copied to.

In the example below the formula in cell D3 has been copied to cells D4 to D6.

Rather than simply copying the formula =B3*C3 to each cell, Excel has automatically amended the formula for each row to take into account its relative position in the worksheet.

B	C	D
Hourly Rate	Hours Worked	Total
7.5	30	=B3*C3
5.5	15	=B4*C4
8	37	=B5*C5
15	37	=B6*C6

Notation:

D4:D6 is the notation that is usually used to mean the range of cells from D4 through to D6.

You now need to calculate the Total for the remaining employees.

Rather than create a formula for each one, you can copy the formula entered for John Markshaw into the remaining cells in the Total column.

- Click on cell **D3**
- Notice that a small black square is displayed in the bottom right corner of the cell

- Move the pointer over the square until it changes to a cross **+**

You want to copy the formula in D3 to cells D4:D15.

- Click the left mouse button and hold and drag the mouse pointer over the range **D4 to D15**

The selected area is highlighted.

- Release the mouse button

Column D now looks like this:

225
82.5
296
555
107.5
200
104.55
376.25
160
150
110.5
75
90

- Save the worksheet

FORMULA HIERARCHY

Formulas calculate values in a specific order. As you already know, a formula in Excel always begins with an equals sign (=). Following the equals sign are the elements to be calculated which are separated by operators (+, -, *, / etc). Excel calculates the formula from left to right, according to a specific order for each operator in the formula.

In the example below, values have been used rather than cell references to help you understand the concept.

Say you entered the following formula into a worksheet:

=2+2*6

You might expect the answer to be 24.

After all, 2 plus 2 equals 4, and 4 multiplied by 6 equals 24.

Try this for yourself now

- In cell G20 type **=2+2*6**
- Press **Enter**

You might be surprised at the resulting answer of 14.

If you combine several operators in a single formula, Excel performs the operations in the following order:

* and /	Multiplication and division
+ and -	Addition and subtraction

As the above formula combines two operators (+ and *), Excel deals with the multiplication first (2 * 6 = 12) and then the addition (+ 2) giving a total of 14.

PARENTHESES

To change the order of evaluation (to override the built-in order of precedence), you use parentheses.

You will enter the same formula again, but this time enclosing the first part in parentheses.

- In cell G21 type **=(2+2)*6**

- Press **Enter**

The answer is **24**.

Excel dealt with the calculation in the parentheses first and then multiplied the result. You can appreciate, therefore, how important it is that you understand how Excel deals with the elements in a formula.

Try these formulas

You want to add the contents of two cells and multiply the answer by the sum of two other cells.

- In cell **G22** enter the formula **=B4+C8*B3+C12**
- Press **Enter**

Remember that Excel will deal with the multiplication first, followed by the addition.

Now try the same formula, but this time using parentheses to instruct Excel to deal with the calculation in the way that you intended.

- In cell **G23** enter the formula **=(B4+C8)*(B3+C12)**
- Press **Enter**

The result of the first formula is 213, while the same formula with parentheses has produced the answer 838.75.

- To take this a step further, in cell **G24** enter the formula **=((6+2)-4)*8**
- Press **Enter**

This formula uses 'nested' parentheses. The contents of the inner parentheses are calculated first, then the outer parentheses, and finally what's left! The answer is 32.

- Remove the parentheses and press **Enter**

The result is now -24.

- Delete the figures in cells G20:G24

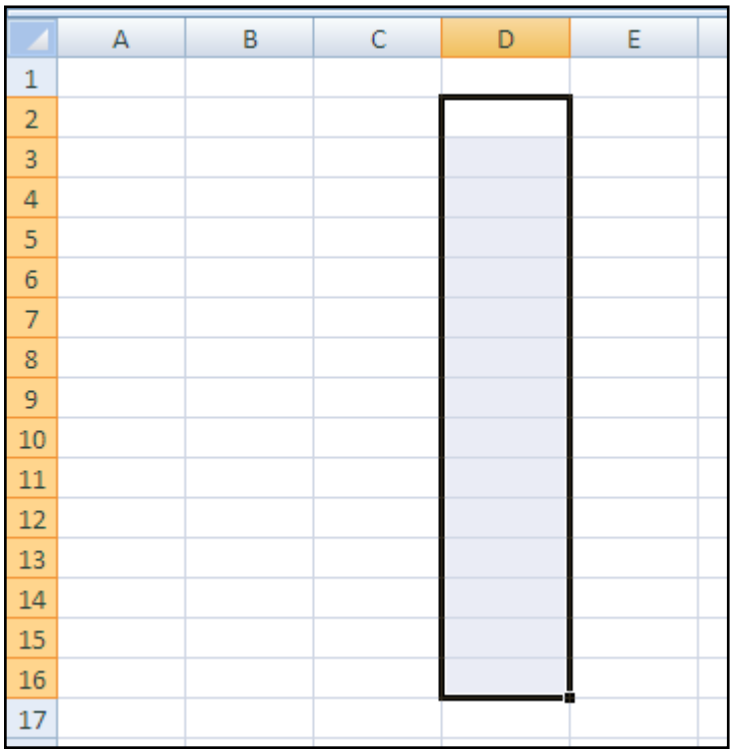
FUNCTIONS

Functions are predefined formulas that perform calculations by using specific values in a particular order or structure. Functions can be used to perform simple or complex calculations.

The most frequently used functions are those which calculate:

- the total of a range of cells **SUM**
- the minimum value of a range of cells **MIN**
- the maximum value of a range of cells **MAX**
- the average value of a range of cells **AVERAGE**

For example, a range of cells could begin at D2 and end at D16. In this case you would express the range as D2:D16 – the colon in this situation can be interpreted as the word "to". So D2:D16 means D2 to D16.



It is much easier to use a function than to enter a lengthy formula.

For example, to add the range of cells above without using a function your formula would look like this:

=D2+D3+D4+D5+D6+D7+D8+D9+D10+D11+D12+D13+D14+D15+D16

However, by using the SUM function the formula is reduced to:

=SUM(D2:D16)

You can enter functions into your worksheet in three different ways:

- using the AutoSum function button on the Ribbon
- using the Insert Function button
- typing the function

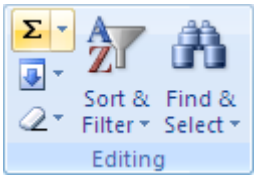
AUTOSUM BUTTON

The AutoSum button creates a SUM formula.

You are required to add up all the figures in the Total column to calculate the company's monthly salary expenditure.

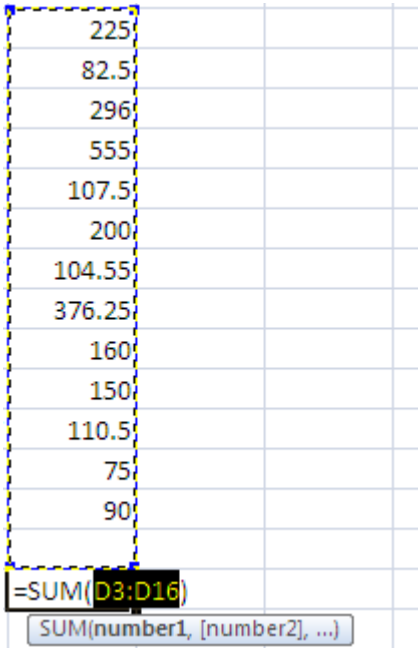
➢ Select the cell in which the total is to appear – in this case D17

➢ Click the AutoSum button 



The AutoSum button is on the Ribbon.
It is in the Editing group on the Home tab.

Excel automatically selects a range for you (indicated by a dashed box around the cells).



You should always check to ensure that the range that is selected is correct – do not assume that Excel has got it right!

➢ If this range is correct (it should cover all of the figures in column D) press Enter

The result of the calculation is displayed in the selected cell.

If the range is not correct then you can either:

- Highlight the required range using the mouse pointer and then press **Enter**

or

- Click into the Formula Bar and type the relevant range before pressing **Enter**

If a cell in your worksheet displays #########, don't panic.

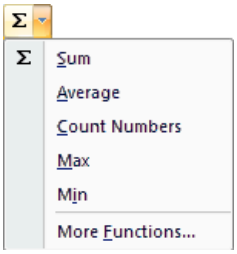
This indicates that the cell is not wide enough to display the result of your calculation.

To solve the problem simply increase the cell width.

- Click on an empty cell

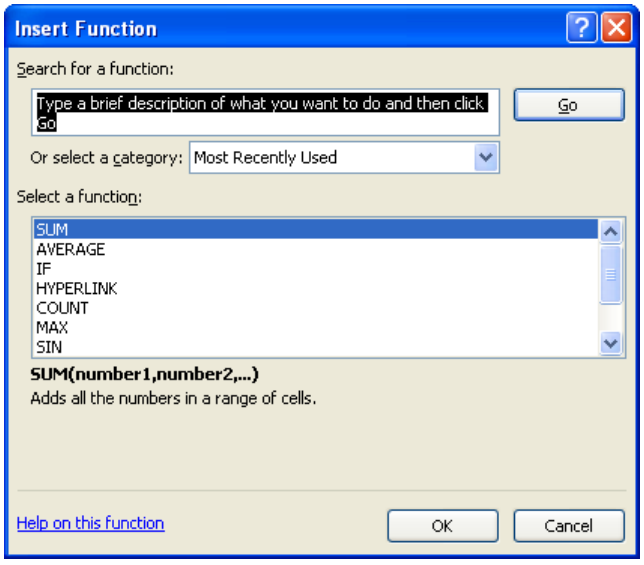
Other functions are available via the AutoSum button.

- Click the down arrow next to the AutoSum button



- Select **More Functions**

The Insert Function dialog box is displayed.



This dialog box gives you access to all of the functions.

- Click **Cancel**

INSERT FUNCTION

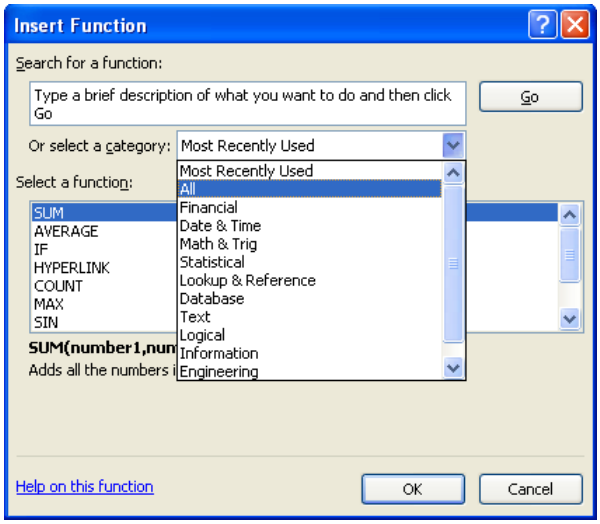
Another way to access the Insert Function dialog box is to use the Insert Function button on the Formula Bar.

For this part of the exercise you will calculate the average number of hours that staff work.

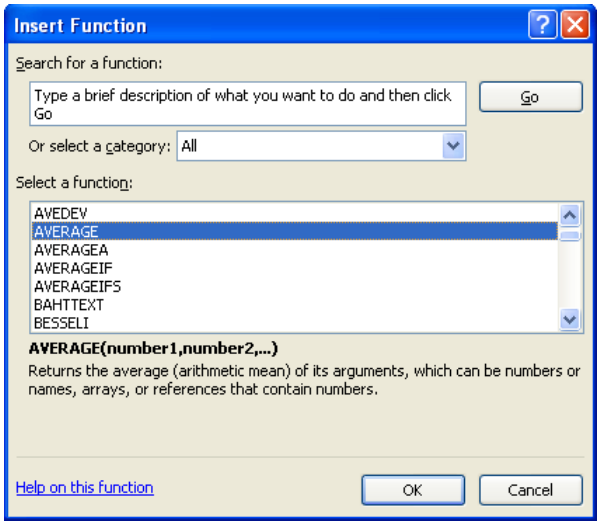
- In cell A18, type **AVERAGE**
- Click on cell C18 (this is where the result is to be displayed)
- Click the button

The Insert Function dialog box is displayed.

- Click the drop-down arrow in the **Or select a category** box and select **All**



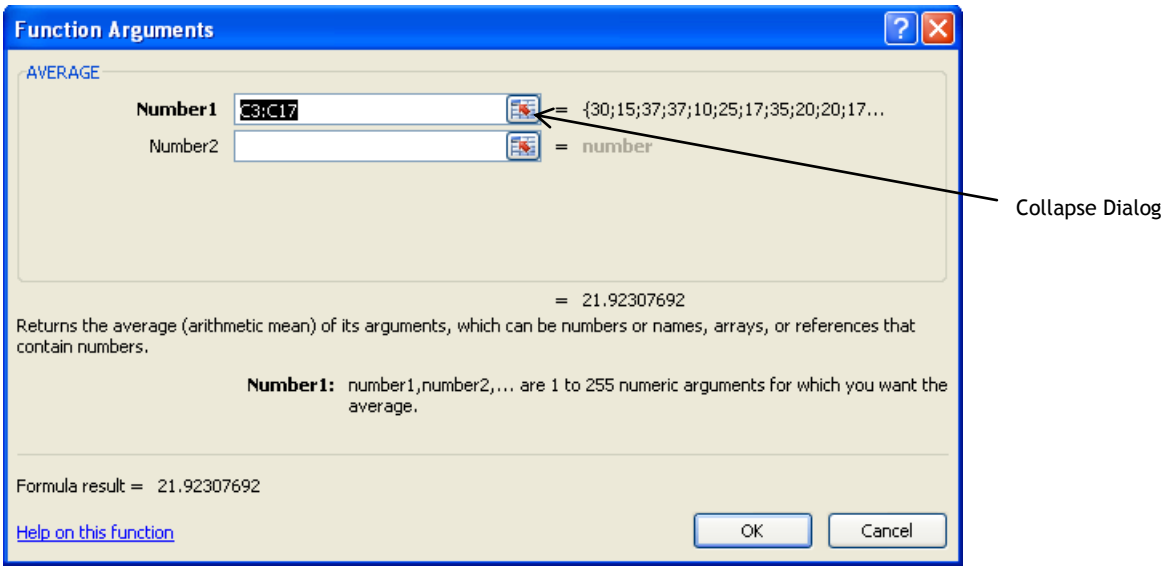
- In the Select a function window use the scroll bar to locate **AVERAGE**



➢ Click **OK**

The Function Arguments dialog box is displayed, and Excel has automatically selected a range of cells.

The selected range includes two empty cells, C16 and C17.



While this will not cause an immediate problem, you should be aware that if you subsequently add data to the empty cells, it may introduce an error in the formula in cell C18 at a later stage.

You need, therefore, to amend the selected range to exclude C16 and C17.

➢ Click the **Collapse Dialog** button to the right of the **Number 1** box

This minimises the dialog box so that you can use the mouse pointer to select the correct range – particularly useful where you have a lot of data in a worksheet.

➢ Select cell **C3** and drag the selection down to cell **C15**

➢ Click the button to expand the dialog box again

➢ Click **OK**

The result is displayed in cell C18. (Depending on the format of the cell, the answer could have multiple decimal places.)

You can also, of course, simply click into the Number 1 box in the Function Arguments dialog box and edit the range.

TYPING A FUNCTION

If you know the function name then, rather than using either of the previous two methods, you can type the function in the cell where you want the answer to appear.

With this method, if you want to sum cells A2 to A5, you would type:

=SUM(A2:A5)

IMPORTANT TO REMEMBER

The SUM function is used only to find the total value of a range of cells.

Example

=SUM(B5*F5)	✗ **WRONG**	(it is not used to multiply values)
=B5*F5	✓ **CORRECT**	

You can combine functions with other operations.

Examples

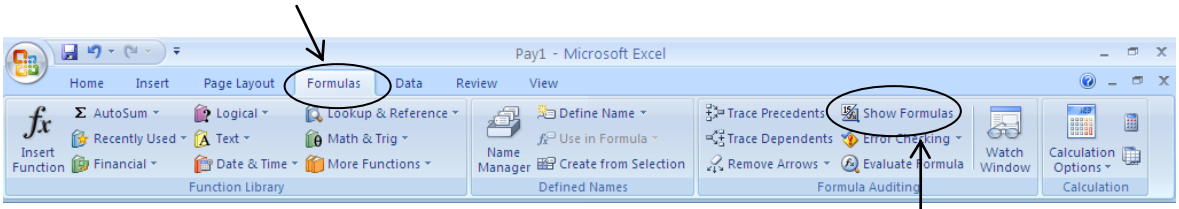
=SUM(B5:F5)+A2
=A8/F20-SUM(J2:J35)

- In cell **A17**, type **TOTAL**
- In cell **C17** use the **SUM** function to total the Hours Worked column
- In cell **A20**, type **Maximum Salary**
- In cell **A21**, type **Minimum Salary**
- In cell **D20** use the **MAX** function to calculate the Maximum salary from the Total column, ensuring that you specify the correct range
- In cell **D21** use the **MIN** function to calculate the Minimum salary from the Total column, again ensuring that the range is correct
- Save the worksheet

DISPLAYING FORMULAS

When you select a cell, you can see the formula (if there is one) displayed in the Formula Bar. It is also possible to view the formulas used in the entire worksheet.

➢ Select the **Formulas** tab



From the **Formula Auditing** group choose:

➢ **Show Formulas**

The formulas used in the worksheet are displayed.

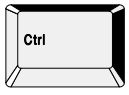
	A	B	C	D	E
1	Name	Hourly Rate	Hours Worked	Total	
2					
3	John Markshaw	7.5	30	=B3*C3	
4	Susan Jones	5.5	15	=B4*C4	
5	Nita Sonhil	8	37	=B5*C5	
6	Roy Barker	15	37	=B6*C6	
7	Tony Bare	10.75	10	=B7*C7	
8	Belinda Miles	8	25	=B8*C8	
9	Penelope East	6.15	17	=B9*C9	
10	Rupert Marks	10.75	35	=B10*C10	
11	James Colins	8	20	=B11*C11	
12	Sophie Doige	7.5	20	=B12*C12	
13	Mike Burns	6.5	17	=B13*C13	
14	Jasbir Bonsal	7.5	10	=B14*C14	
15	Marie Kaur	7.5	12	=B15*C15	
16					
17	TOTAL		=SUM(C3:C15)	=SUM(D3:D16)	
18	AVERAGE		=AVERAGE(C3:C15)		
19					
20	Maximum Salary			=MAX(D3:D15)	
21	Minimum Salary			=MIN(D3:D15)	

DISPLAYING VALUES

To return the display to values rather than formulas

➢ Click the **Show Formulas** button to deselect it

To display/hide formulas

Press and hold the 

key and press the  key at the top left of the keyboard.

FORMATTING VALUES

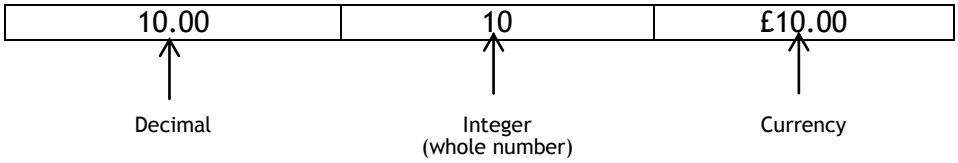
When you enter a value into a cell, it will normally be unformatted – in other words, simply a string of numbers.

You can format the numbers to make them easier to read and also to ensure consistency, particularly with regard to the number of decimal places displayed.

IMPORTANT TO REMEMBER

Formatting a value simply affects how it is displayed in the worksheet – the formatting is not saved with the value.

There are several ways in which numeric data can be displayed in a worksheet:

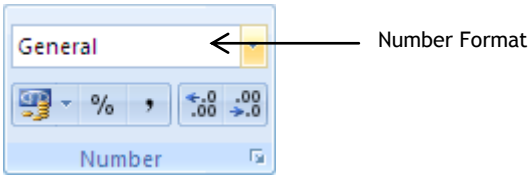


Before you can choose a different format you must ensure that you have highlighted the appropriate cells/columns that you want to change.

DISPLAYING NUMBERS AS DECIMALS OR INTEGERS

- Select the values in the **Hours Worked** column (C3 to C18)
- Select the **Home** tab

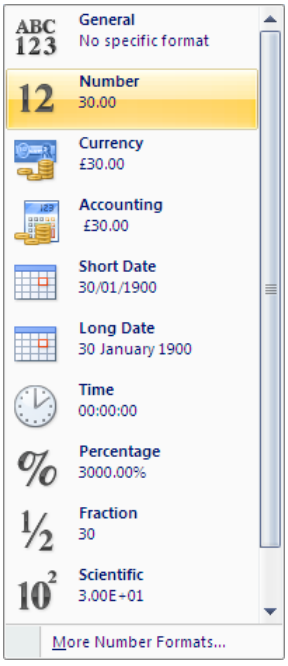
The current Number Format of the selected cells is displayed within the **Number** group of commands.



The default format is **General**

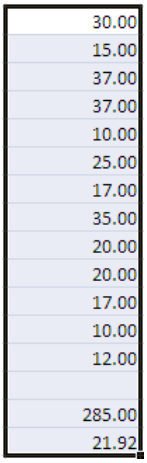
- Click the down arrow next to the Number Format

A list of different number formats is displayed.

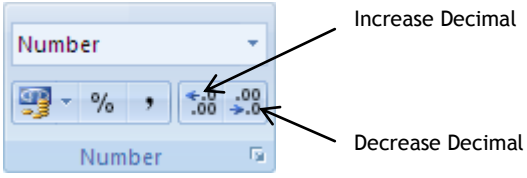


- Select Number

Each value in the selected cells is now formatted as a number with 2 decimal places.



The number of decimal places can be changed using the **Increase Decimal** and **Decrease Decimal** buttons in the Number group.

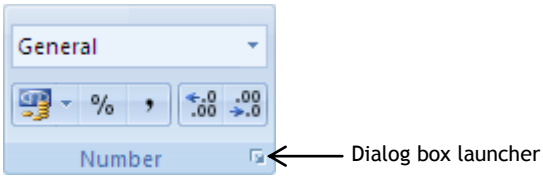


- With the cells in column C still highlighted, click the **Increase Decimal** button once to change the number of decimal places to **3**

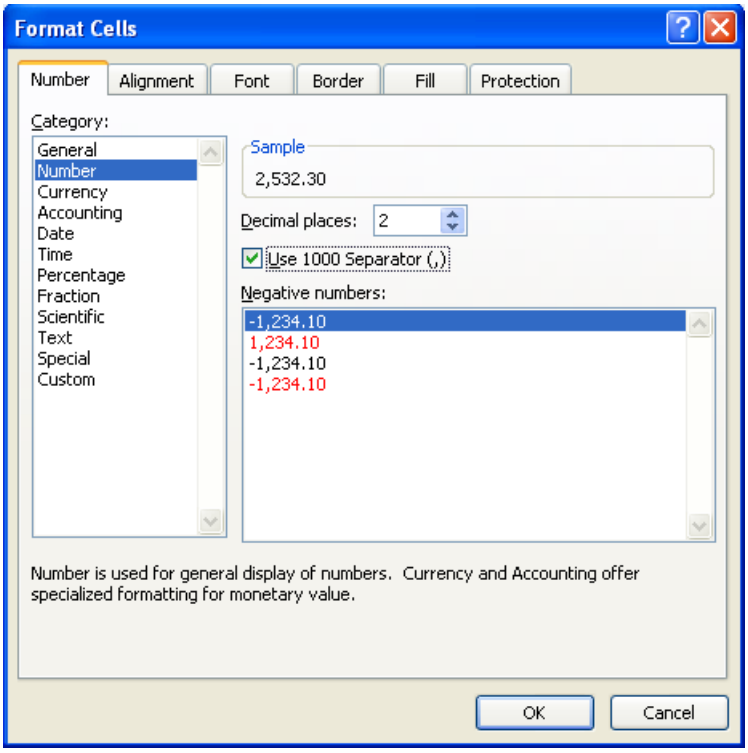
Displaying the thousand separator

The number format also gives you the option to include commas. This makes it easier to read large numbers.

- Select **D17**
- Click the dialog box launcher in the Number group of commands



The **Format Cells** dialog box is displayed with the **Number** tab selected.



- Select **Number** from the Category list
- Click the **Use 1000 Separator** check box
- Click **OK**

D17 now includes the 1000 separator.

17	TOTAL		285.00	2,532.30
18	AVERAGE		21.923	

Displaying cells in currency format

- Select the cells containing the **Hourly Rate** (B3 to B15)
- Click the down arrow for the Number Format
- Select **Currency**

The selected cells are now formatted as currency with 2 decimal places.

- Format the range **C3:C17** to **2 decimal places**
- Format the range **D3:D17** as **currency (£)**

	A	B	C	D
1	Name	Hourly Rate	Hours Worked	Total
2				
3	John Markshaw	£7.50	30.00	£225.00
4	Susan Jones	£5.50	15.00	£82.50
5	Nita Sonhil	£8.00	37.00	£296.00
6	Roy Barker	£15.00	37.00	£555.00
7	Tony Bare	£10.75	10.00	£107.50
8	Belinda Miles	£8.00	25.00	£200.00
9	Penelope East	£6.15	17.00	£104.55
10	Rupert Marks	£10.75	35.00	£376.25
11	James Colins	£8.00	20.00	£160.00
12	Sophie Doige	£7.50	20.00	£150.00
13	Mike Burns	£6.50	17.00	£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00
15	Marie Kaur	£7.50	12.00	£90.00
16				
17	TOTAL		285.00	£2,532.30
18	AVERAGE		21.923	
19				
20	Maximum Salary			555
21	Minimum Salary			75

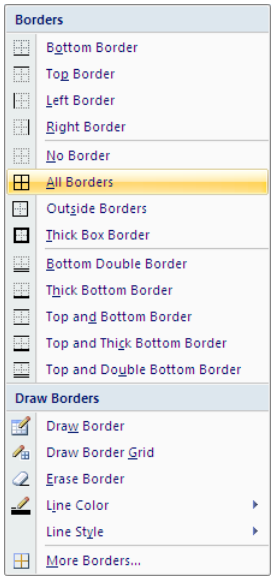
ADDING BORDERS

Excel enables you to add a variety of different types of borders.

First you will add a border around the total salary value for each employee.

- Select the range **D3:D15**
- Click the down arrow on the **border** button  in the **Font** group of commands

A list of borders is displayed.



- Select **All Borders**

You will put a double bottom border on the cells containing the total values

- Select the cells **C17** and **D17**
- Click the down arrow on the **border** button
- Select **Bottom Double Border**

	A	B	C	D
1	Name	Hourly Rate	Hours Worked	Total
2				
3	John Markshaw	£7.50	30.00	£225.00
4	Susan Jones	£5.50	15.00	£82.50
5	Nita Sonhil	£8.00	37.00	£296.00
6	Roy Barker	£15.00	37.00	£555.00
7	Tony Bare	£10.75	10.00	£107.50
8	Belinda Miles	£8.00	25.00	£200.00
9	Penelope East	£6.15	17.00	£104.55
10	Rupert Marks	£10.75	35.00	£376.25
11	James Colins	£8.00	20.00	£160.00
12	Sophie Doige	£7.50	20.00	£150.00
13	Mike Burns	£6.50	17.00	£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00
15	Marie Kaur	£7.50	12.00	£90.00
16				
17	TOTAL		285.00	£2,532.30
18	AVERAGE		21.923	
19				
20	Maximum Salary			555
21	Minimum Salary			75

COPYING FORMATTING

The Format Painter can be used to copy the formatting from one cell to another.

You will copy the formatting from D17 to D20 and D21.

- Click the cell **D17** to select it

- Click the **Format Painter**  in the **Clipboard** group on the **Home** tab

This action checks the formatting that exists in D17 ready to copy it onto any cell that you now select.

- Select both **D20** and **D21** by clicking into D20 and dragging the mouse pointer over D21 before releasing the mouse button

Both D20 and D21 now have a double underline bottom border and their contents are formatted as currency.

17	TOTAL		285.00	£2,532.30
18	AVERAGE		21.923	
19				
20	Maximum Salary			£555.00
21	Minimum Salary			£75.00

- Save the Workbook

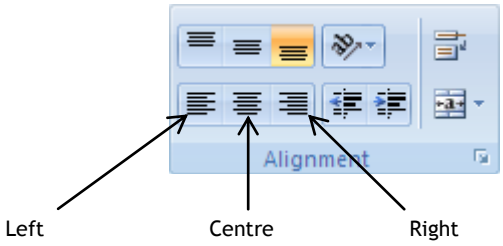
ALIGNING TEXT

Text is automatically aligned with the left edge of the cell, but you can choose to centre or right align it if you prefer.

- Select cell **A1** (Name)
- Ensure that the **Home** tab is selected

From the **Alignment** group of commands choose:

- The **Centre** alignment button



- Select the other column labels and **right** align them

USING THE MERGE AND CENTRE COMMAND

- Insert a blank row at the top of the worksheet
- In cell **A1** enter the title **ABC Sales Department**
- Change the size of the font to 18

The Merge and Centre command allows you to merge a range of cells and centre the text within the merged area.

To centre the title in A1 across the range A1:D1

- Select the range **A1:D1**
- Click the **Merge & Centre** button  in the **Alignment** group of commands on the **Home** tab

	A	B	C	D
1	ABC Sales Department			
2	Name	Hourly Rate	Hours Worked	Total

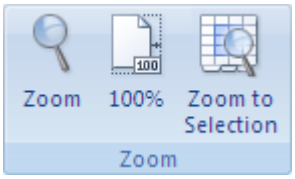
- Save the Workbook

ZOOM

The Zoom option allows you to see the worksheet in a different size. This may be useful if you have a lot of data and you would like to see more on the screen. However, you will not be able to zoom out too far before the display will be too small for you to comfortably see.

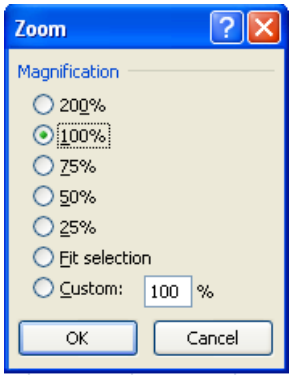
- Select the **View** tab

From the **Zoom** group of commands



- Select the **Zoom** button

A list of Zoom options is displayed:



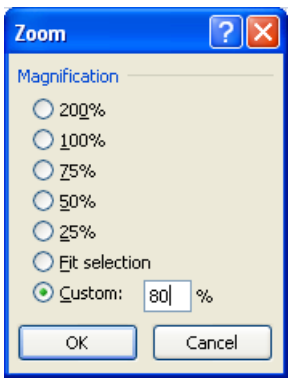
- Select **75%**
- Click **OK**

You can see that, while you can see more rows and columns on the screen, the size of the data on the sheet is now quite small.

- Select the **Zoom** button once more

To zoom to a value that is not specified on the list, for example **80%**

- Select **Custom**
- Key in **80**
- Click **OK**



The other two commands in the Zoom group can help to simplify and speed up zooming in certain situations.

- Select the cells **A1** to **D21**
- Click the **Zoom to Selection** button from the Zoom group 

The view has changed to just fit the selected area on to the screen.

- Click the **100%** button 

The display reverts to the default 100% view.

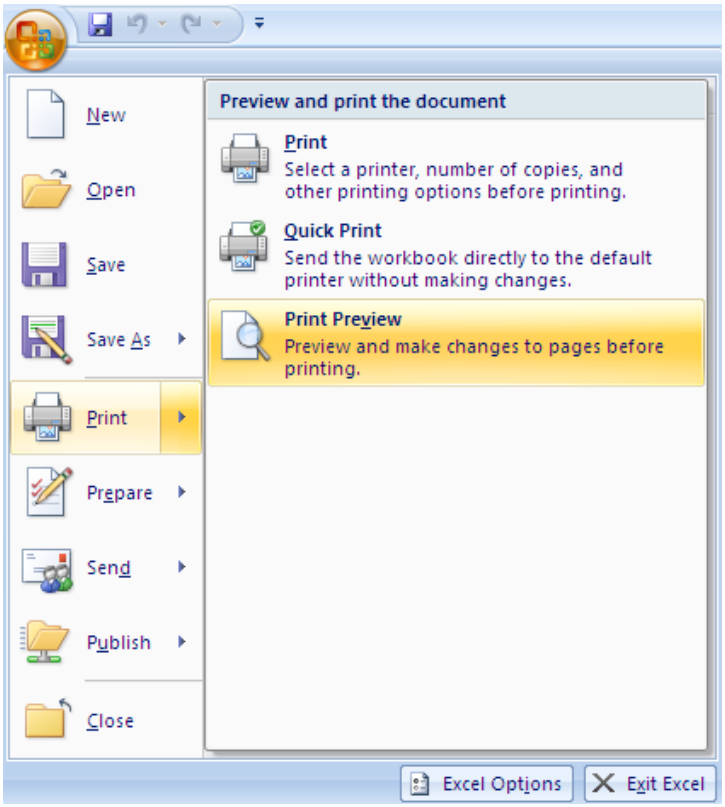
- Try some of the other Zoom options to see the result
- Try **125%**
- Change the display back to **100%**

PRINT PREVIEW

Print Preview allows you to see how your worksheet will be presented on paper.

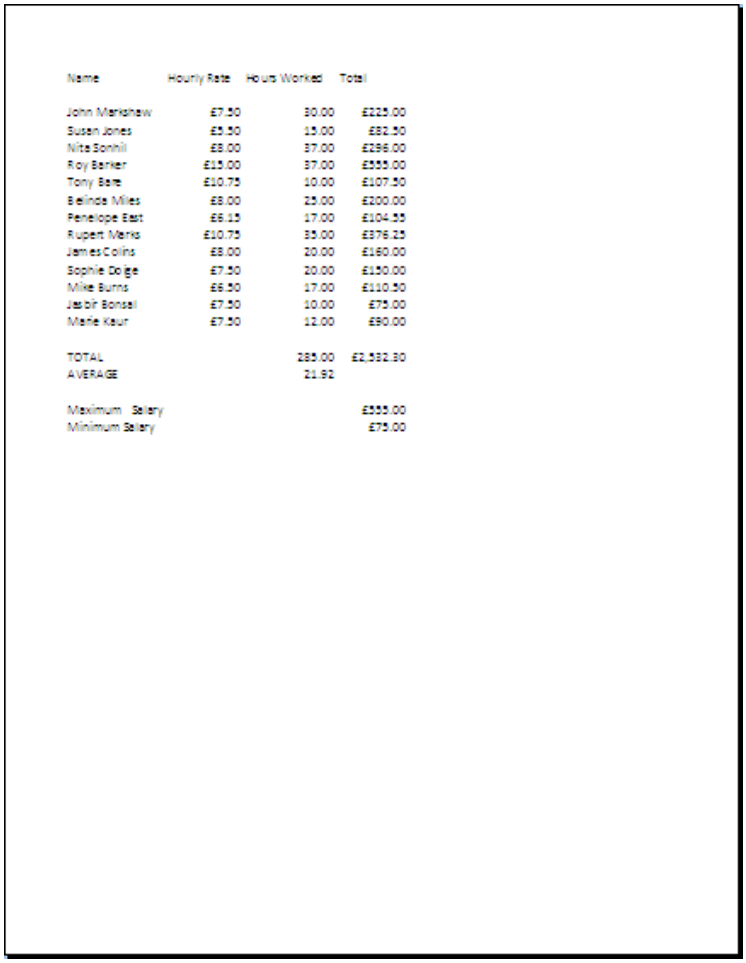
The preview window also offers you the opportunity to make adjustments such as column widths and margins.

- Click the **Office Button**

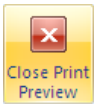


- Point to **Print**
- Select **Print Preview**

You are shown a view of what the document will look like on the printed page.



Name	Hourly Rate	Hours Worked	Total
John Markshaw	£7.50	30.00	£225.00
Susan Jones	£5.50	15.00	£82.50
Nita Sonhil	£8.00	37.00	£296.00
Roy Barker	£15.00	37.00	£555.00
Tony Bere	£10.75	10.00	£107.50
Belinda Miles	£8.00	25.00	£200.00
Penelope East	£6.15	17.00	£104.55
Rupert Merks	£10.75	35.00	£376.25
James Colins	£8.00	20.00	£160.00
Sophie Dolge	£7.50	20.00	£150.00
Mike Burns	£6.50	17.00	£110.50
Jasbir Bonsal	£7.50	10.00	£75.00
Marie Kaur	£7.50	12.00	£90.00
TOTAL		285.00	£2,532.30
AVERAGE		21.92	
Maximum Salary			£555.00
Minimum Salary			£75.00

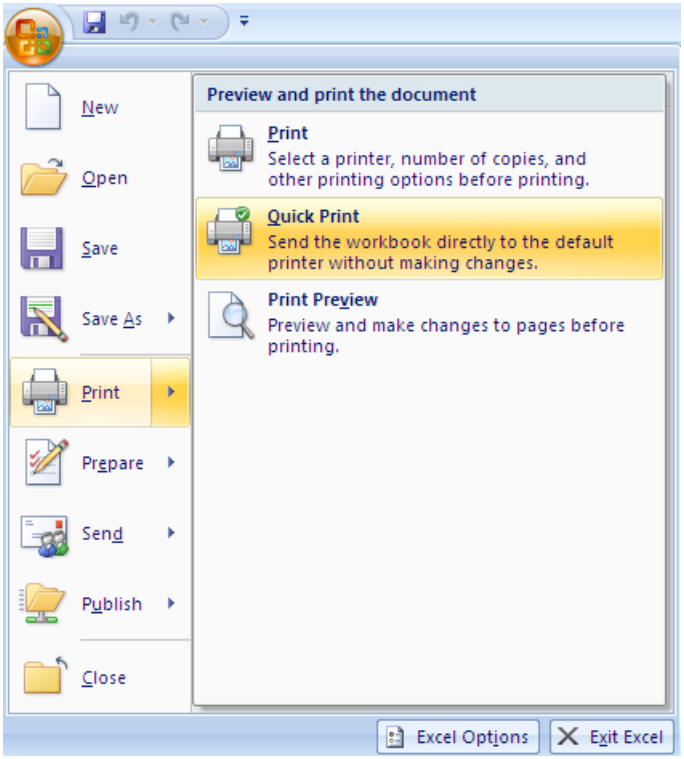
- Click on the **Close Print Preview** button 

- Save the workbook

QUICK PRINT

You are going to print the worksheet. A little later in the course you will learn how to refine the print out but for now you will print using the default settings.

- Click the **Office Button**
- Point to **Print**



- Select **Quick Print**

The worksheet is printed using the default settings.

- Save and Close the workbook

REMOVING A FORMAT FROM A CELL

- Open the workbook named **Payroll** located in the **ExcelIntroduction** folder on the **C** drive

	A	B	C	D	E	F	G
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Bonus payment	Final total
2							
3	John Markshaw	£7.50	30.00	£225.00	5		£225.00
4	Susan Jones	£5.50	15.00	£82.50	6		£82.50
5	Nita Sonhil	£8.00	37.00	£296.00	1		£296.00
6	Roy Barker	£15.00	37.00	£555.00	0		£555.00
7	Tony Bare	£10.75	10.00	£107.50	8		£107.50
8	Belinda Miles	£8.00	25.00	£200.00	0		£200.00
9	Penelope East	£6.15	17.00	£104.55	0		£104.55
10	Rupert Marks	£10.75	35.00	£376.25	2		£376.25
11	James Colins	£8.00	20.00	£160.00	3		£160.00
12	Sophie Doige	£7.50	20.00	£150.00	4		£150.00
13	Mike Burns	£6.50	17.00	£110.50	0		£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00	0		£75.00
15	Marie Kaur	£7.50	12.00	£90.00	0		£90.00
16							
17			285.00	£2,532.30			
18	Average	21.92					
19							
20	Maximum Salary	£555.00					
21	Minimun Salary	£75.00					

The worksheet contains several items of data that will not be needed for the following exercises so you will delete them.

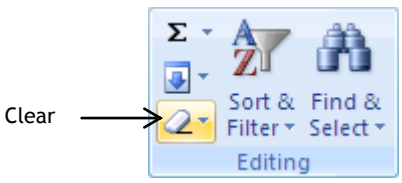
Note that when you delete the contents of a cell that has a format assigned to it, for example currency, although the data is deleted, the cell retains the format. Therefore, if you enter new data into a cell, it will be formatted in the same way as the data you deleted previously.

To delete a cell format:

- Select cells **B20** and **B21**

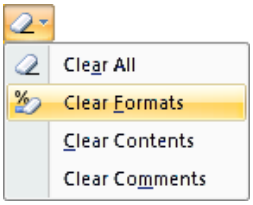
- Ensure that the **Home** tab is selected

From the **Editing** group of commands



- Select the down arrow by the **Clear** button

A list of commands is displayed:



- Choose **Clear Formats**

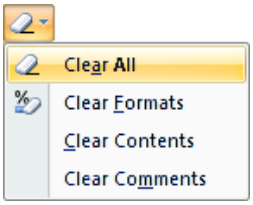
The format for these two cells has reverted to the General format which means that the cell has no specific number format. However, numeric data will be automatically right aligned.

To delete both the data and format from rows 18, 20, and 21:

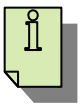
- Select rows 18, 20 and 21

From the **Editing** group of commands

- Select the down arrow by the **Clear** button



- Choose **Clear All**

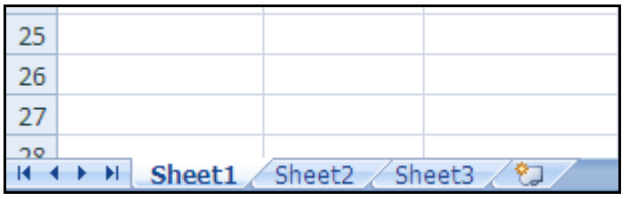


To delete just the contents from specific cells

- Select the cells
- Press the **Delete** key

WORKING WITH WORKSHEETS

When you open a new workbook it contains three worksheets. The worksheet tabs can be seen at the bottom of the worksheet.



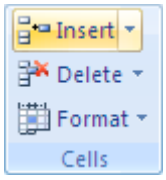
The Payroll workbook which is open has only two worksheets, **Payroll** and **Overtime**.

ADDING WORKSHEETS

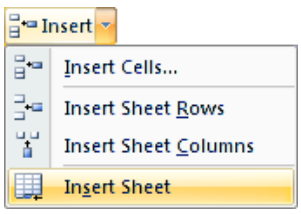
You need to insert a new worksheet between Payroll and Overtime. When you insert a worksheet it is positioned either before or after the selected sheet, depending on the method used to insert the sheet.

- Click the **Overtime** worksheet tab to select it
- Ensure the **Home** ribbon tab is selected

From the **Cells** group of commands,

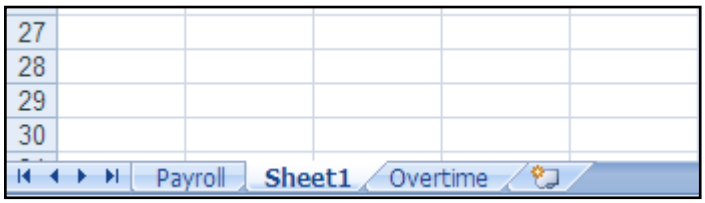


- Select the down arrow by the **Insert** button



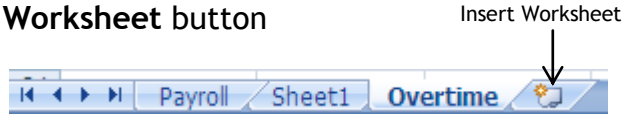
- Select **Insert Sheet**

A new worksheet (Sheet1) is inserted between Payroll and Overtime.

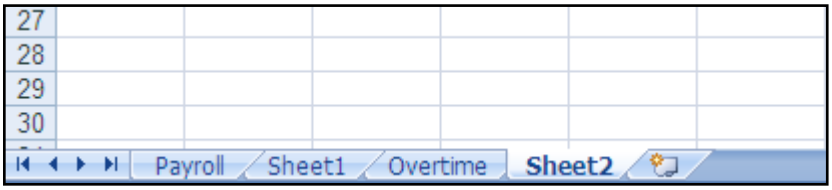


Alternative Method using the **Insert Worksheet** button

- Select the **Overtime** worksheet tab as before
- Click the **Insert Worksheet** button



A new worksheet (Sheet2) is inserted as the last sheet.



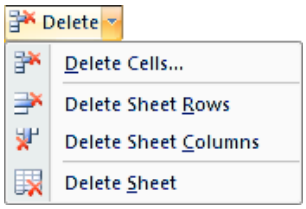
DELETING A WORKSHEET

To delete the new worksheet (Sheet2)

- Select **Sheet2**

From the **Cells** group of commands on the Home ribbon tab

- Select the down arrow by the **delete** button



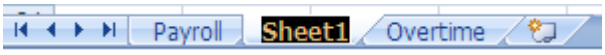
- Select **Delete Sheet**

RENAMING A WORKSHEET

To make it easier to identify the contents of the worksheets they should be renamed to reflect the information they hold.

- Double-click the name tab of the new sheet (Sheet1)

The name of the sheet is selected



- Type **Travel Expenses**
- Press **Enter**

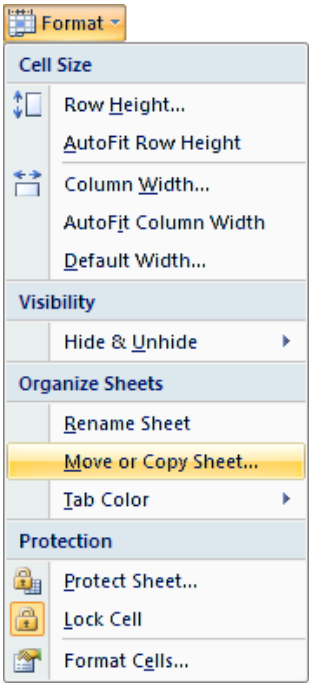
MOVING A WORKSHEET

You are going to move the Travel Expenses worksheet to the right of the Overtime sheet.

- Ensure that the **Travel Expenses** worksheet is selected

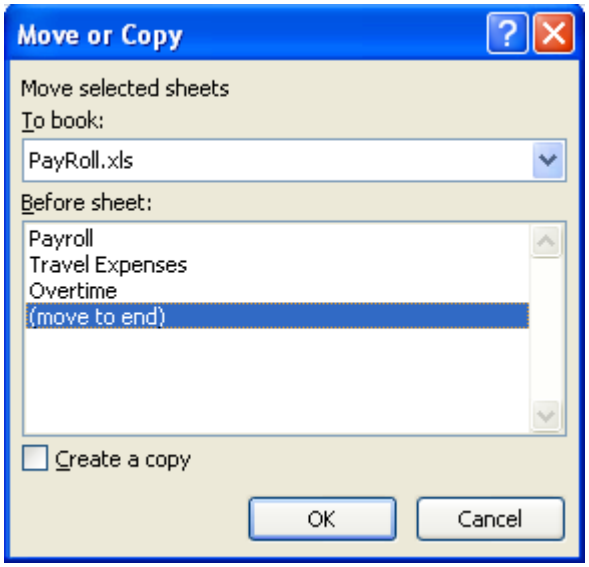
From the Cells group of commands on the Home ribbon tab

- Select the down arrow by the **Format** button



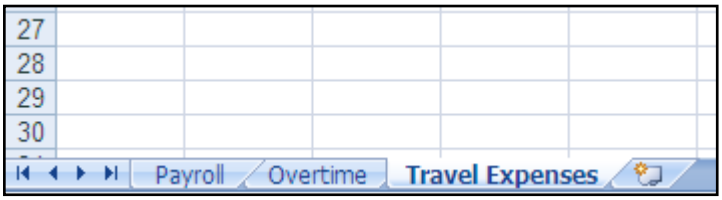
- Select **Move or Copy Sheet**

The Move or Copy dialog box is displayed.



- Choose **(move to end)**
- Click **OK**

The sheet is moved.



There is a tick box at the bottom of the Move or Copy dialog box that will allow you to create a copy of the sheet rather than move it.

Moving or Copying a worksheet to another workbook

The Move or Copy dialog box enables you to move the selected worksheet to another opened workbook by including the following extra steps.

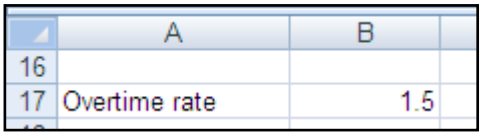
In the **To book:** section

- Click the down arrow
- Select the workbook to which the sheet will be moved or copied

Extending the workbook

You are going to extend the payroll information by calculating overtime payments for the staff. Members of staff are paid 1.5 times their normal hourly rate for overtime.

- Ensure that the Payroll worksheet is selected
- In cell **A17** type **Overtime rate**
- In cell **B17** type **1.5**
- Ensure that cell B17 is formatted as a number to one decimal place



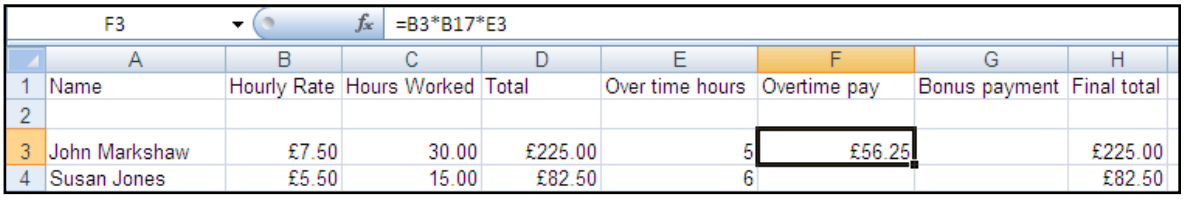
	A	B
16		
17	Overtime rate	1.5

- Insert a new column between columns E and F
- In cell F1 type the column title **Overtime pay**

Calculate the overtime pay for John Markshaw:

Hourly rate * overtime rate * overtime hours

- Select cell **F3**
- Type **=B3*B17*E3**
- Press **Enter**



F3 =B3*B17*E3

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25		£225.00
4	Susan Jones	£5.50	15.00	£82.50	6			£82.50

The amount John Markshaw will be paid for overtime is displayed.

RELATIVE AND ABSOLUTE REFERENCES

The formula that you have just created is to be copied to the other members of staff. However before you do that, it is important to understand the difference between a **relative** and an **absolute** reference when using formulas.

RELATIVE REFERENCE

A relative cell reference in a formula is based on the relative position of the cell that contains the formula and the cell the reference refers to. If the position of the cell that contains the formula changes, the reference is changed. If you copy the formula across rows or down columns, the reference automatically adjusts.

By default new formulas use relative references.

Up to this point in the training session, when you have copied a formula or function to another cell or cells, the cell references have changed relatively.

The example below shows the effect of copying the formula in cell C1 to cells C2 and C3.

	A	B	C	
1	6	3	18	(=A1*B1)
2	4	2	8	(=A2*B2)
3	10	4	40	(=A3*B3)

However, let's say that in column C you want to produce a formula that will multiply cell A1 by a series of cells in column B.

In the example below you can see that the formula in cell C1 is correct (A1*B1).

However, as the formula contains relative cell references it has been copied *relatively* to C2 (and C3). This has resulted in A1 becoming A2 in the formula in C2, so instead of the expected result of 12 (6*2) C2 gives a result of 0.

Similarly, cell C3 gives a result of 0 instead of the expected result of 24.

	A	B	C	
1	6	3	18	(=A1*B1)
2		2	0	(=A2*B2)
3		4	0	(=A3*B3)

To overcome this problem, the reference to cell A1 needs to be made *absolute*.

ABSOLUTE REFERENCE

An absolute cell reference in a formula always refers to a cell in a specific location. If the position of the cell that contains the formula changes, the absolute reference remains the same. If you copy the formula across rows or down columns, the absolute reference does not adjust.

Using the same example as before, to ensure that the reference to cell A1 in the formula remains unchanged when it is copied to other cells, you make it an absolute reference by including $ signs.

You can see in the example below that the reference to cell A1 in the formula in C1 has been made absolute by the addition of $ signs ($A$1).

The formula was then copied to C2 and C3. While the absolute reference has remained unchanged, the relative reference (B1) has become, respectively, B2 and B3.

	A	B	C
1	6	3	18 (=$A$1*B1)
2		2	12 (=$A$1*B2)
3		4	24 (=$A$1*B3)

USING ABSOLUTE REFERENCES

You have already entered a formula in the Overtime pay column to calculate the overtime earned by John Markshaw.

As the **Overtime Rate** is the same for all employees, you will need to use an **absolute** reference in the formula when referring to the cell containing the overtime rate. You need to do this before copying the formula.

- Select cell **F3**
- Position the insertion point in the Formula Bar and edit the formula so that the reference to cell B17 is made absolute by including $ signs

  =B3*$B$17*E3

- Copy the formula to all employees

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25		£225.00
4	Susan Jones	£5.50	15.00	£82.50	6	£49.50		£82.50
5	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00		£296.00
6	Roy Barker	£15.00	37.00	£555.00	0	£0.00		£555.00
7	Tony Bare	£10.75	10.00	£107.50	8	£129.00		£107.50
8	Belinda Miles	£8.00	25.00	£200.00	0	£0.00		£200.00
9	Penelope East	£6.15	17.00	£104.55	0	£0.00		£104.55
10	Rupert Marks	£10.75	35.00	£376.25	2	£32.25		£376.25
11	James Colins	£8.00	20.00	£160.00	3	£36.00		£160.00
12	Sophie Doige	£7.50	20.00	£150.00	4	£45.00		£150.00
13	Mike Burns	£6.50	17.00	£110.50	0	£0.00		£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00		£75.00
15	Marie Kaur	£7.50	12.00	£90.00	0	£0.00		£90.00
16								
17	Overtime rate	1.5	285.00	£2,532.30				

- Click on the overtime pay for some of the other employees to see that while the hourly rate and overtime hours have copied relatively, the overtime rate is absolute
- Save the workbook

As some staff have worked overtime, this figure must be added into their final salary.

- Select cell **H3** ready to calculate the Final total for John Markshaw
- Edit the formula to include the figure in cell F3

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25		£281.25

- Copy the amended formula down to the other staff – you do not need to make any part of this formula absolute
- To finish this exercise, use the **SUM** function in cell H17 to total the column

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25		£281.25
4	Susan Jones	£5.50	15.00	£82.50	6	£49.50		£132.00
5	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00		£308.00
6	Roy Barker	£15.00	37.00	£555.00	0	£0.00		£555.00
7	Tony Bare	£10.75	10.00	£107.50	8	£129.00		£236.50
8	Belinda Miles	£8.00	25.00	£200.00	0	£0.00		£200.00
9	Penelope East	£6.15	17.00	£104.55	0	£0.00		£104.55
10	Rupert Marks	£10.75	35.00	£376.25	2	£32.25		£408.50
11	James Colins	£8.00	20.00	£160.00	3	£36.00		£196.00
12	Sophie Doige	£7.50	20.00	£150.00	4	£45.00		£195.00
13	Mike Burns	£6.50	17.00	£110.50	0	£0.00		£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00		£75.00
15	Marie Kaur	£7.50	12.00	£90.00	0	£0.00		£90.00
16								
17	Overtime rate	1.5	285.00	£2,532.30				£2,892.30

CONDITIONAL FORMULA

As a gesture of goodwill, the management has decided that members of staff who earn £7.50 or less an hour will receive a bonus of £20.00. All others will receive £10.00.

For this purpose you will use the **IF** function. This is one of the most important functions as it can give your formulas decision-making capability.

The IF function includes a logical test that compares a cell against a specified value. A logical test is a test that produces an answer of either True or False.

The IF function is structured as follows:

=IF(Logical Test, Value 1, Value 2)

Which produces these results:

If the **Logical Test** is TRUE, **Value 1** is inserted into the cell
If the **Logical Test** is FALSE, **Value 2** is inserted into the cell

If the Value is text rather than a number, it must be enclosed in quotation marks ("text").

For example, you might want to include the words "solvent" or "bankrupt" as the result of a calculation in the worksheet.

You can compare two values with the following operators. When two values are compared using these operators, the result is a logical value, either TRUE or FALSE.

>	**More than**
<	**Less than**
=	**Equal to**
>=	**More than or equal to**
<=	**Less than or equal to**

EXAMPLE OF THE USE OF THE IF FUNCTION

Sums of £50,000 or more deposited in a bank account, earn 5% interest, while sums less than £50,000 earn 3% interest.

The function would be:

=IF(Deposit>=50000,5%,3%)

Where '**Deposit**' will be replaced by the cell reference containing the value of the deposit.

This can be interpreted as:

'If Deposit is more than or equal to 50,000 use 5%, otherwise use 3%'.

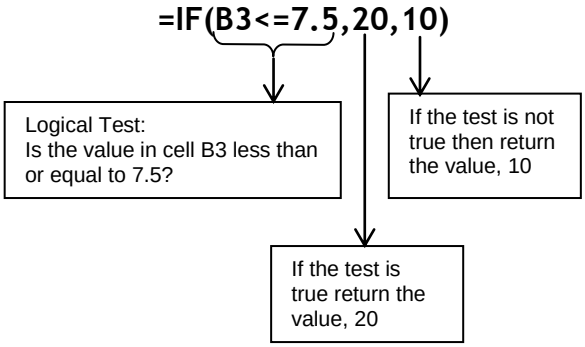
Therefore, for a deposit of £50,000, the test is TRUE, and the result is 5%

For a deposit of £49,999.99, the test is FALSE, and the result is 3%

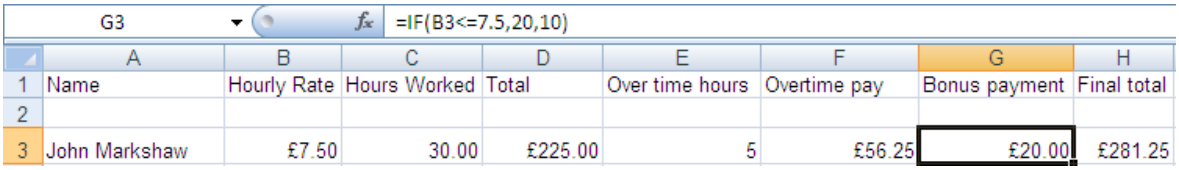
Now have a go on your worksheet.

To calculate the bonus payment for John Markshaw:

- Select cell **G3**
- Type



- Press **Enter**



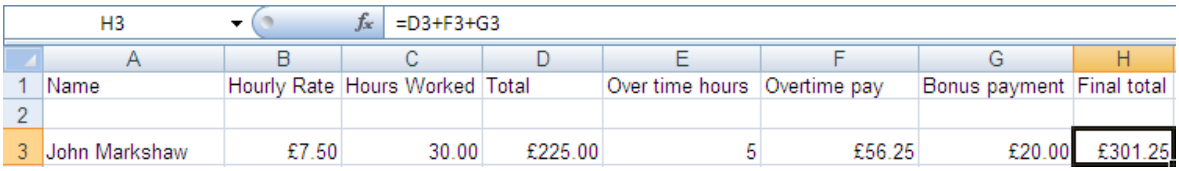
	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£281.25

- Copy the function to the other members of staff

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£281.25
4	Susan Jones	£5.50	15.00	£82.50	6	£49.50	£20.00	£132.00
5	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£10.00	£308.00
6	Roy Barker	£15.00	37.00	£555.00	0	£0.00	£10.00	£555.00
7	Tony Bare	£10.75	10.00	£107.50	8	£129.00	£10.00	£236.50
8	Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£10.00	£200.00
9	Penelope East	£6.15	17.00	£104.55	0	£0.00	£20.00	£104.55
10	Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£10.00	£408.50
11	James Colins	£8.00	20.00	£160.00	3	£36.00	£10.00	£196.00
12	Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£20.00	£195.00
13	Mike Burns	£6.50	17.00	£110.50	0	£0.00	£20.00	£110.50
14	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£20.00	£75.00
15	Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£20.00	£90.00
16								
17	Overtime rate	1.5	285.00	£2,532.30				£2,892.30

- Look down the Bonus payment column to check that the figures are correct

- Update the **Final total** for John Markshaw by adding the bonus payment



	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£301.25

- Copy the new **Final total** to the other members of staff

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£301.25
4	Susan Jones	£5.50	15.00	£82.50	6	£49.50	£20.00	£152.00
5	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£10.00	£318.00
6	Roy Barker	£15.00	37.00	£555.00	0	£0.00	£10.00	£565.00
7	Tony Bare	£10.75	10.00	£107.50	8	£129.00	£10.00	£246.50
8	Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£10.00	£210.00
9	Penelope East	£6.15	17.00	£104.55	0	£0.00	£20.00	£124.55
10	Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£10.00	£418.50
11	James Colins	£8.00	20.00	£160.00	3	£36.00	£10.00	£206.00
12	Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£20.00	£215.00
13	Mike Burns	£6.50	17.00	£110.50	0	£0.00	£20.00	£130.50
14	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£20.00	£95.00
15	Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£20.00	£110.00
16								
17	Overtime rate	1.5	285.00	£2,532.30				£3,092.30

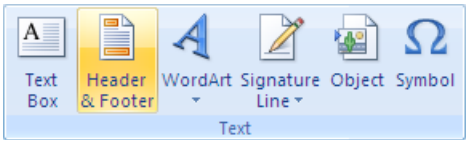
- Save the workbook

HEADERS AND FOOTERS

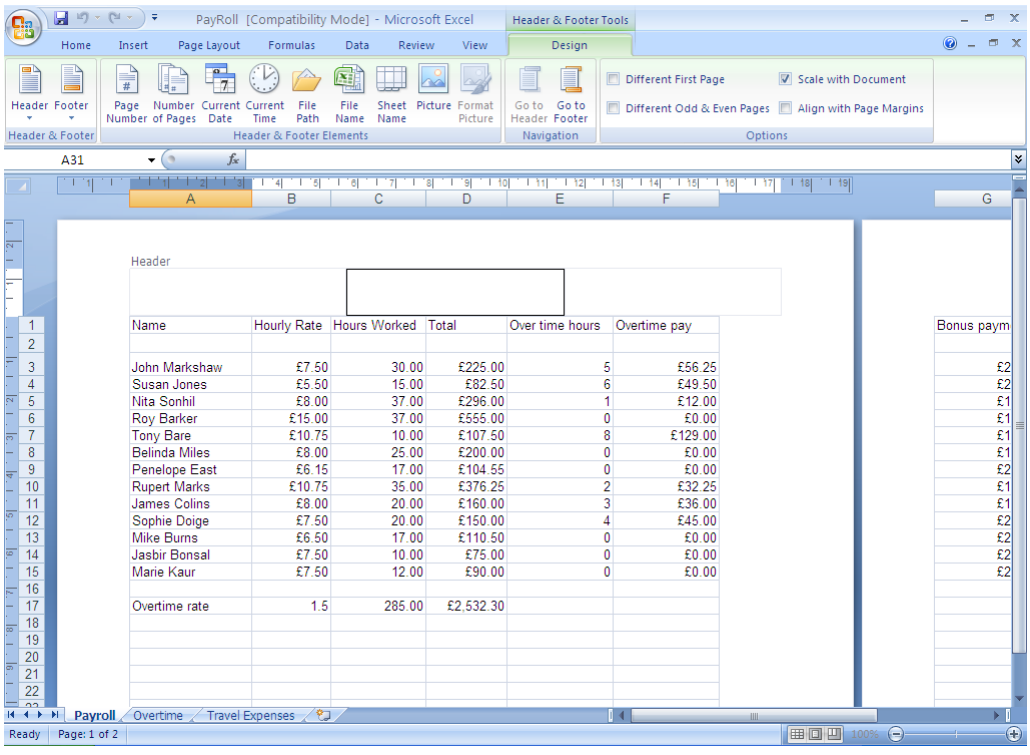
You can include information that you want to appear on every page such as the date, file name or page numbers in a header and/or footer.

In this exercise you will include your name in the header, and the date, the page number and the name of the worksheet (sheet name) in the footer.

- Select the **Insert** ribbon tab
- Select **Header & Footer** from the **Text** group



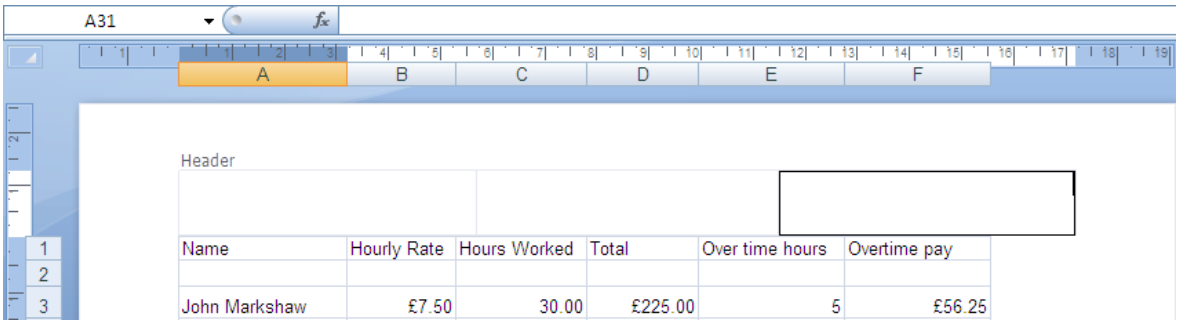
The view changes to *Page Layout* view, a *Design* contextual tab is displayed showing *Header & Footer tools* on the ribbon, and the central section of the Header is selected ready for you to add text into the Header.



The Payroll worksheet is spread over two pages, so you may find that on your worksheet the header for page 2 is selected at this stage. That is not a problem, since whatever you put into the header or footer will appear on both pages.

The Header is divided into three sections.

- Press the **tab** key to select the right section in the Header



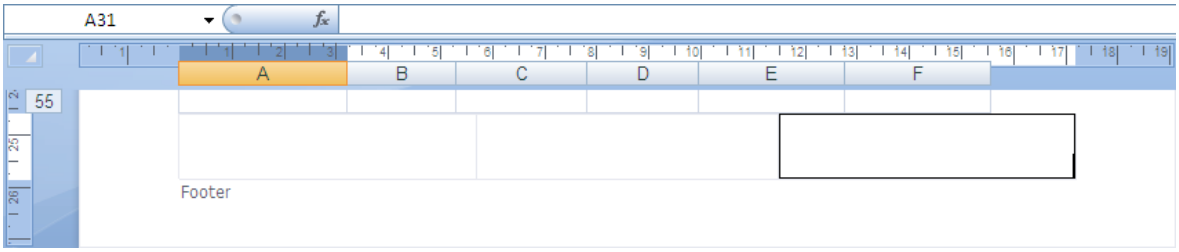
- Type your name

Note that text typed in this section is right-aligned.

From the **Navigation** group on the **Design** tab choose:

- Go to Footer 

One of the three sections of the Footer is highlighted.



First you will put the date in the left section of the Footer.

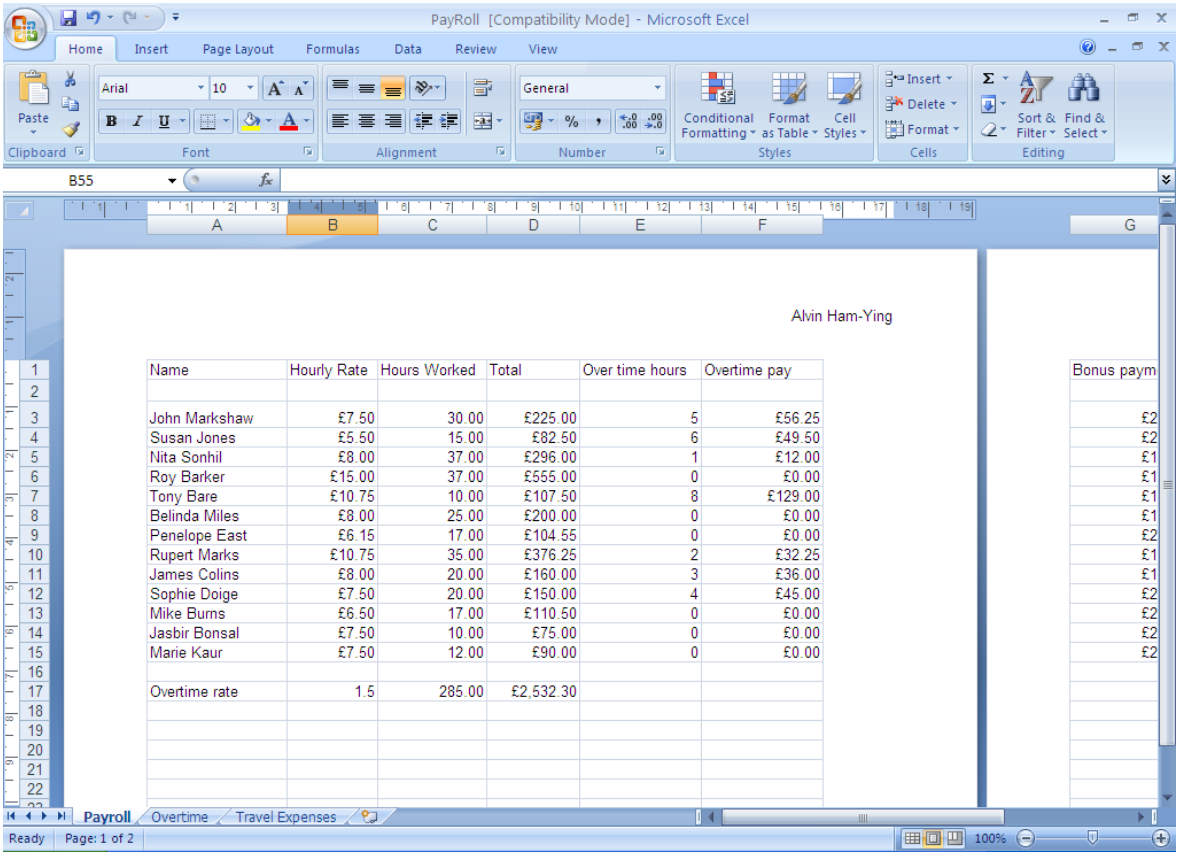
- If the left section of the Footer is not selected, press the **Tab** key until it is
- Click the **Current Date** button in the Header & Footer Elements group on the Design tab 

- Press the **Tab** key to move to the central section of the Footer
- Click the **Page Number** button in the Header & Footer Elements group to insert a centred page number 

- Press the **Tab** key to move to the right section of the Footer
- Click the **Sheet Name** button in the Header & Footer Elements group to insert the name of the sheet 

- Select any cell on the worksheet to close the Header & Footer boxes

The Header & Footer boxes close, but the worksheet remains in Page Layout view.



Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus paym
John Markshaw	£7.50	30.00	£225.00	5	£56.25	£2
Susan Jones	£5.50	15.00	£82.50	6	£49.50	£2
Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£1
Roy Barker	£15.00	37.00	£555.00	0	£0.00	£1
Tony Bare	£10.75	10.00	£107.50	8	£129.00	£1
Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£1
Penelope East	£6.15	17.00	£104.55	0	£0.00	£2
Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£1
James Colins	£8.00	20.00	£160.00	3	£36.00	£1
Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£2
Mike Burns	£6.50	17.00	£110.50	0	£0.00	£2
Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£2
Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£2
Overtime rate	1.5	285.00	£2,532.30			

To change the view to the Normal view

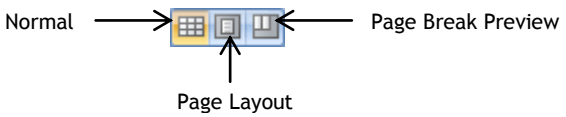
- Select the **View** ribbon tab

From the Workbook Views group of commands choose:

- Normal 

Alternative method

From the **Views Shortcut** buttons in the bottom right of the window



- Select the **Normal** shortcut button

OPTIONS FOR PRINTING A WORKSHEET

When a worksheet is spread over two or more pages it is sometimes useful to repeat the column or row headings on every page.

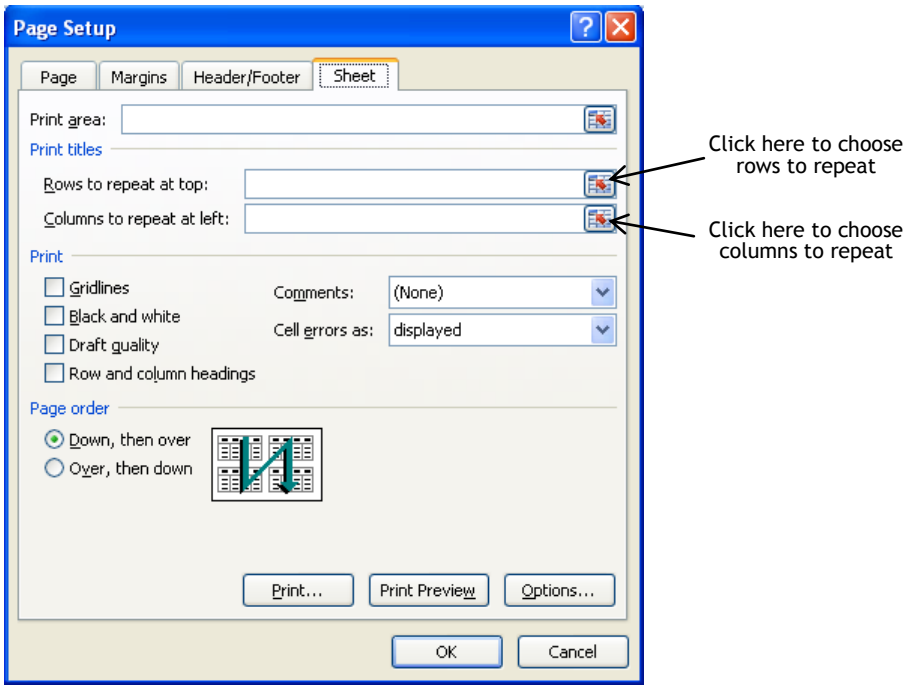
PRINTING A SPECIFIED COLUMN ON EVERY PAGE

You saw in the previous exercise that the payroll worksheet is spread across two pages. The data on the second page would be easier to interpret if the employee names were printed on this page also.

To repeat the data in column A on the print out of all pages:

- Select the **Page Layout** ribbon tab
- Click **Print Titles** in the **Page Setup** group of commands

The Page Setup dialog box is displayed with the Sheet tab selected.



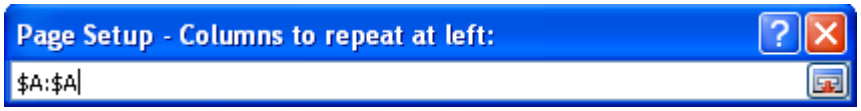
The Print titles section of the dialog box contains boxes that allow you to specify rows to be repeated at the top of each printed page or columns to repeat at the left of each page.

- Click the Collapse button in the **Columns to repeat at left** box

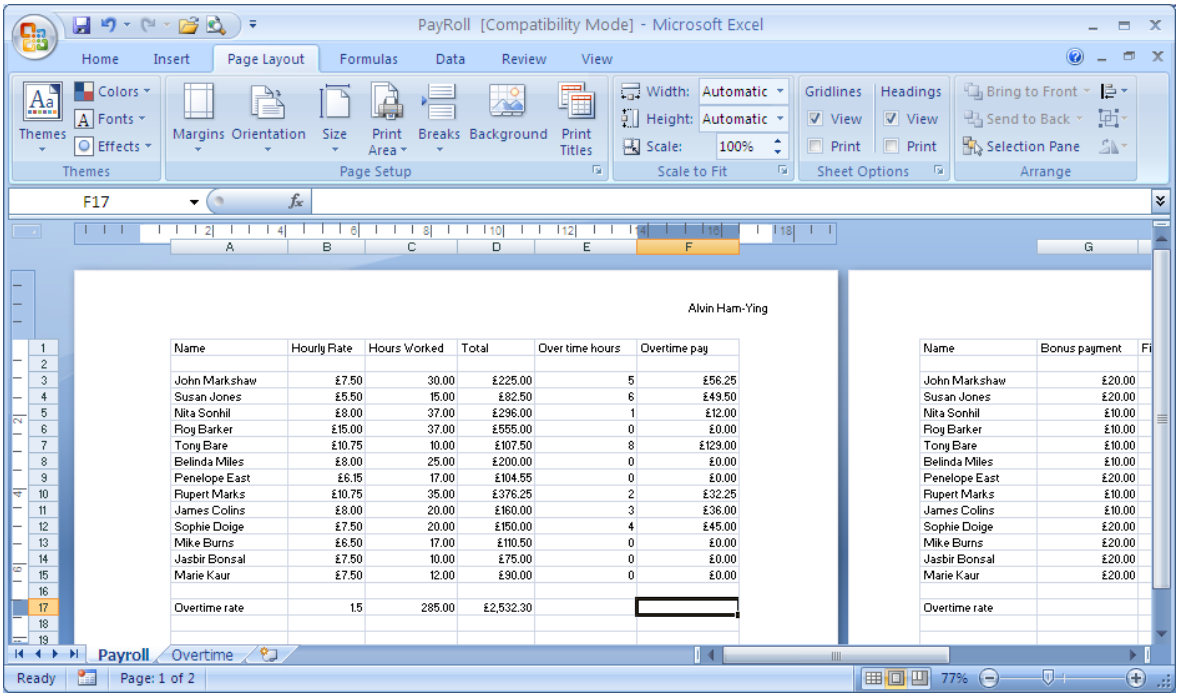
The Page Setup dialog box collapses to show only the Columns to repeat text box and the mouse pointer changes to a black down arrow, ready for you to choose the column or columns that you wish to repeat on each printed page.

- Select the first column by clicking on the name button 

Excel adds the column name to the dialog box.



- Click the Collapse button once more
- Click **OK**
- Change the view to Page Layout to see the effect

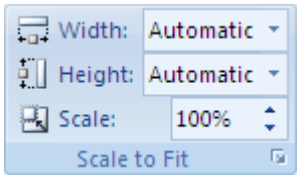


- Change the view back to Normal

PRINTING A WORKSHEET ON A SINGLE PAGE

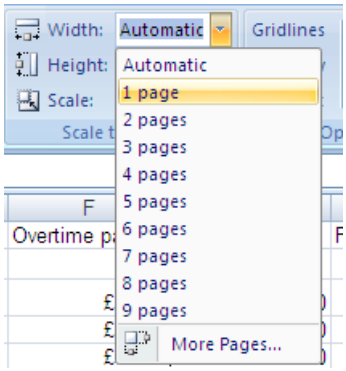
Excel allows you to shrink the data so that it fits onto one page.

- Select the **Page Layout** ribbon tab

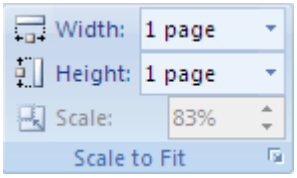


You will use the commands in the **Scale to Fit** group to fit the worksheet onto one page.

- Click the down arrow in the **Width:** option box and select **1 page**



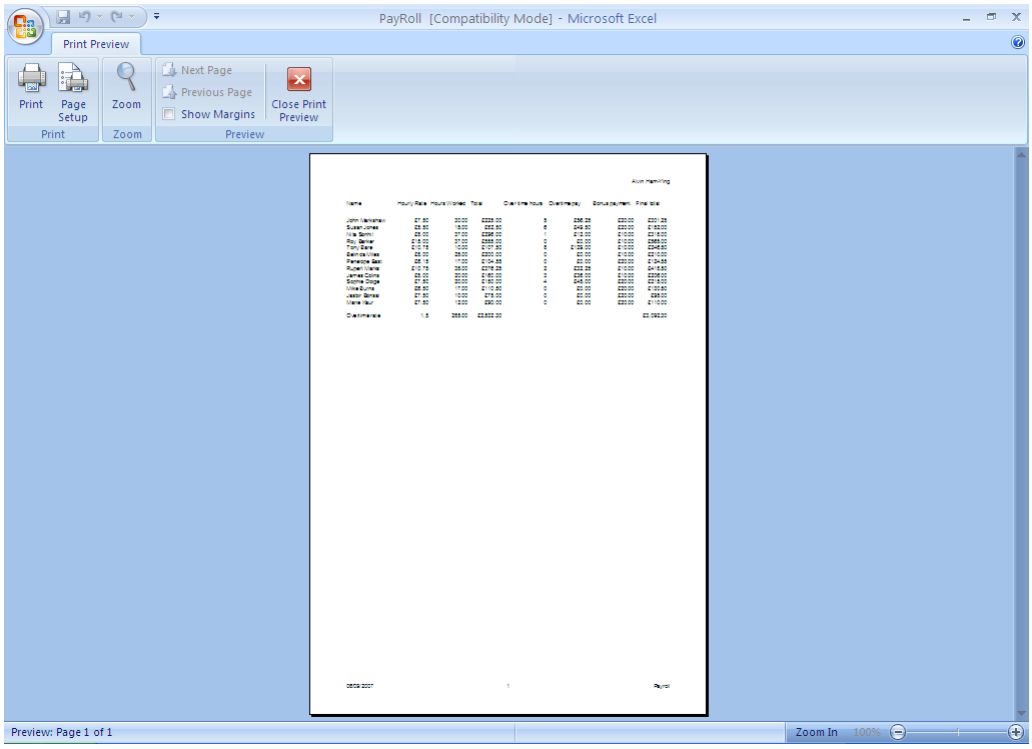
When data spreads downward unto another page you will also need to set the **Height** to fit onto one page.



You will now look at a Print Preview to check that all the data is on one page.

- Click the **Office Button**
- Point to **Print**
- Select **Print Preview**

The worksheet is scaled down to fit the page and all the columns are displayed.



You will find that this is a very useful option but, as more columns and rows are added to the worksheet, in order to accommodate the text on the page, it is displayed in a very small font. It is therefore essential that you always check that the data can still be read.

- Close the Print Preview

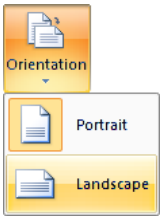
CHANGING THE PAGE ORIENTATION

Sometimes the better option for displaying your spreadsheet on one page is to change the page orientation to landscape.

From the **Page Setup** group on the **Page Layout** tab

- Select the **Orientation** button 

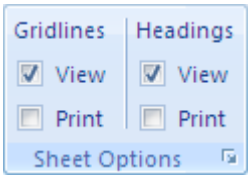
- Choose **Landscape** from the available options



PRINTING THE ROW AND COLUMN HEADINGS

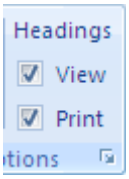
Sometimes it may be useful to print the row and column headings – these are the letters and numbers relating to the cell references.

The Sheet Options group of commands on the Page Layout tab has four check boxes relating to viewing and printing gridlines and row and column headings.



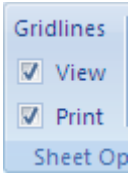
To set the worksheet to include row and column headings when printing:

- Select the Print checkbox under Headings so that a tick appears in it

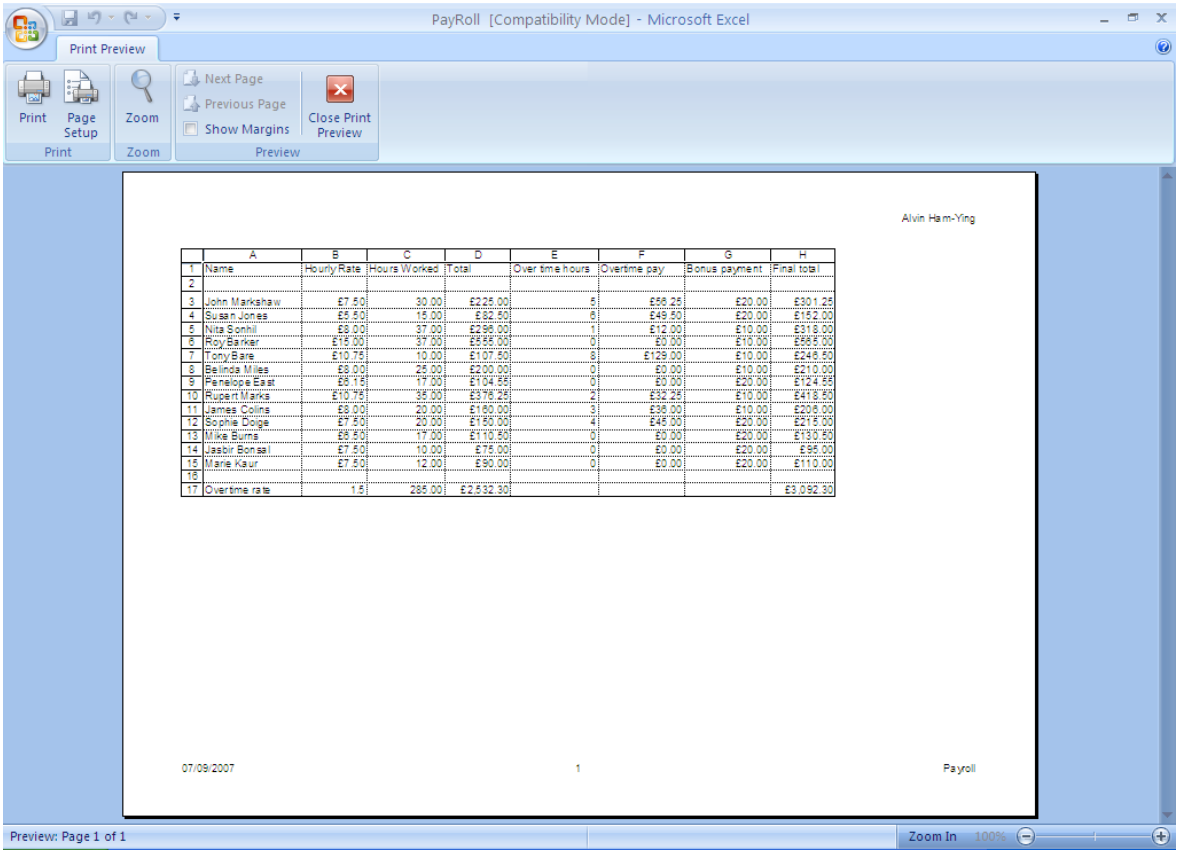


To set the worksheet to include gridlines when printing:

- Select the Print checkbox under Gridlines so that a tick appears in it



- View the effects of these settings in Print Preview



The preview shows that the page is now in landscape orientation, row and column headings will be shown on the printout and gridlines are also included.

- Close Print Preview

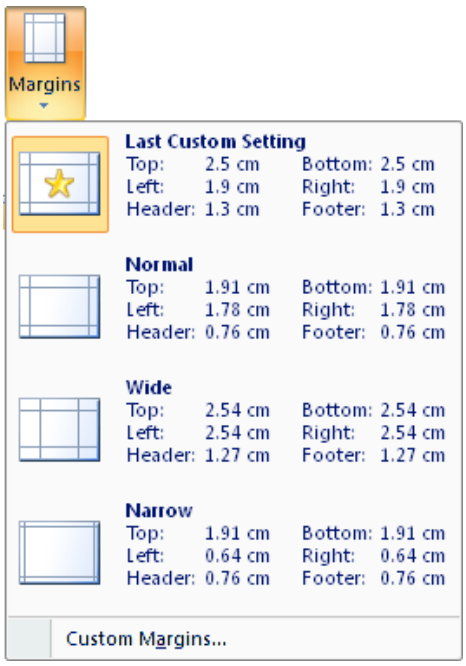
CHANGING THE MARGINS

Making the margins smaller will enable more of the worksheet to fit on the page.

From the **Page Setup** group of commands on the **Page Layout** tab choose:

- Margins 

The current margin settings are shown highlighted with the title **Last Custom Setting**



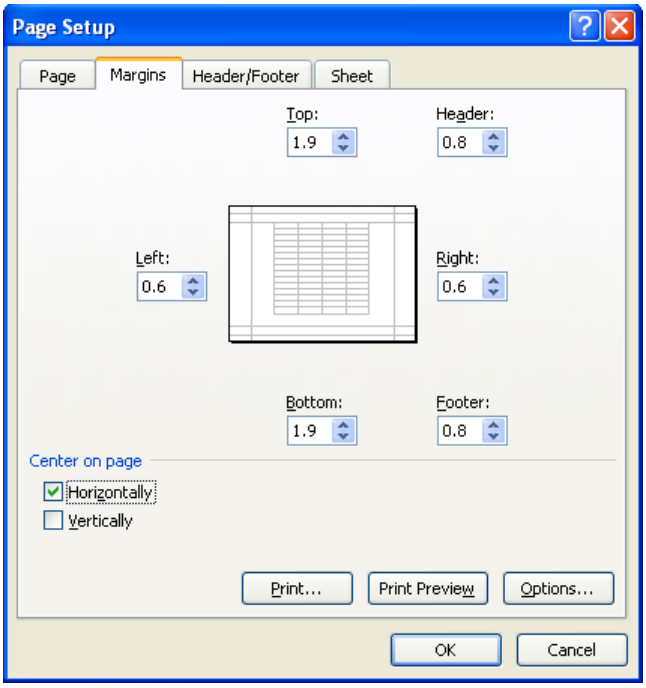
- Select **Narrow** from the list of available options

Centring the worksheet on the printed page

If your worksheet is small it may look better centred on the page when it is printed.

- Select the **Margins** button on the ribbon
- Select **Custom Margins** from the pop-up list

The Page Setup dialog box is displayed with the Margins tab selected.

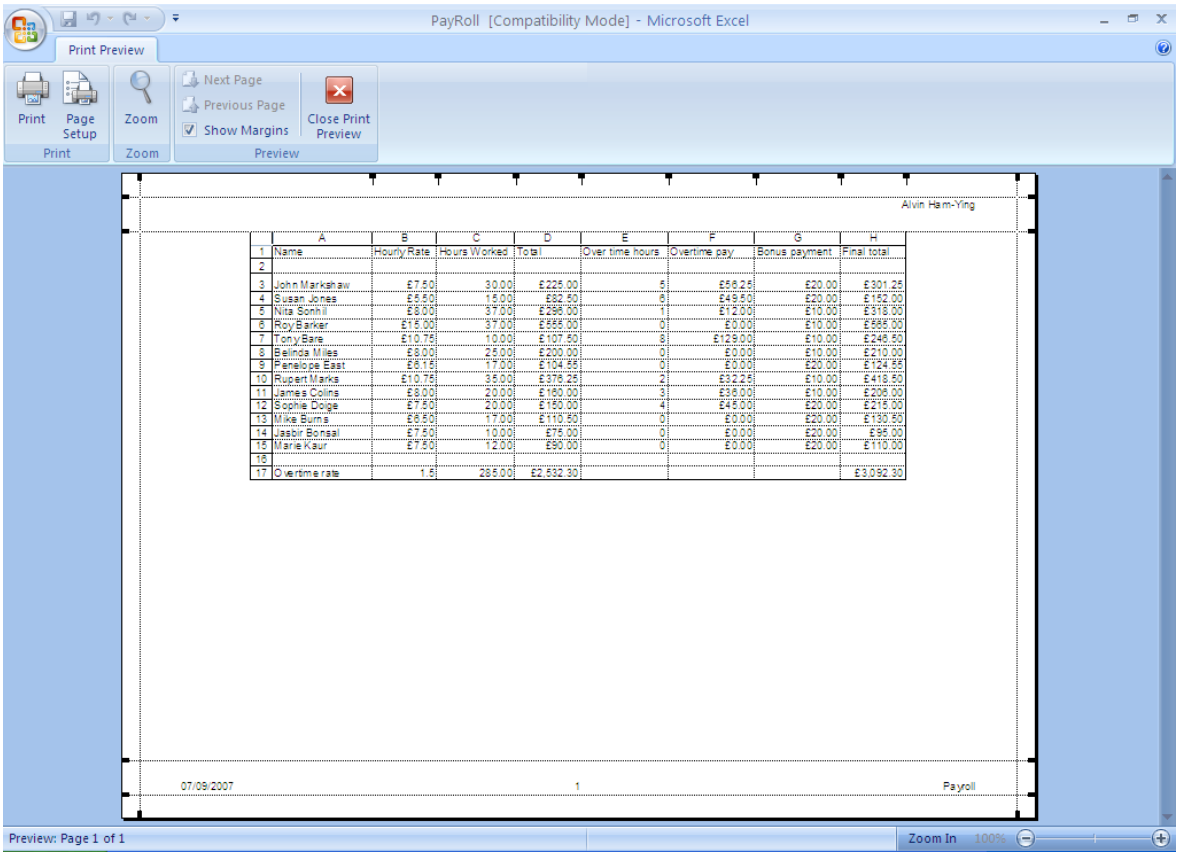


- In the **Center on page** section, select **Horizontally**
- Click the **Print Preview** button on the Page Setup dialog box

The Print Preview shows the data centre aligned.

- Select the **Show Margins** checkbox on the Print Preview contextual tab

The margins are displayed on the previewed page.



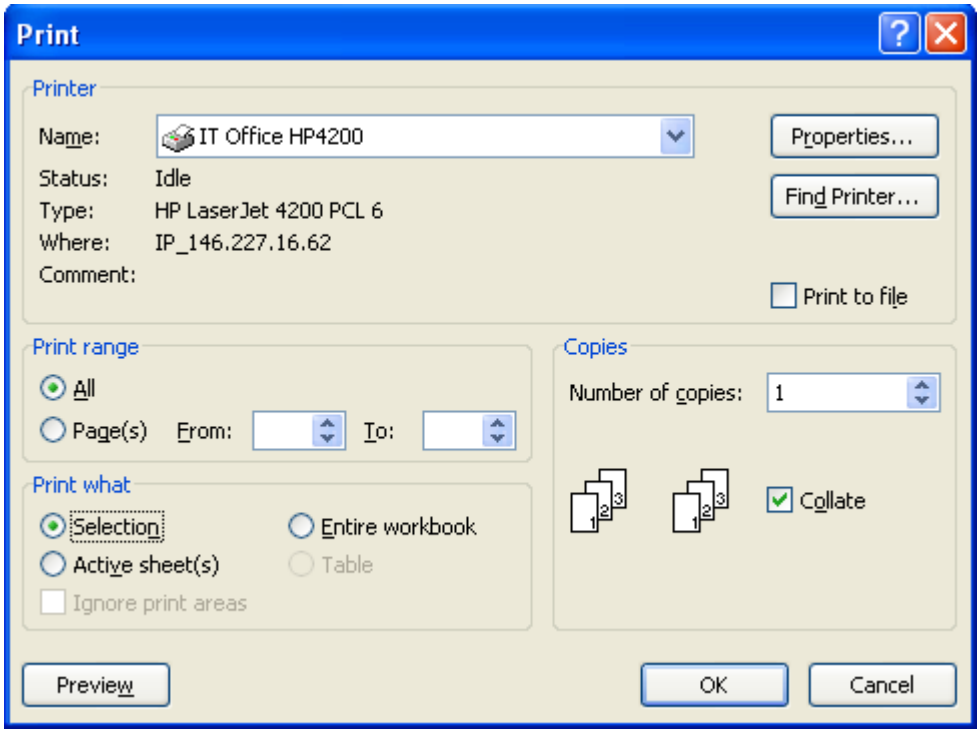
- **Print** the worksheet
- Close the Print Preview
- Save the workbook

PRINTING A RANGE OF CELLS

To print just a section of the worksheet you first need to select the range of cells that are to be printed.

- Select cells **A1** to **D15**
- Click the **Office Button**
- Point to **Print**
- Select **Print**

The Print dialog box is displayed



- In the **Print what** section of the dialog box choose **Selection**
- Click **OK**

SORTING DATA

It is sometimes necessary to sort the data in the worksheet. Let's say that you need to produce a list of staff who earn £8.00 or less per hour. The simplest way to do this is to sort the data in order of the Hourly Rate first and then print the appropriate selection.

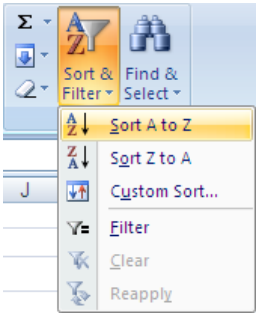
To sort the data by Name in ascending alphabetical order:

- Click into a cell that contains a name (any cell between A3 and A15)

From the **Editing** group of commands on the **Home** tab choose:

- **Sort & Filter** 

- Select **Sort A to Z** from the drop-down list of options



The data is sorted alphabetically by name.

	A	B	C	D	E	F	G	H
1	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2								
3	Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£10.00	£210.00
4	James Colins	£8.00	20.00	£160.00	3	£36.00	£10.00	£206.00
5	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£20.00	£95.00
6	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£301.25
7	Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£20.00	£110.00
8	Mike Burns	£6.50	17.00	£110.50	0	£0.00	£20.00	£130.50
9	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£10.00	£318.00
10	Penelope East	£6.15	17.00	£104.55	0	£0.00	£20.00	£124.55
11	Roy Barker	£15.00	37.00	£555.00	0	£0.00	£10.00	£565.00
12	Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£10.00	£418.50
13	Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£20.00	£215.00
14	Susan Jones	£5.50	15.00	£82.50	6	£49.50	£20.00	£152.00
15	Tony Bare	£10.75	10.00	£107.50	8	£129.00	£10.00	£246.50
16								
17	Overtime rate	1.5	285.00	£2,532.30				£3,092.30

- Sort the data by Hourly Rate in ascending order
- Print the data for staff who earn £8.00 an hour or less (i.e. A1 to H12)

FIND AND REPLACE

FINDING A WORD OR A VALUE

The Find command enables you to locate all occurrences of a particular word, phrase, or value in your worksheet.

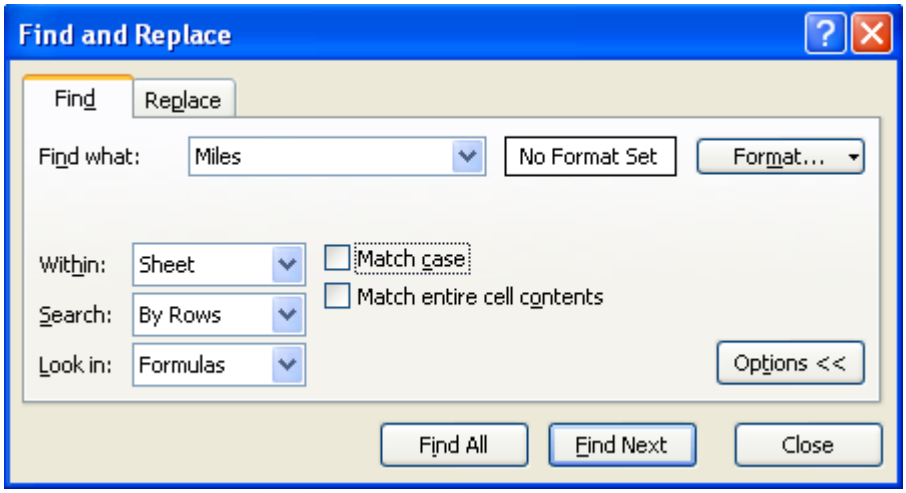
Although the current worksheet is not very big and you can easily see all of the people on the payroll, you can still try the Find command to learn how it works. You will locate the data for Belinda Miles.

- Select any cell within the data

From the **Editing** group of commands on the **Home** tab choose:

- **Find & Select** 

- **Find**
- In the **Find what:** option box, type **Miles**



If you do not see the options shown above, click the Options>> button.

It is not usually necessary to change any of the options in the bottom half of the dialog box, but it worth noting what the options are.

- Click each down arrow in the Options section to see the choices available

In a large worksheet you may wish to speed up the process slightly by only searching through the values and results.

- In the **Look in:** option box, select **Values**

➢ Click **Find Next**

The cell with the data, Belinda Miles, is selected.

➢ Click **Close**

REPLACING A WORD OR A VALUE

It is possible to replace a word, phrase, or value with an alternative in one operation.

You want to change the name Penelope to Tony where ever it occurs in the worksheet.

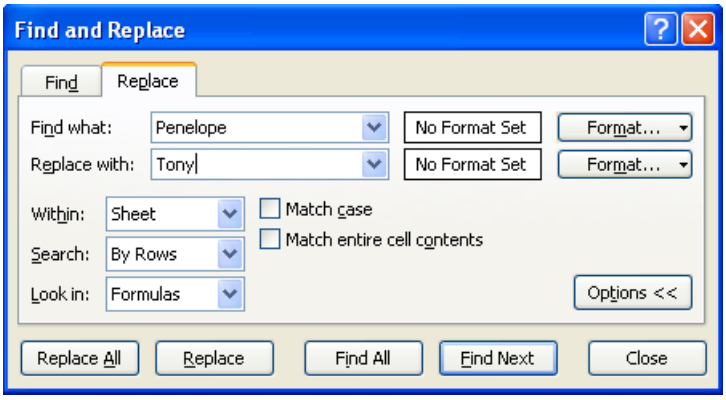
From the **Editing** group of commands on the **Home** tab choose:

➢ **Find & Select**

➢ **Replace**

➢ In the **Find What:** option box, type **Penelope**

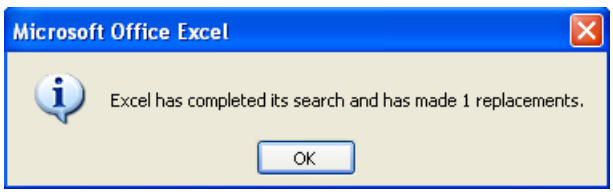
➢ In the **Replace With:** option box, type **Tony**



To make this alteration everywhere Penelope occurs:

➢ Click **Replace All**

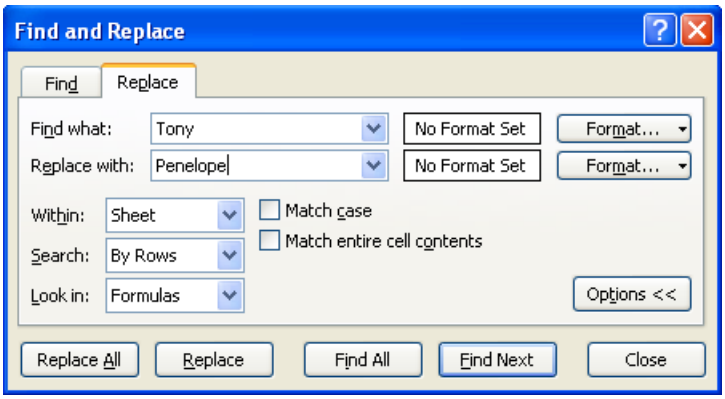
Excel confirms that one replacement was made.



➢ Click **OK**

You now want to change the name Tony to Penelope, but only for Tony East.

- In the **Find what:** option box type **Tony**
- In the **Replace with:** option box type **Penelope**



To find each occurrence of Tony one at a time:

- Click **Find Next**

Excel finds and selects a cell that includes the text Tony.

- If this is not Tony East, click **Find Next** until the correct Tony is selected
- Click **Replace**
- Click **Close**

FREEZE PANES

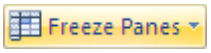
If you have a large worksheet, you will find that when you scroll down or across you are no longer able to see the column and row labels.

To overcome this inconvenience, you can use the Freeze Panes command to keep the initial row(s) and/or column(s) visible on the screen.

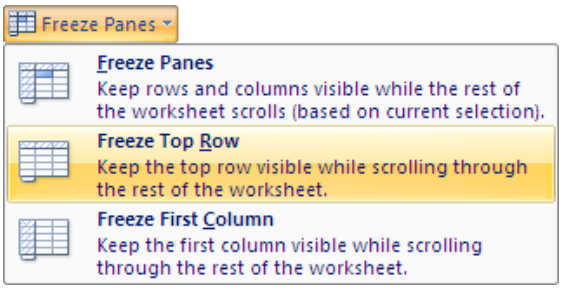
You are going to freeze the column labels in row 1.

- Select the **View** ribbon tab

From the **Window** group of commands:

- Select **Freeze Panes** 

- Choose **Freeze Top Row** from the list of options



A line appears at the bottom of row 1, indicating that the first row is frozen.

Although your worksheet is small, you should be able to drag the vertical scroll bar down or click the down arrow by the scroll bar and see the entries move while the column labels remain stationery.

UNFREEZING PANES

To unfreeze the pane, from the **Window** group of commands:

- Select **Freeze Panes**
- Choose **Unfreeze Panes**

FREEZING MULTIPLE ROWS OR COLUMNS

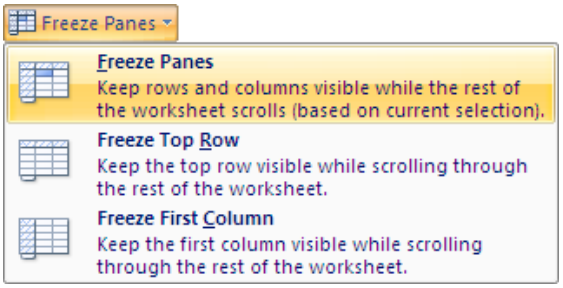
To freeze more than one row or column, you must first select the correct cell before using the Freeze Panes command. All rows above the selected cell will be frozen and all columns to the left of the selected cell will also be frozen.

To freeze:

Top rows	Select the left hand cell below the rows where you want the split to appear.
Left columns	Select the top cell to the right of where you want the split to appear.
Both the top row(s) and left column(s)	Click the cell below and to the right of where you want the split to appear.

To freeze both the first row (column labels) and the first column (names).

- Select cell **B2**
- Select the **Freeze Panes** command
- Choose **Freeze Panes** from the list of options

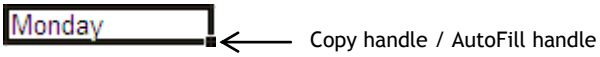


- Test it out by moving first the horizontal and then the vertical scroll bar
- Unfreeze the panes
- Save the workbook

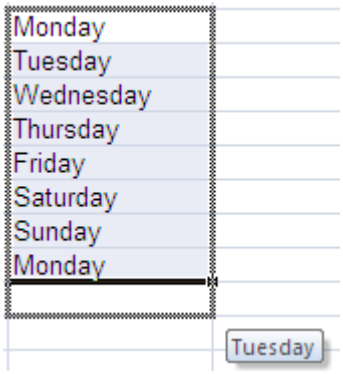
USING AUTOFILL

Excel includes a useful tool that will allow you to create a consecutive list. For example days or dates.

- In cell A20 of your worksheet, type **Monday**



- Click on the AutoFill handle and drag the handle down to A27



This also works for months of the year and sequences of numbers. You also have the option of creating and adding your own lists of data that you use on a regular basis.

- Delete the days of the week that you have just added to the worksheet

To practice AutoFill you will add incrementing numbers to the payroll records.

- Insert a column at the beginning of the worksheet

	A	B	C	D	E	F	G	H	I
1		Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2									
3		Susan Jones	£5.50	15.00	£82.50	6	£49.50	£20.00	£152.00
4		Penelope East	£6.15	17.00	£104.55	0	£0.00	£20.00	£124.55
5		Mike Burns	£6.50	17.00	£110.50	0	£0.00	£20.00	£130.50
6		John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£301.25
7		Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£20.00	£215.00
8		Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£20.00	£95.00
9		Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£20.00	£110.00
10		Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£10.00	£318.00
11		Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£10.00	£210.00
12		James Colins	£8.00	20.00	£160.00	3	£36.00	£10.00	£206.00
13		Tony Bare	£10.75	10.00	£107.50	8	£129.00	£10.00	£246.50
14		Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£10.00	£418.50
15		Roy Barker	£15.00	37.00	£555.00	0	£0.00	£10.00	£565.00
16									
17		Overtime rate	1.5	285.00	£2,532.30				£3,092.30

- In cell A1 type **Staff number**
- Type **1** in cell A3
- Type **2** in cell A4

These two numbers will tell Excel the pattern for incrementation.

- Select cells A3 and A4

- Use the AutoFill handle to continue the sequence down to the other members of staff

	A	B	C
1	Staff number	Name	Hourly Rate
2			
3	1	Susan Jones	£5.50
4	2	Penelope East	£6.15
5	3	Mike Burns	£6.50
6	4	John Markshaw	£7.50
7	5	Sophie Doige	£7.50
8	6	Jasbir Bonsal	£7.50
9	7	Marie Kaur	£7.50
10	8	Nita Sonhil	£8.00
11	9	Belinda Miles	£8.00
12	10	James Colins	£8.00
13	11	Tony Bare	£10.75
14	12	Rupert Marks	£10.75
15	13	Roy Barker	£15.00

- Format the numbers by making them centred, bold, and italic
- Save the workbook

CHARTS

You are going to produce a column chart to show the final pay for each member of staff.

In order to ensure that Excel associates the column titles with the rest of the data you need to delete the blank row below the column titles.

- Delete the empty **row 2** (see page 22)

For this particular chart you need to select two columns that are not next to each other.

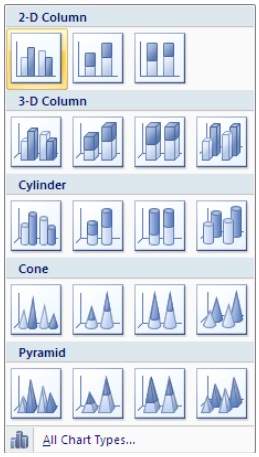
- Select cells **B1:B14**
- Hold the **Ctrl** key while you select cells **I1:I14**

	A	B	C	D	E	F	G	H	I
1	Staff number	Name	Hourly Rate	Hours Worked	Total	Over time hours	Overtime pay	Bonus payment	Final total
2	1	Susan Jones	£5.50	15.00	£82.50	6	£49.50	£20.00	£152.00
3	2	Penelope East	£6.15	17.00	£104.55	0	£0.00	£20.00	£124.55
4	3	Mike Burns	£6.50	17.00	£110.50	0	£0.00	£20.00	£130.50
5	4	John Markshaw	£7.50	30.00	£225.00	5	£56.25	£20.00	£301.25
6	5	Sophie Doige	£7.50	20.00	£150.00	4	£45.00	£20.00	£215.00
7	6	Jasbir Bonsal	£7.50	10.00	£75.00	0	£0.00	£20.00	£95.00
8	7	Marie Kaur	£7.50	12.00	£90.00	0	£0.00	£20.00	£110.00
9	8	Nita Sonhil	£8.00	37.00	£296.00	1	£12.00	£10.00	£318.00
10	9	Belinda Miles	£8.00	25.00	£200.00	0	£0.00	£10.00	£210.00
11	10	James Colins	£8.00	20.00	£160.00	3	£36.00	£10.00	£206.00
12	11	Tony Bare	£10.75	10.00	£107.50	8	£129.00	£10.00	£246.50
13	12	Rupert Marks	£10.75	35.00	£376.25	2	£32.25	£10.00	£418.50
14	13	Roy Barker	£15.00	37.00	£555.00	0	£0.00	£10.00	£565.00
15									
16		Overtime rate	1.5	285.00	£2,532.30				£3,092.30

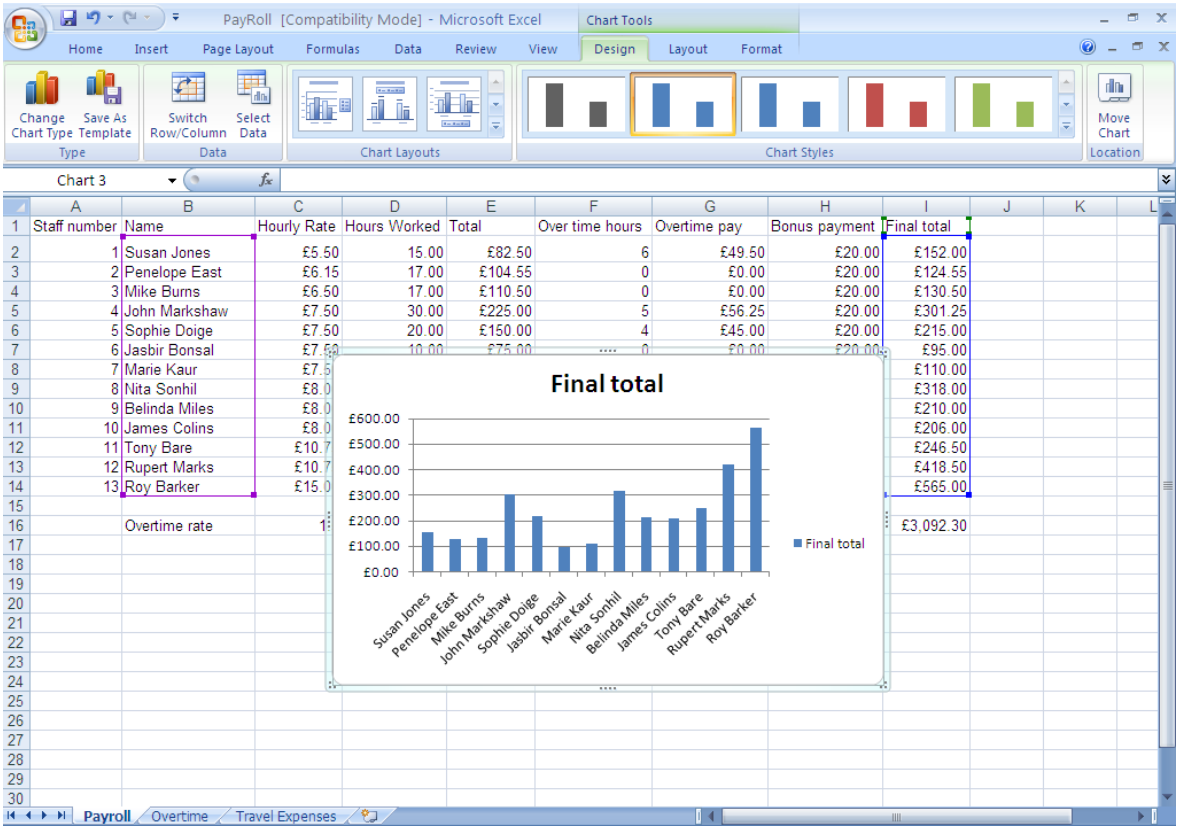
From the **Charts** group of commands on the **Insert** tab select:

- Column 

- Choose the **Clustered Column** option (the first 2-D column chart option)



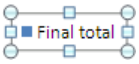
A chart is inserted in the worksheet and three contextual tabs containing chart tools are visible on the ribbon.



With the chart selected

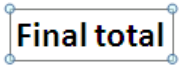
- Drag the chart down so that it does not overlap with the data table

The Legend is not particularly helpful for this chart so you will delete it.

- Click onto the Legend to select it 

- Press the **Delete** key

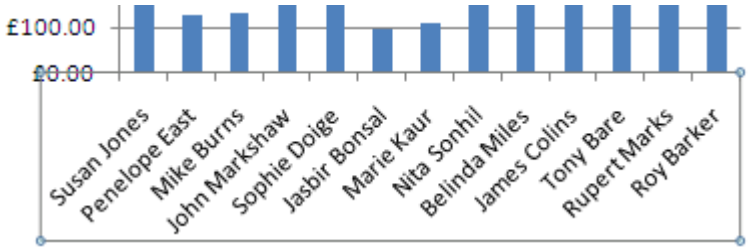
To change the title of the chart:

- Click onto the chart title to select it 

- Type **Staff Pay** (note that as you type, the title does not change; the text is only shown in the formula bar)
- Press **Enter**

To change the font and size of the axis labels:

- Click onto the names at the bottom of the chart to select them



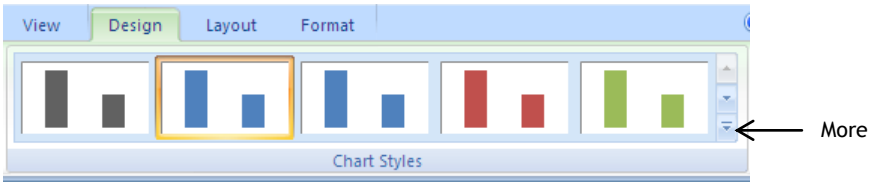
- Select the **Home** ribbon tab

In the **Font** group of commands

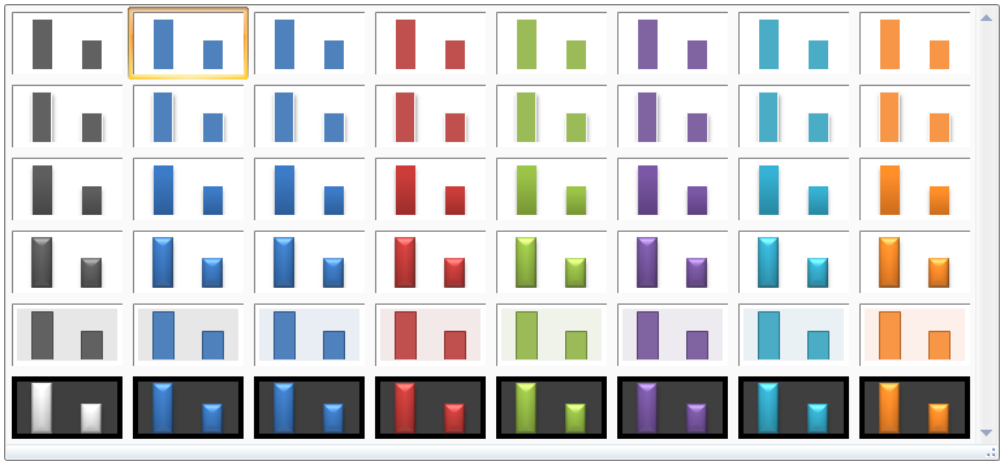
- Change the Font to **Arial**
- Change the Font Size to **8**

Excel includes built-in chart styles that you can choose to enhance the look of your chart.

- Ensure that the chart is selected
- Select the **Design** contextual tab
- Click the **More** arrow at the side of the **Chart Styles** group

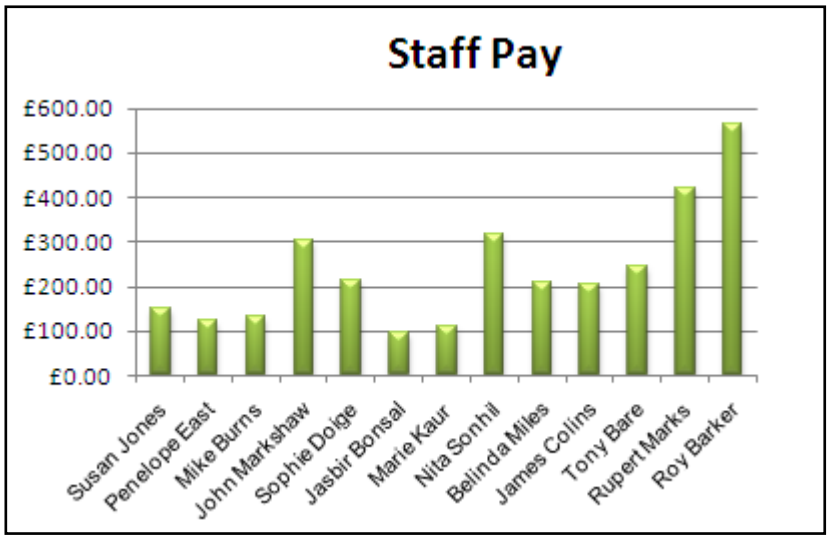


The full set of Chart Styles is displayed.



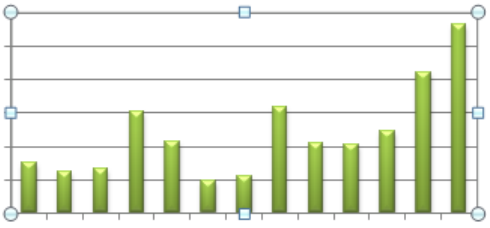
- Choose **Style 29**

The new style is applied to the chart.



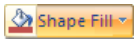
To change the background of the Plot Area.

- Click the Plot Area to select it

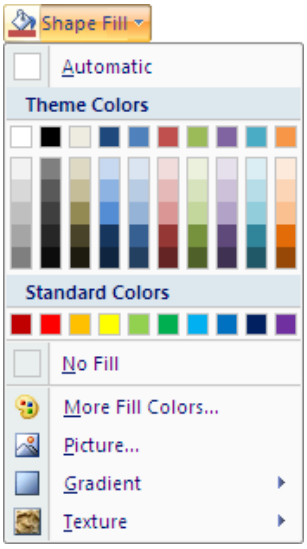


- Select the **Format** contextual tab

In the **Shape Styles** group of commands

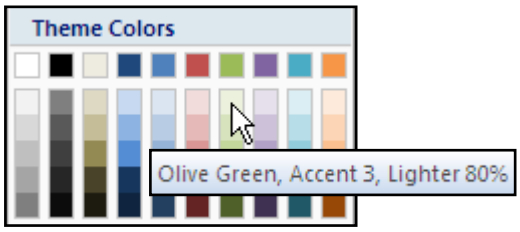
- Click the down arrow by the **Shape Fill** tool 

The Shape Fill options are displayed.

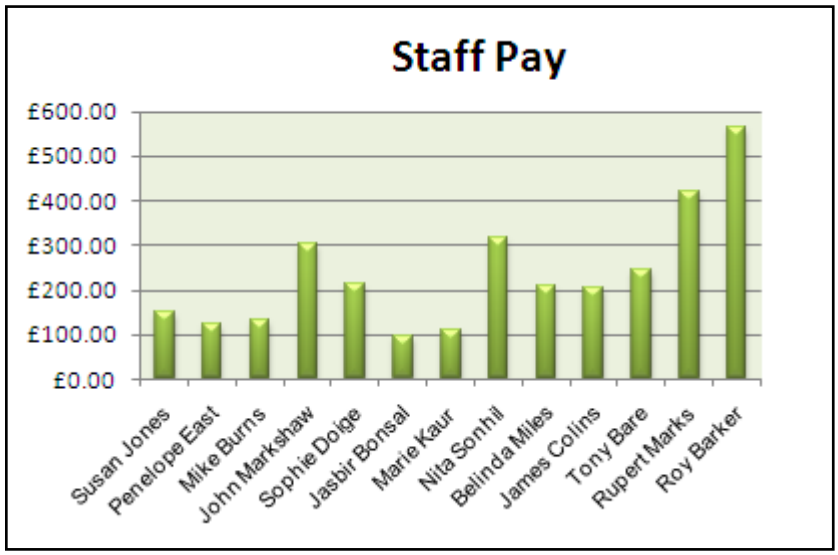


From the **Theme Colors** section choose:

- Olive Green, Accent 3, Lighter 80%



The background is changed to the selected colour.

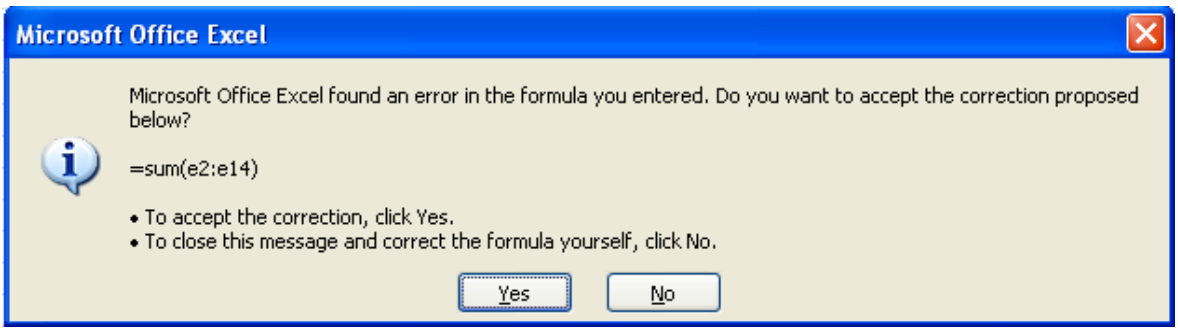


- Change the size of the numbers on the vertical axis to **8**
- Create a pie chart using the **Name** and **Final Total** fields
- Change the title of the pie chart to **Pay**
- Ensure that all staff names are shown
- Position this chart next to the column chart at the bottom of the data table
- Save the worksheet

ERROR MESSAGES

Error messages come in several guises and some are more helpful than others in telling you where the error lies. If you have an error message, the best advice is to read it and try to understand before taking any action.

The example below is quite useful. It tells you that there is an error in the formula (there was a semi-colon in the range instead of a colon) and suggests a solution which you can choose to accept.



If you choose not to accept it, more information is offered and it is up to you to decide what the error is and how it should be amended.

WHAT DOES IT MEAN?

######- cell not wide enough to display the numerical value

#NAME? - a formula refers to a name that Excel does not recognise

#VALUE! - a cell referenced in a formula does not have a numerical value

#DIV/0! - number is divided by zero

#REF! - a formula includes an invalid reference

- Close the workbook
- Close Excel