

Excel Intermediate

by Libby Baker



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Creating Formulas

Using a formula can help you analyse data on a worksheet. With a formula you can perform operations, such as addition and multiplication. Think of a formula as one side of an equation whose result is shown in the cell.

An Excel formula always begins with an equal sign (=).

Arithmetic Operators

+	Addition	-	Subtraction
/	Division	*	Multiplication
%	Percent	^	Exponentiation

Examples

=B4+B8

=C6*12.5%

=C9/9

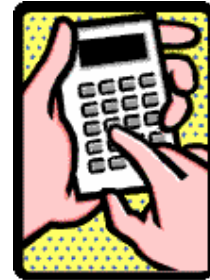
=Z42-Z41

=20^2*.15

=(B6*5)+C5

*Note: You can use Excel as a calculator if required. eg. =56*49*

Notes:



Functions

A function is a built-in formula that takes a value or values, performs an operation and returns a value. The values that you give to a function are called arguments.




For example, instead of typing the formula

`=B1+B2+B3`

you can use the SUM function to build the formula

`=SUM(B1:B3)`

Note: When you use the AutoSum button  Excel types the function for you and even suggests the range of cells you want to add.

To access the function list choose the Function Wizard button



or select Insert Function. The Help button in the Function Wizard is especially useful to give a full description and example of any function.

Some commonly used functions:

<code>= AVERAGE</code>	returns the average of its arguments
<code>= TODAY()</code>	displays current date calculated from the
<code>= NOW ()</code>	computer's clock
<code>= MAX</code>	returns the minimum value in a list of
	arguments
<code>= PMT</code>	
<code>= IF</code>	

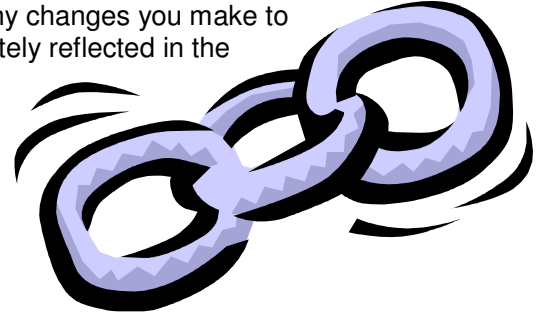
Notes:

Linking Worksheets

You can link a formula in a worksheet to source data located in another worksheet so that any changes you make to the source data are immediately reflected in the linked formula.

Linking One Cell

1. Select a cell in the Target worksheet.
2. Type an = sign to start a formula.
3. Select the cell in the Source worksheet.
4. Press Enter.

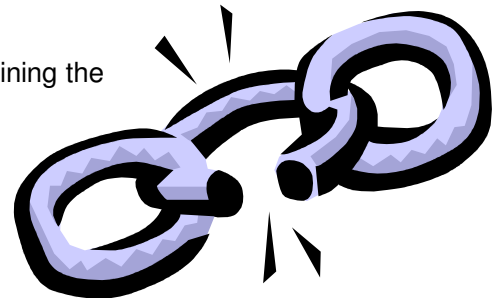


Linking a Range of Cells

1. From the Source worksheet select the range you would like to use.
2. Choose Edit Copy.
3. Select the Target worksheet.
4. Choose Edit Paste Special.
5. Select Paste Link.

Removing Links

1. Copy the cell(s) containing the formula.
2. Choose Edit Paste Special.
3. Select the Values option button.

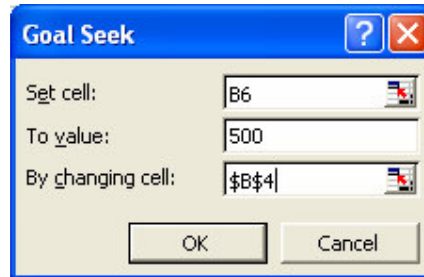


Note: Another way to link is to use the camera tool. See customising toolbars.

Notes:

Goal Seek

1. Select a cell with a formula
2. From the Tools Menu select Goal Seek
3. Select a value
4. Select the changing cell



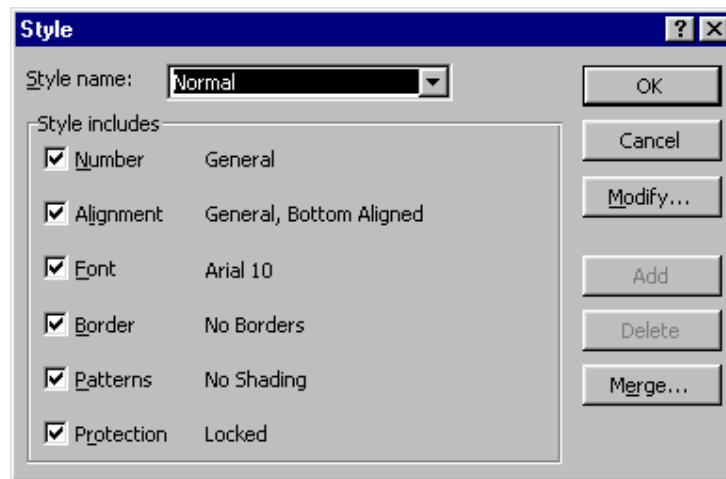
Remember you can Undo if you need to.

Notes:

Styles & Templates

Styles

A quick way to format an entire worksheet is to use the Format Style menu.



Select Modify and make any changes. The default for the entire sheet will change.

You can also do this by using the Style drop down menu. See customising toolbars.



Format a cell as you normally would. Select the style you want to redefine eg Normal. Choose OK.

Notes:

Templates

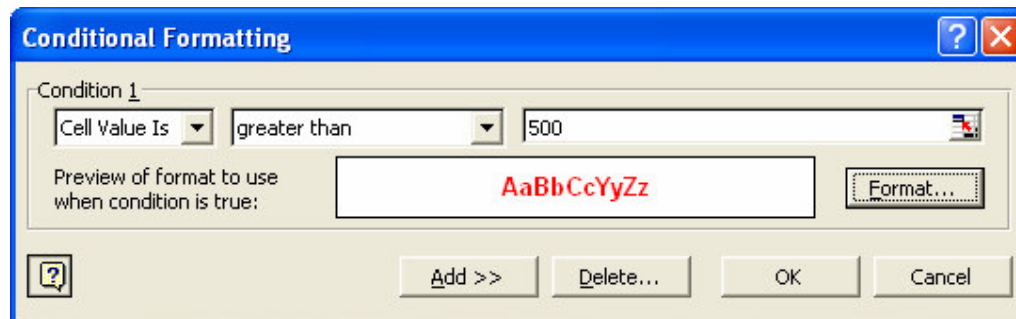
If you have a set of styles, formulas, layouts that you would like to use again save your workbook as a template.

Select File Save As and choose Template under File Type. The extension will be **.xlt**. In order to use the template close the file. Reopen by selecting the file with the **.xlt** extension. You may now make any changes and save this file as an Excel Workbook. You may reuse the template as many times as you like.

Conditional Formatting


Applies formats to selected cells based on criteria that you specify.

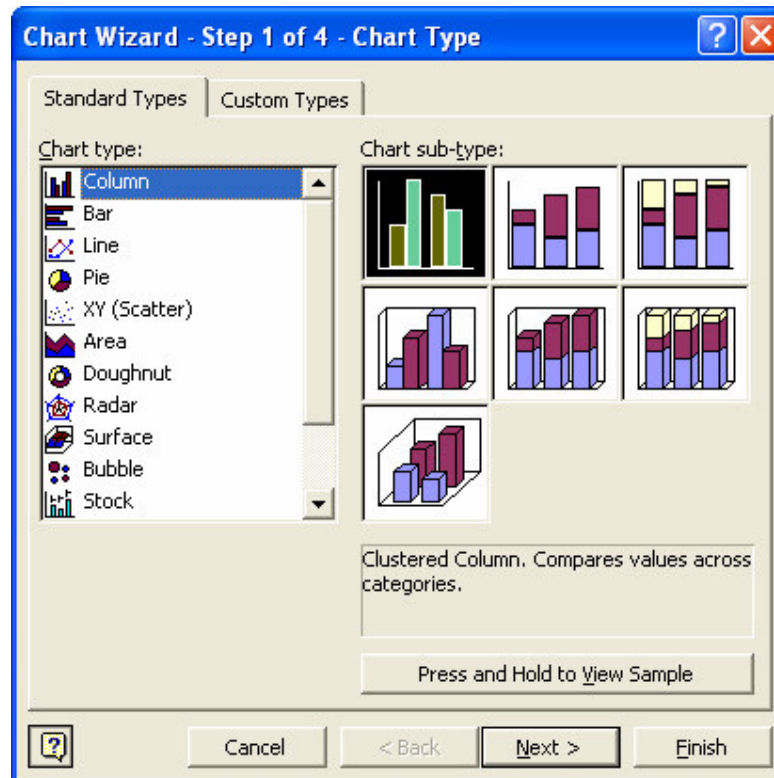
1. Select the cell or cells you wish to format
2. From the Format Menu select Conditional Formatting



Notes:

Creating Charts

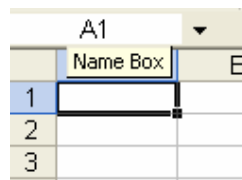
1. Select the cells that contain the data you want to use for your chart.
2. Click **Chart Wizard**. 
3. Follow the instructions in the Chart Wizard.



Notes:

Range Names & GoTo

In the top left corner of your spreadsheet is a drop down Name box.



Select any cell or range of cells and go to the Name Box. Type in a name e.g. January and press Enter.

The name has to be one word so if you want two words connect using an underscore eg January_2004

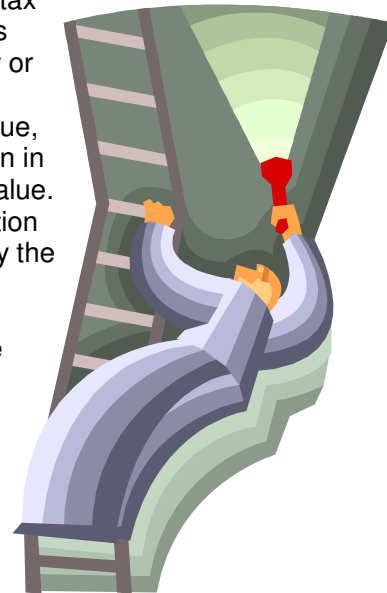
Use the Name Box to GoTo any cell or Range Name. F5 is another useful shortcut.

Notes:

Lookup Functions

LOOKUP

The LOOKUP function has two syntax forms, vector and array. A vector is an array that contains only one row or one column. The vector form of LOOKUP looks in a vector for a value, moves to the corresponding position in a second vector, and returns this value. Use this form of the LOOKUP function when you want to be able to specify the range that contains the values you want to match. The other form of LOOKUP automatically looks in the first column or row.



Important The values must be placed in ascending order: ..., -2, -1, 0, 1, 2, ..., A-Z, FALSE, TRUE; otherwise, LOOKUP may not give the correct value.

Note: If LOOKUP can't find the lookup_value, it uses the largest value in the array that is less than or equal to lookup_value.

HLOOKUP and VLOOKUP allow you to index down or across, but LOOKUP always selects the last value in the row or column.

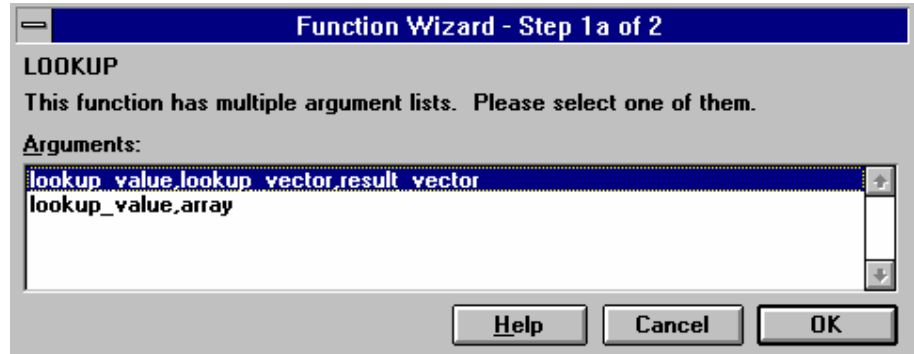
HLOOKUP Looks in the top row of an array and returns the value of the indicated cell.

VLOOKUP Looks in the first column of an array and moves across the row to return the value of a cell.

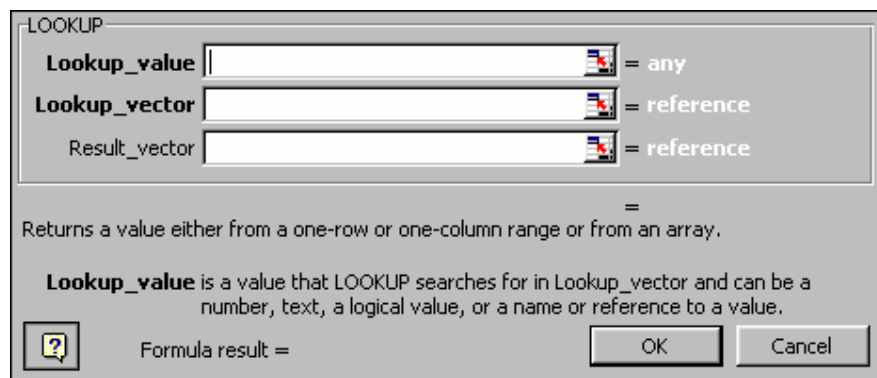
Exercise

	A	B
1	Frequency	Colour
2	4.14	red
3	4.19	orange
4	5.17	yellow
5	5.77	green
6	6.39	blue
7	7.32	violet

Under the Lookup & Reference Category in the Function Wizard select Lookup



Select the first option



=LOOKUP(4.91,A2:A7,B2:B8)

In the preceding worksheet:

=LOOKUP(4.91,A2:A7,B2:B7) equals "orange"

=LOOKUP(7.66,A2:A7,B2:B7) equals "violet"

Notes:

Outlining a Worksheet



You can outline your worksheet data to create summary reports. With summary reports, you can show or hide as much detail as you want.

Automatic Outlining

Automatic outlining relies on formulas.

1. Select the data you want to outline.
2. Select Data, Group and Outline
3. Choose the Auto Outline

	1						
	2						
1 2		A	B	C	D	E	F
	1		QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
·	2	RENT	345	345	345	345	1380
·	3	PHONE	47	146	220	120	533
·	4	POWER	344	555	656	432	1987
·	5	ENTERTAINMENT	345	767	340	545	1997
[-]	6	TOTAL	1081	1813	1561	1442	5897

By selecting the button labelled  you can show one level revealing the headings and total. You can also hide the rows by selecting the  button.

	1						
	2						
1 2		A	B	C	D	E	F
	1		QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
+	6	TOTAL	1081	1813	1561	1442	5897

Notes:

Removing an Outline

You can remove a portion of an outline or an entire outline from your worksheet.

To remove	Do this
A portion of an outline	<ol style="list-style-type: none"> 1. Select the rows or columns from which you want the data removed. 2. Choose the Group and Outline command from the Data menu. 3. Choose the Clear Outline Command.
The entire outline	Select the entire outlined range. Follow steps 2 & 3 above.



Note: To turn the outline symbols off/on without clearing the outline use this icon in the Utilities category when customising your toolbars.

Notes:

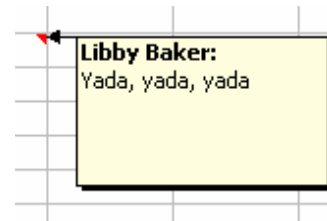
Adding Comments

You can attach text to a cell containing a value that needs explanation, or to a cell containing a complex formula that you want to document for future reference.

1. Select the cell to document.
2. Right click to Insert Comment.



A red triangle at the top right corner of the cell will appear indicating a note. If this does not appear select Tools, Options, View, Comment Indicator.



Printing Comments

1. In the Page Setup menu choose the Sheet Tab.
2. Select Comments.
3. If you want a cell reference attached to the Note choose Row and Column headings.

Notes:

Hiding & Protecting Worksheets

Hiding Modules

If you have written a macro that you would like to hide select Edit Sheet Hide. When you select a macro to edit it is automatically “Unhidden.”

Hiding Worksheets

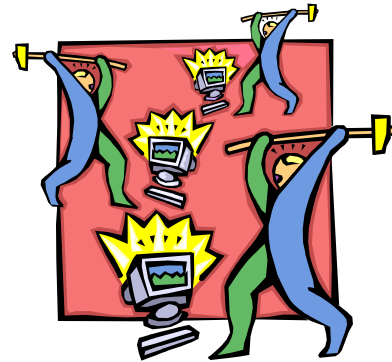
While writing macros you may choose to hide worksheets and the command is slightly different. Choose Format Sheet Hide. You may also Unhide sheets and modules from the same menu.

Notes:

Protecting Workbooks & Sheets

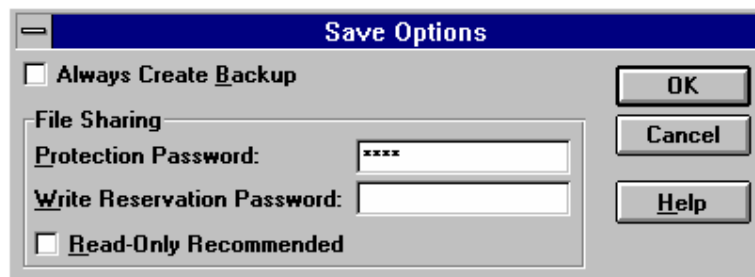
Restricting Access

- Preventing workbooks from being opened or saved
- Protecting formulas, objects, headings
- Hiding a Workbook, selected sheets, rows, or columns
- Preventing formulas from appearing in the formula bar



Requiring a Password When a Workbook is Opened

1. Open the workbook.
2. Choose File Save As.
3. Choose the Options button.
4. In the Protection Password box, type a password.
5. Choose OK
6. Retype the password.
7. Choose OK.



*Note: Passwords are case sensitive. If you forget the password, you **cannot** open the workbook.*

Requiring a Password When a Workbook is Saved

For *Look but Don't Touch* access.

Follow the previous steps but type the password in the Write Reservation Box. Alternatively you can choose Read-Only Recommended. This allows a user to save a copy but the original workbook remains unchanged.

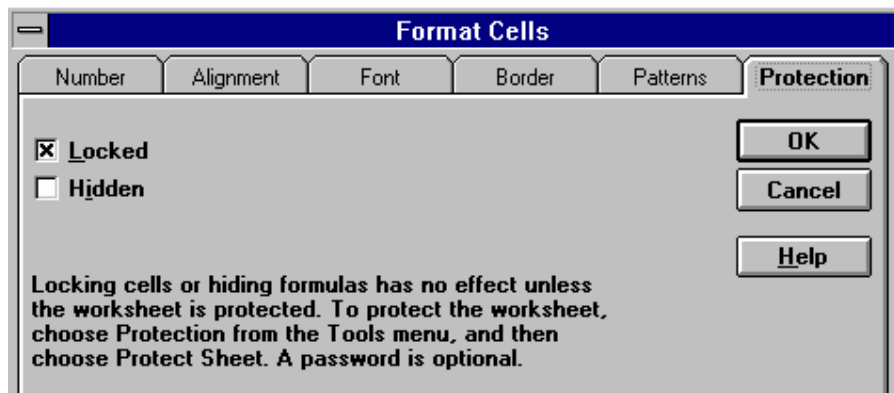
Removing Passwords

1. Open the workbook.
2. Choose File Save As and Options.
3. Press the Delete key to remove password(s).

Protecting an area of your Worksheet

You might want to prevent changes to some cells and leave other cells unlocked ie. formulas.

1. Select the cells that you want to allow changes or entries to.
2. Select Format Cells and the Protection Tab.



1. Clear the Locked check box.
2. From the Tools menu select Protection, Protect Sheet.
3. A password is optional.

Note: You can use the Tab key to move between unlocked cells on a protected worksheet.

Notes: