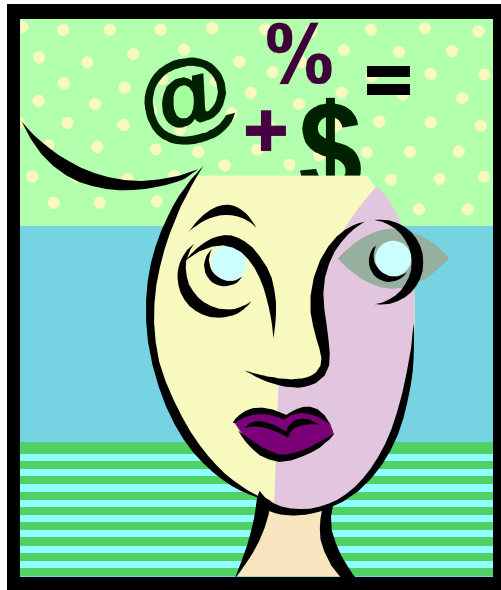


# Excel Advanced

by Libby Baker



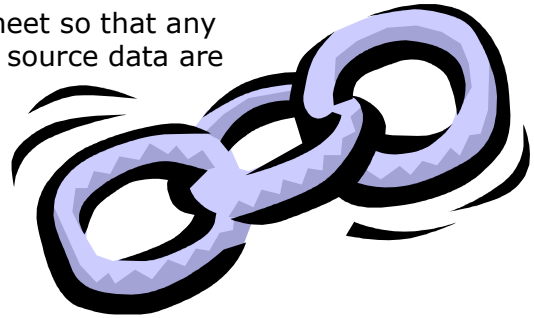
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## Linking Worksheets

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

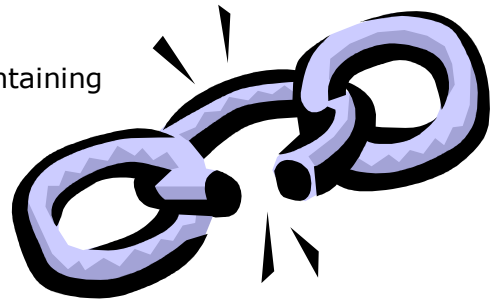
1. Select a cell in the Target worksheet.
2. Type an = sign to start a formula.
3. Select the cell in the Source worksheet.
4. Press Enter.

### 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.



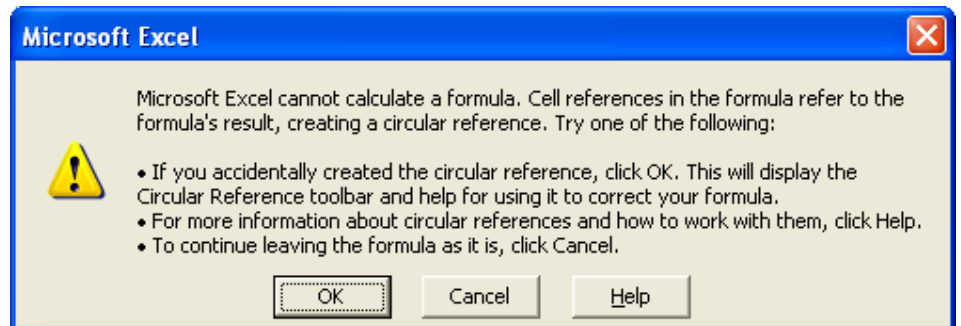
*Note: Another way to link is to use the camera tool. See customising toolbars.*

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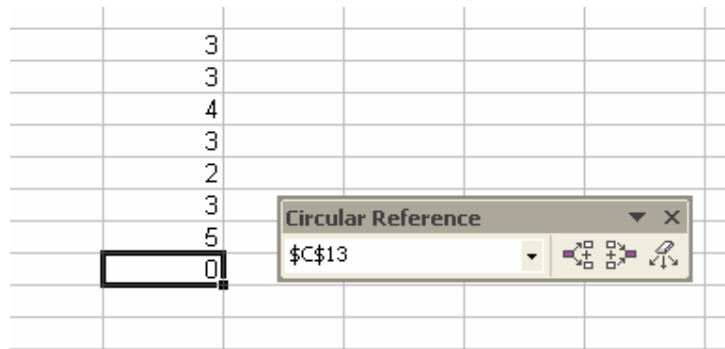
Notes:

## Circular References

When a formula uses the cell it's in to try and calculate an error message comes up.



After selecting OK a dialog box appears for every circular reference.



Select the drop down and find each reference. The Error may mean editing the formula in the Formula Bar e.g. =SUM(C6:C13)

## Formatting Cells

Use formatting to add emphasis to your data, or to make worksheets easier to read and more visually appealing. You can format numbers to have \$'s and limited decimal places.

Format worksheet cells before or after you enter your data. Apply cell formats by choosing the Cells command from the Format menu or try your right mouse button. The most frequently used formats are also available as buttons on the Formatting toolbar.



1. Select the range you would like to format.
2. Choose Format Cells and pick the tab(s) with the formatting you want.
3. Choose OK.

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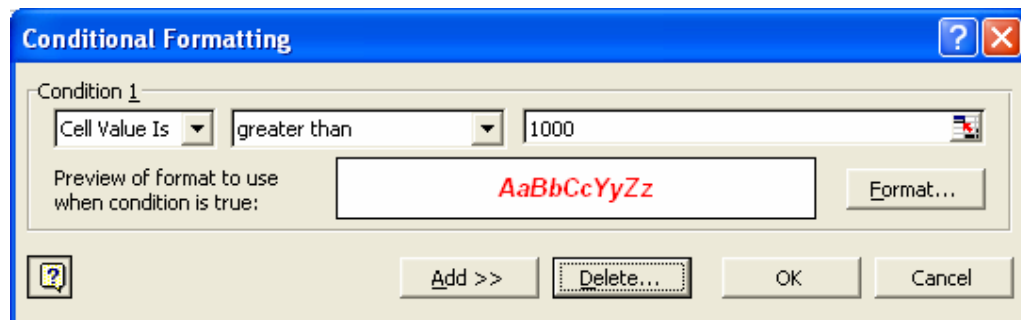
Notes:

## Conditional Formatting

### Highlight cells that meet specific conditions

1. Select the cells you want to highlight.
2. On the **Format** menu, click **Conditional Formatting**.
3. Do one of the following:

To use values in the selected cells as the formatting criteria, click **Cell Value Is**, select the comparison phrase, and then type a value in the appropriate box. You can enter a constant value or a formula. If you enter a formula, you must start it with an equal sign (=).



To use a formula as the formatting criteria (to evaluate data or a condition other than the values in selected cells), click **Formula Is** in the box on the left, and then enter the formula in the box on the right. The formula must evaluate to a logical value of TRUE or FALSE.

4. Click **Format**.
5. Select the **font style**, **font color**, **underlining**, **borders**, **shading**, or patterns you want to apply.

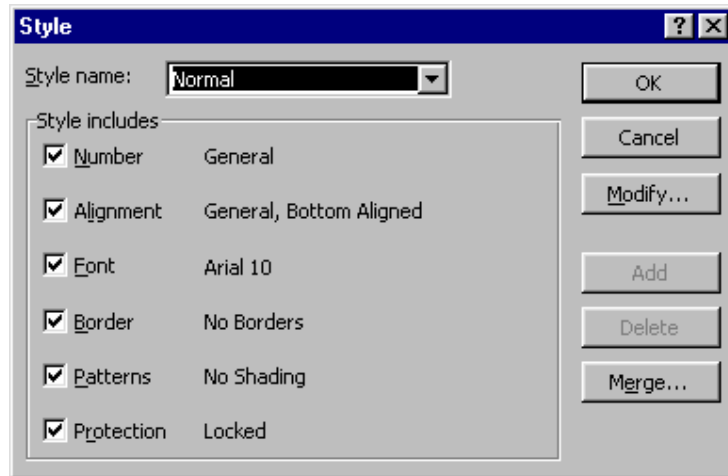
Microsoft Excel applies the selected formats only if the cell value meets the condition or if the formula returns a value of TRUE.

6. To add another condition, click **Add**, and then repeat steps 3 through 5.

## 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.

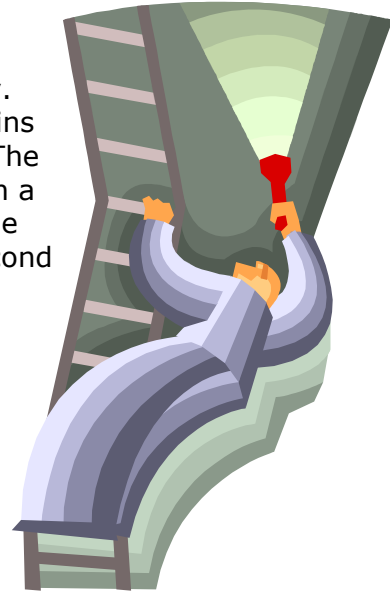
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Notes:

## 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.

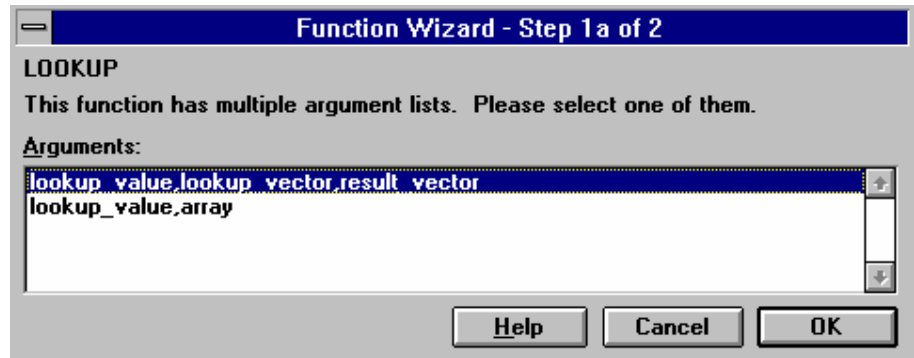
**HLOOKUP** Looks in the top row of an array and returns the value of the indicated cell.

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

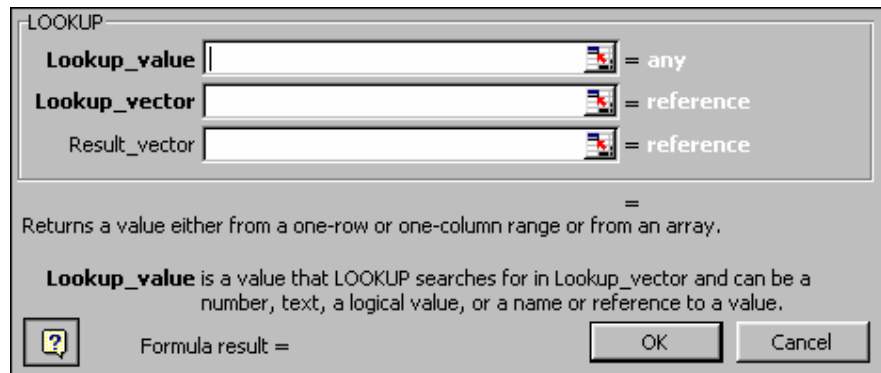
### Exercise

	A	B
<b>1</b>	<b>Frequency</b>	<b>Colour</b>
<b>2</b>	4.14	red
<b>3</b>	4.19	orange
<b>4</b>	5.17	yellow
<b>5</b>	5.77	green
<b>6</b>	6.39	blue
<b>7</b>	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

Outline your worksheet data to create summary reports. Show or hide as much detail as you like.

### 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 **1** 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

Remove a portion of an outline or an entire outline from your worksheet.

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



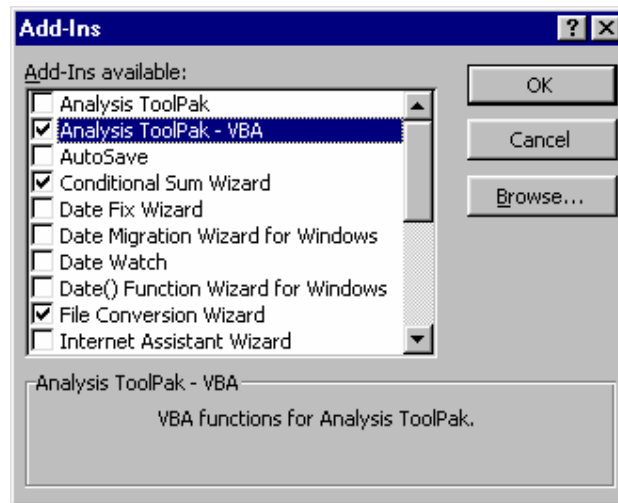
*Note: To turn the outline symbols off/on without clearing the outline use this icon in the Utilities category when customising your toolbars.*

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Notes:

## Add-Ins

Select the Add-ins command from the Tools menu.



### **Analysis Toolpak**

This Add-In contains some valuable functions such as Convert for converting from one measurement system to another eg miles to kilometres.

### **Autosave**

Excel does not have an autosave feature by default. It must be installed through the Add-In Manager.

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Notes:

## Auditing features

### Auditing Toolbar

Open the Auditing Toolbar by selecting View Toolbars Auditing or use your right mouse button on any toolbar.



### Tracing Precedents & Dependents

Precedents are cells that are referred to by a formula. Dependents are cells containing formulas that refer to other cells.

	A	B
1		QTR 1
2	RENT	345
3	PHONE	47
4	POWER	344
5	ENTERTAINMENT	345
6	TOTAL	1081

*Try double-clicking on any arrow.*

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Notes:

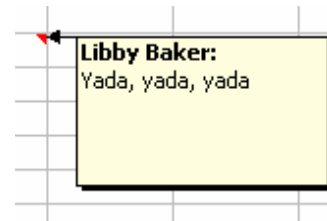
## Adding Comments

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. Click the New Comment button.
3. Type your note and choose Add.



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.

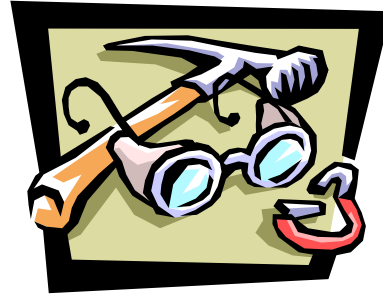
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Notes:

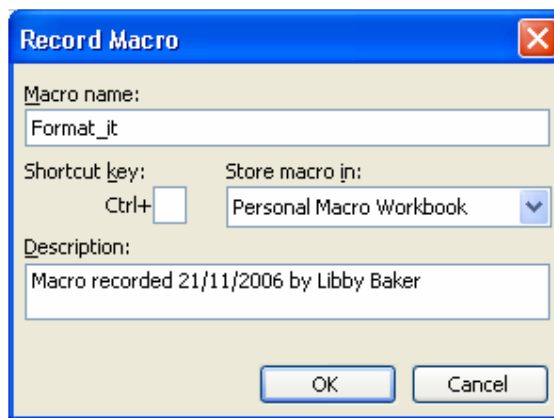
## Macros

### Overview of Recording and Running a Macro

Recording a macro  
*The easiest way to learn how to use Excel's Visual Basic is to record a macro.*



1. From the Tools menu, choose Macro, and then choose Record New Macro.



2. In the Macro Name box, type a name for the macro.
3. In the Description box, type a description of the macro.
4. Select where you will store the macro. If you select Personal Macro Workbook it will be available for all of your workbooks.
5. OK
6. Carry out the actions that you want to record.
7. Click the Stop Macro button.



### Recording with Relative/Absolute References

Turns relative references on or off. Unless this command is turned off, the Macro Recorder uses relative, not absolute, references to cells on a worksheet.

### Adding to a Recorded Macro

Alt F11 moves you to the Visual Basic Editor.

As well as directly typing you may copy and paste from previously written macros.

### Running a macro

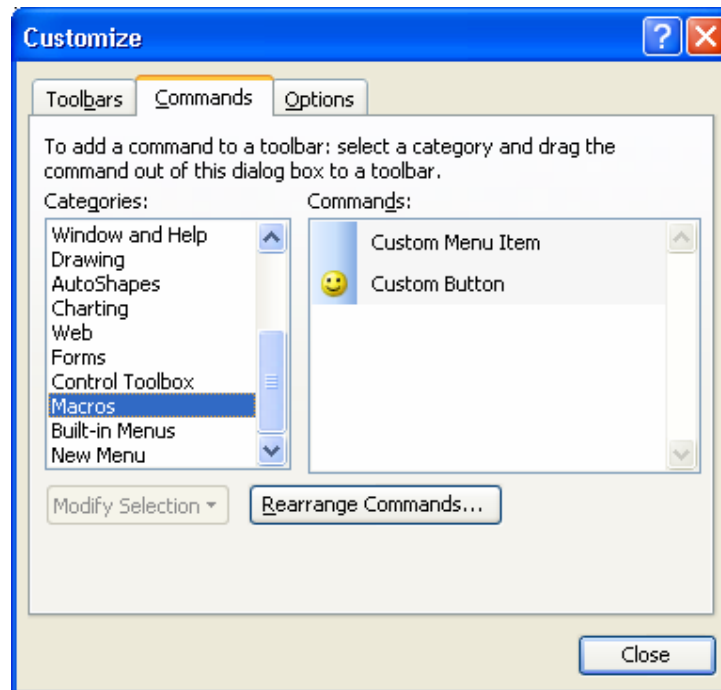
1. From the Tools menu, choose Macro.
2. In the Macro Name/Reference box, type or select a macro name.
3. Choose the Run button.

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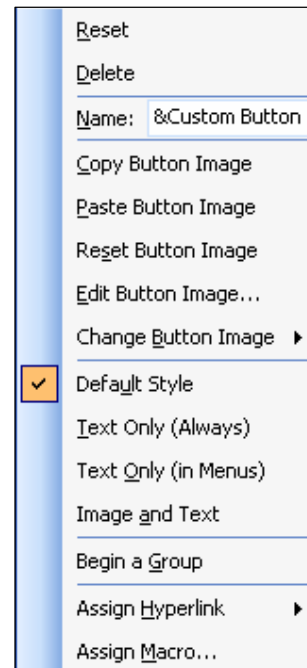
Notes:

## Assigning a Macro to the Tools Menu, a Button, or a Graphic Object

- ▼ Select Tools Customize, Commands, Macros



- ▼ Drag the Custom Button to a toolbar
- ▼ Right click the Smiley Face and assign the macro to the button
- ▼ Right click to make any further changes



Notes:

## Customising Toolbars

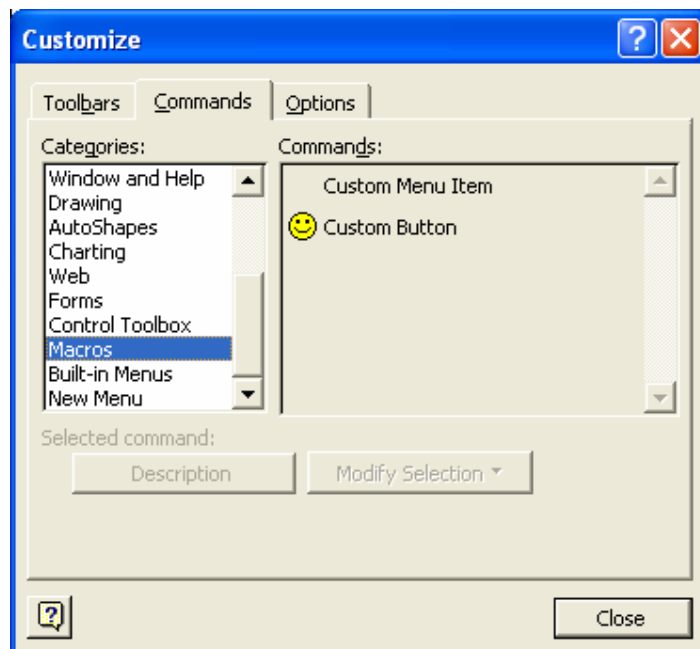
You can display any of the Excel built-in toolbars, and you can customise them to include the buttons that you use the most. You can also create entirely new custom toolbars.

Click any toolbar with the right mouse button to display the toolbar shortcut menu or choose View Toolbars.

### Creating Custom Toolbars

To create a custom toolbar choose Toolbars from the list and type a name in the Toolbar box. Choose the New button.

The Customise Dialog box will appear. You can then drag the button you want onto the new toolbar.



*Right - click the button to further modify.*

### Customising Existing Toolbars

To add an existing button to a toolbar, choose the Customise command from the toolbar shortcut menu. Drag the button to the toolbar. You may also drag any button off a toolbar.

### Editing a macro

1. From the Tools menu, choose Macro.
2. In the Macro Name/Reference box, type or select the name of the macro you want to display.
3. Choose the Edit button.
4. Move the insertion point and then type new code or delete existing code as necessary.

*Note: Select any command and press F1 and the context sensitive Visual Basic Help will appear. Using the on-line examples you can copy and paste them into a module for reference.*

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Notes:

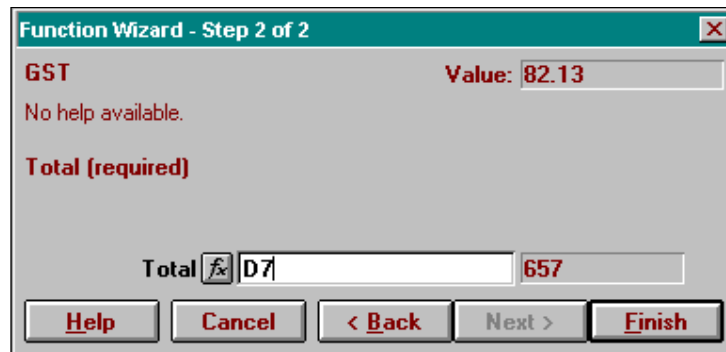
To create a user-defined function

1. Create a new Visual Basic module. Choose Macro from the Insert menu, and then choose Module. (or use your right button on the sheet tab and select Insert Module)
2. In the module, type **Function** followed by your function name.
3. Type the arguments, enclosed in parentheses, separating each argument with a comma.
4. Press ENTER.
5. Type your Visual Basic code.
6. Type **End Function** and then press ENTER.

*Example (if the Total is GST exclusive)*

```
Function GST(Total)  
GST=Total/8  
End Function
```

Using the Function Wizard and selecting the User Defined Category your custom functions will be listed.



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.

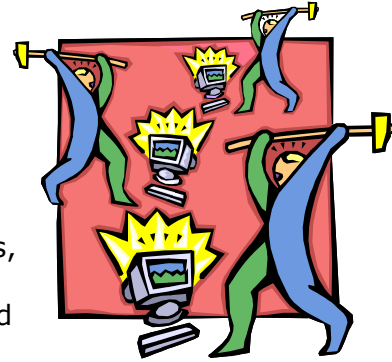
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Notes:

## Protecting Workbooks & Sheets

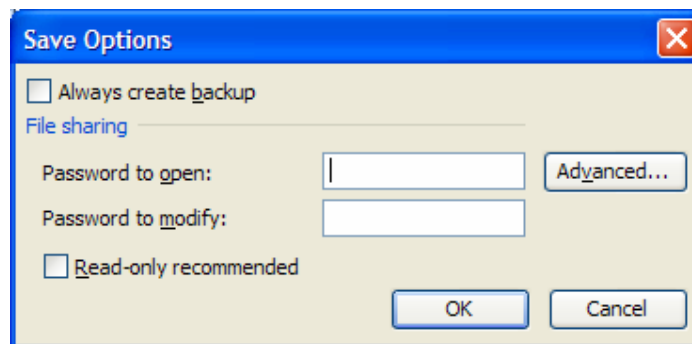
### Restricting Access

- 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 Tools GeneralOptions 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.*

### 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.

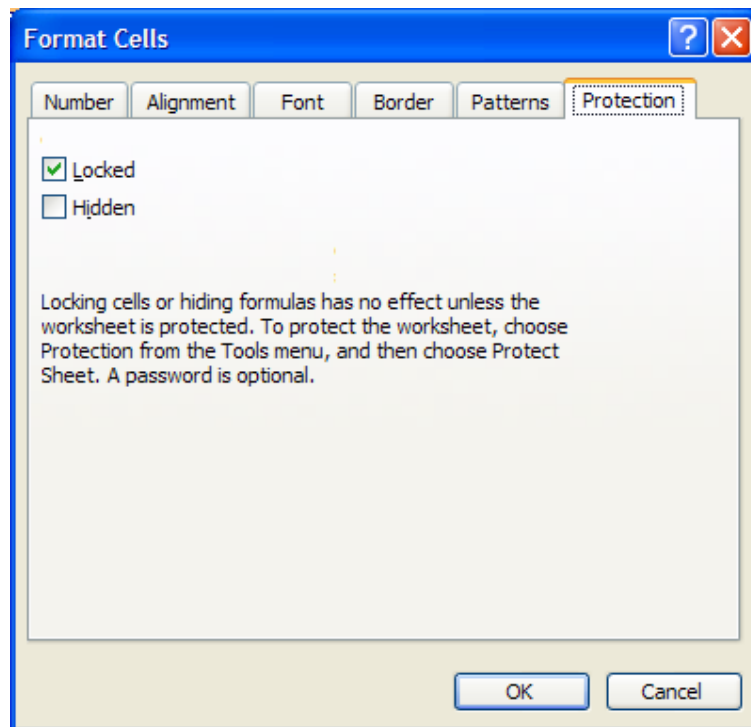
## Removing Passwords

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.