



Excel 2002 – Tutorial I

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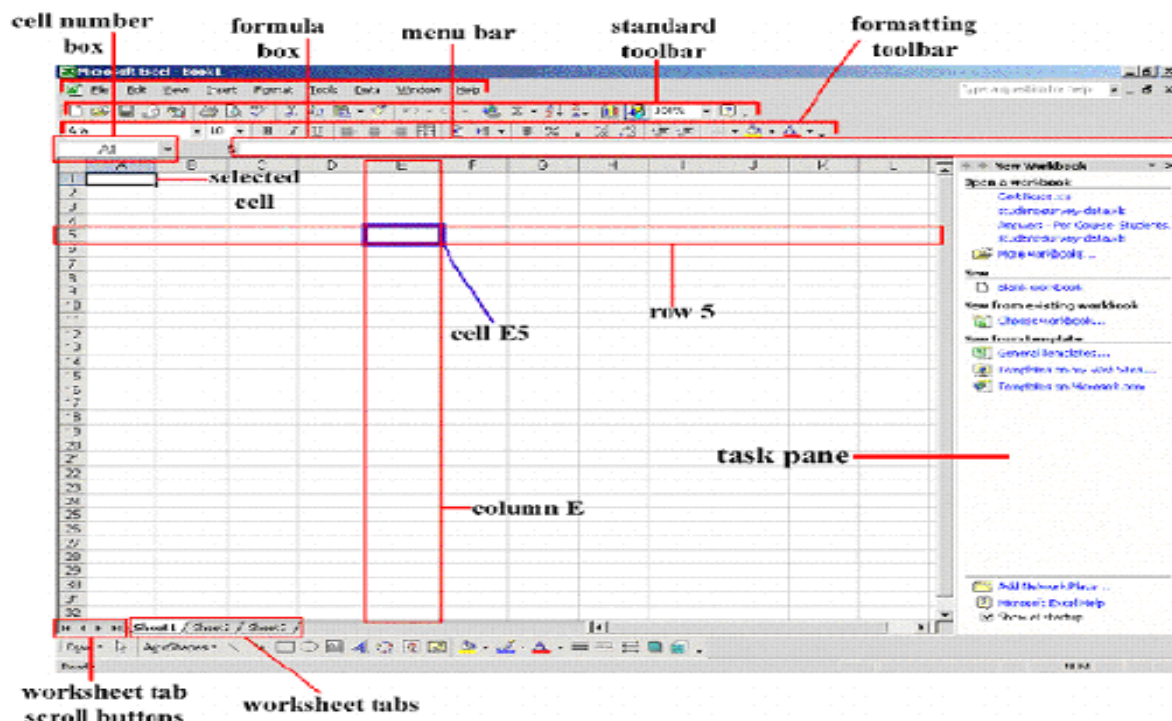
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Spreadsheet Basics

Excel is a spreadsheet program you can use to organize, analyze and attractively present data such as a budget or sales report. Each Excel file is a **workbook** that can hold many **worksheets**. The worksheet is a grid of **columns** (designated by letters) and **rows** (designated by numbers). The letters and numbers of the columns and rows (called **labels**) are displayed in gray buttons across the top and left side of the worksheet. The intersection of a column and a row is called a **cell**. Each cell on the spreadsheet has a **cell address** that is the column letter and the row number. Cells can contain text, numbers, or mathematical formulas.

Microsoft Excel 2002 Screen Elements



1- **Title bar**: contains the name of the program (Microsoft Excel), and the default name of the file (Book 1) that would change as soon as you save your work.

2- The different toolbars:

a. **Menu bar**: contains menus that include all the commands you need to use to Work your way through Excel such as (**File, Edit, View, Insert, Format, Tools, Window, and Help**).

b. **Standard toolbar**: contains mainly shortcuts to the commands found in the menus previously explained. They have the same shape of icon. (New, Open, Save, Print,...etc.)

c. **Formatting toolbar**: mostly used to format text (font type/ size/ alignment/ color, text indentation, bulleted/ numbered lists, borders... etc).

d. **Drawing toolbar** (if found on screen): contains certain commands for drawing shapes, filling colors ... etc).

To add or remove toolbars: right click on the toolbars area, and select/deselect any toolbar.

3- **Scroll bars** : allow you to browse through a worksheet.

4- **Task Pane**: this is the newest and highly advanced feature in all of the Microsoft Office XP pack. It appears each time you start Excel.

To display or hide the task pane:

Click **View > Task pane**

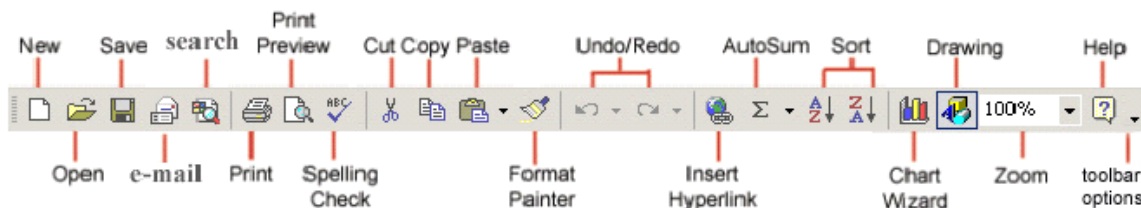
To *close* it, click on the small “x” button at the top-left corner.

What task panes are available in Excel?


- a. **New Workbook**: to open or create new workbooks.
- b. **Clipboard**: Displays each item you have selected to move or copy
- c. **Search**: allows you to search for workbooks on your computer.
- d. **Insert ClipArt**: allows you to add clipart images to your worksheets.


The Standard Toolbar


This toolbar is located just below the menu bar at the top of the screen and allows you to quickly access basic Excel commands.




Note: If not all the list appears, press on the toolbar options button  placed at the end of any toolbar, and press on “Add or Remove Buttons” tag.

New -  Select **File > New** from the menu bar, **or** click the **New** button to create a new workbook.

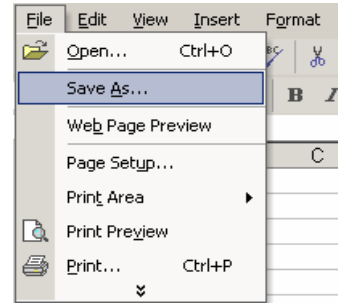
Open -  Click **File > Open** from the menu bar, **or** click the **Open** button to open an existing workbook.


Save -  To save click on the save button of the standard toolbar. Choose a folder to save in, and a filename, then press save. This is done only the first time you try to save a workbook/file. It is recommended that you save your work every two or three minutes. All you have to do is to


press on the save button , or simply go to **File>Save**. This will update your initial file.


Save as: To save a different copy or version:


Click on the “save as” option in the file menu, and save your document under a different name.





Print -  Select **File > Print** from the menu bar, **or** click the **Print** button to print a worksheet.

Print Preview  - Select **File > Print Preview** from the menu bar, **or** click the **Print Preview** button to preview the worksheet before it prints.

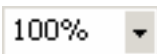
Spell Check -  Use the spell checker **to correct spelling errors** on the worksheet.

Cut, Copy, Paste, and Format Painter  - These actions are explained in the Modifying Worksheets section.

Undo and Redo -  Click the backward **Undo** arrow to cancel the last action you performed, whether it be entering data into a cell, formatting a cell, entering a function, etc. Click the forward **Redo** arrow to cancel the undo action.

Insert Hyperlink -  To insert a hyperlink to a Web site on the Internet, type the text into a cell you want to be the link that can be clicked with the mouse. Then, click the Insert Hyperlink button and enter the Web address you want the text to link to and click **OK**.

Autosum, Function Wizard, and Sorting - These features are discussed in detail in the Functions tutorial.

Zoom -  To change the size that the worksheet appears on the screen, choose a different percentage from the Zoom menu.

Adding and Renaming Worksheets

The worksheets in a workbook are accessible by clicking the worksheet tabs just above the status bar. By default, three worksheets are included in each workbook. **To add a sheet**, select **Insert > Worksheet** from the menu bar. **To rename the worksheet tab**,

right-click on the tab with the mouse and select **Rename** from the shortcut menu. Type the new name and press the **ENTER** key.

Modifying a Worksheet

Moving Through Cells

Use the mouse to select a cell you want to begin adding data to and use the keyboard strokes listed in the table below to move through the cells of a worksheet.

Movement	Key stroke
One cell up	up arrow key
One cell down	down arrow key or ENTER
One cell left	left arrow key
One cell right	right arrow key or TAB
Top of the worksheet (cell A1)	CTRL+HOME
End of the worksheet (last cell containing data)	CTRL+END
End of the row	CTRL+right arrow key
End of the column	CTRL+down arrow key
Any cell	Edit > Go To (menu bar command)

Adding Worksheets, Rows, Columns, and Cells

- **Worksheets** - Add a worksheet to a workbook by selecting **Insert > Worksheet** from the menu bar.
- **Row** - To add a row to a worksheet, select **Insert > Rows** from the menu bar, or highlight the row by clicking on the row label, right-click with the mouse, and choose **Insert**.
- **Column** - Add a column by selecting **Insert > Columns** from the menu bar, or highlight the column: click on the column label, right-click with the mouse, and choose **Insert**.
- **Cells** - Add a cell by selecting the cells where you want to insert the new cells, Click **Insert > Cells >** click an option to shift the surrounding cells to the right or down to make room for the new cells.

Resizing Rows and Columns

There are two ways to resize rows and columns.

1. **Resize a row** by dragging the line below the **label of the row** you would like to resize. **Resize a column** in a similar manner by dragging the line to the right of the label corresponding to the column you want to resize.
- OR -

2. Click the row or column label and select **Format > Row > Height** or **Format > Column > Width** from the menu bar to enter a numerical value for the height of the row or width of the column.

Selecting Cells

Before a cell can be modified or formatted, it must first be selected (highlighted). Refer to the table below for selecting groups of cells.

Cells to select	Mouse action
One cell	click once in the cell
Entire row	click the row label
Entire column	click the column label
Entire worksheet	click the whole sheet button (upper left corner of the labels "empty label")
Cluster of cells	drag mouse over the cells or hold down the SHIFT key while using the arrow keys

To activate the contents of a cell or to edit it, double-click on the cell.

Moving and Copying Cells

Cutting Cells

To cut cell contents that will be moved to another cell select **Edit > Cut** from the menu bar or click the **Cut** button on the standard toolbar.

Copying Cells

To copy the cell contents, select **Edit > Copy** from the menu bar or click the **Copy** button on the standard toolbar.

Pasting Cut and Copied Cells

Highlight the cell you want to paste the cut or copied content into, and select **Edit > Paste** from the menu bar or click the **Paste** button on the standard toolbar.

Drag and Drop

If you are moving the cell contents only a short distance, the drag-and-drop method may be easier. Simply drag the highlighted border of the selected cell to the destination cell with the mouse.

Deleting Rows, Columns, and Cells

Rows_ select the row by clicking its number, Click **Edit > Delete**

Columns_ select the column by clicking its letter, Click **Edit > Delete**

Cells_ select the cells you want to delete, Click **Edit > Delete**

Freeze Panes

If you have a large worksheet with column and row headings, those headings will disappear as the worksheet is scrolled. By using the Freeze Panes feature, the headings can be visible at all times.

	A	B	C	D	E
6	Class 5	34	23	48	29
7	Class 6	54	71	24	48
8	Class 7	34	23	34	24
9	Class 8	45	34	34	34
10	Class 9	43	54	54	23
11	Class 10	23	34	34	71
12	Class 11	42	45	33	23
13	Class 12	28	34	34	34
14	Class 13	29	23	23	54
15	Class 14	48	71	71	34
16	Class 15	24	23	23	45
17	Class 16	22	34	34	28

1. Click the label of the row below the row that should remain frozen at the top of the worksheet.
2. Select **Window > Freeze Panes** from the menu bar.

To remove the frozen panes, select **Window > Unfreeze Panes**.

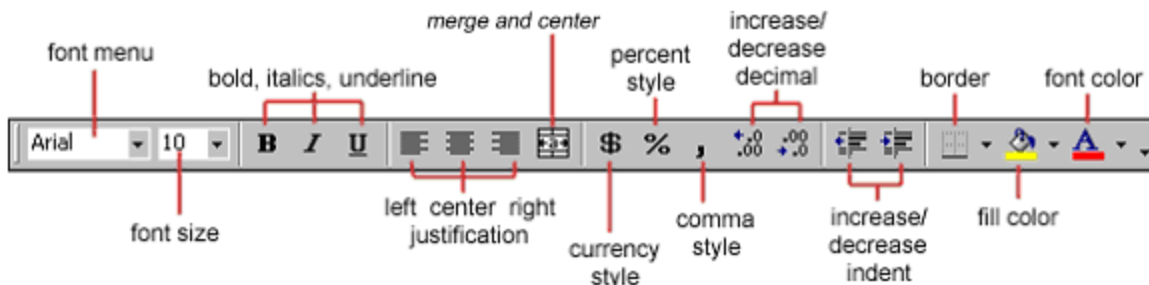
Freeze panes have been added to row 1 in the image above. Notice that the row numbers skip from 1 to 6. As the worksheet is scrolled, row 1 will remain stationary while the remaining rows will move.

Formatting Cells

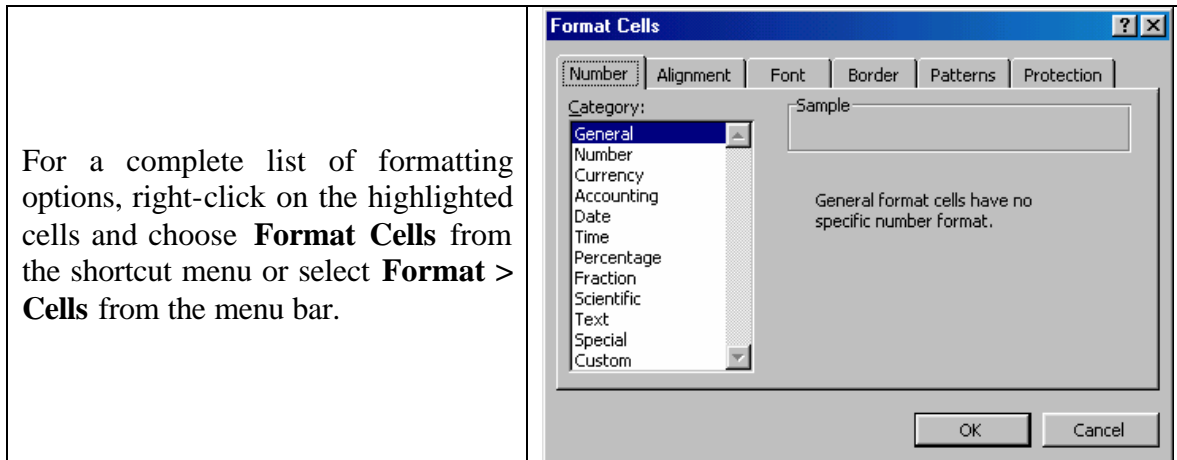
Formatting

Toolbar

The contents of a highlighted cell can be formatted in many ways. Font and cell attributes can be added from shortcut buttons on the formatting bar. If this toolbar is not already visible on the screen, select **View > Toolbars > Formatting** from the menu bar, or right click on the toolbars area, and select formatting any toolbar.



Format Cells Dialog Box

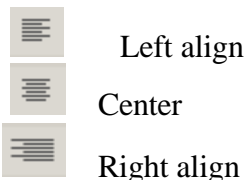


- **Number tab** - The data type can be selected from the options on this tab. Select **General** if the cell contains text and number, or another numerical category if the cell is a number that will be included in functions or formulas.
- **Alignment tab** - These options allow you to change the position and alignment of the data with the cell.
- **Font tab** - All of the font attributes are displayed in this tab including font name, size, style, and effects.
- **Border and Pattern tabs** - These tabs allow you to add borders, shading, and background colors to a cell.


Formatting Worksheet

1-Change Horizontal Alignment of Data:

- Select the cells containing the data you want to align differently.
- Click one of the following:




2- Change Data Color:


- Select the cells containing the data you want to change to a different color
- Click  on the formatting tool bar to choose the color you want to use. To change the color, **press** on the arrow on the right side of the box and then **select** the color you want by clicking on it.

3- Change Cell Color:

There are two ways to change the cell color:

1. Select the cells, Click  on the formatting toolbar.
2. Select the cells, Click **Format > Cells**. Click the **Pattern** tab, and choose a color

4- Indent Data:

- a. Select the data you want to indent in the cells.
- b. Click the indent increase/decrease  icon on the formatting toolbar

5- Change Vertical Alignment of Data:

Excel automatically aligns data at the bottom of the cell. To change the position of data:

- a. Select the cell
- b. Click **Format > Cells**. Click the **Alignment** tab, under Vertical choose the way to align the data, Click **Ok** to confirm.

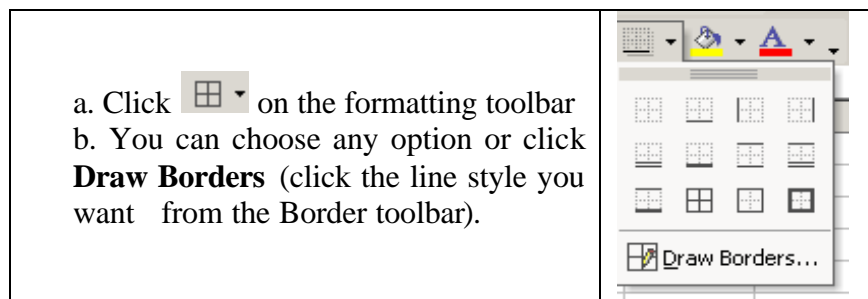
OR

Perform steps (a, b) and find the box labeled Orientation. Double click on the Degrees box and type the number you want your data to rotate by.

6- Add Borders to Cells:

You can add borders to cells to enhance the appearance of your worksheet in two ways:

1-



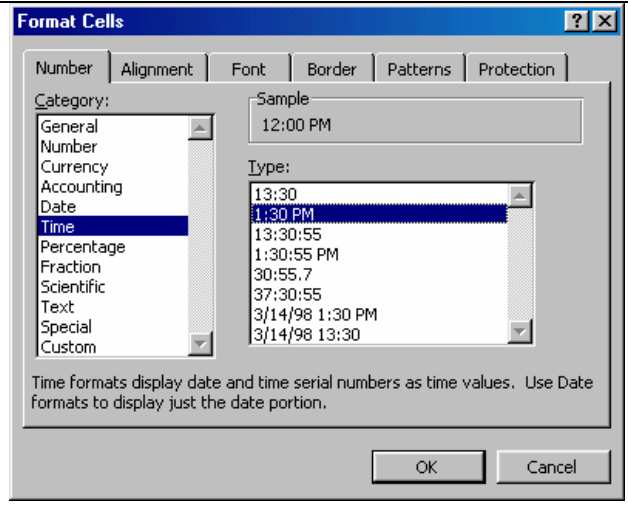
To select a color for the border, click  on the formatting toolbar.

OR

2- Select the cells, Click **Format > Cells**. Click the **Border** tab, and choose the style of your border.

Dates and Times

If you enter the date "January 1, 2001" into a cell on the worksheet, Excel will automatically recognize the text as a date and change the format to "1-Jan-01". To change the date format, select the **Number** tab from the **Format Cells** window. Select "Date" from the **Category** box and choose the format for the date from the **Type** box. If the field is a time, select "Time" from the **Category** box and select the type in the right box. Date and time combinations are also listed. Press **OK** when finished.



Format Painter

A handy feature on the standard toolbar for formatting text is the Format Painter. If you have formatted a cell with a certain font style, date format, border, and other formatting options, and you want to format another cell or group of cells the same way, place the cursor within the cell containing the formatting you want to copy. Click the **Format Painter** button in the standard toolbar (notice that your pointer now has a paintbrush beside it). Highlight the cells you want to add the same formatting to.

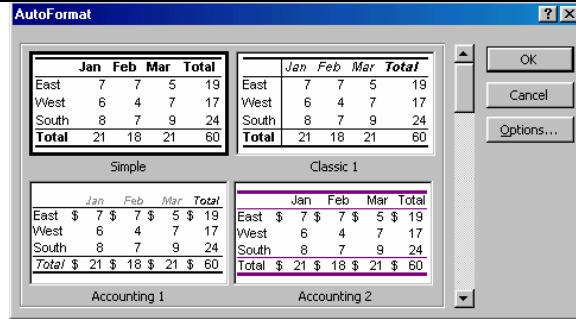
To copy the formatting to many groups of cells, double-click the **Format Painter** button. The format painter remains active until you press the **ESC** key to turn it off.

AutoFormat

Excel has many preset table formatting options. Add these styles by following these steps:

1. Highlight the cells that will be formatted.		A	B	C	D
	1	Textbook	Quantity	Price	
	2	Biology	4	\$99.99	
	3	Chemistry	2	\$79.95	
	4	Calculus	7	\$65.99	
	5	English	12	\$49.99	

2. Select **Format > AutoFormat** from the menu bar.
3. On the AutoFormat dialog box, select the format you want to apply to the table by clicking on it with the mouse. Use the scroll bar to view all of the formats available.



4. Click the **Options...** button to select the elements that the formatting will apply to.
5. Click **OK** when finished.

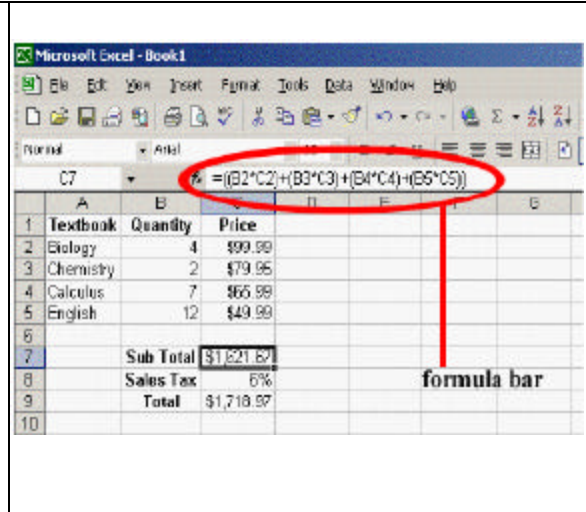
	A	B	C	D
1	Textbook	Quantity	Price	
2	Biology	4	\$99.99	
3	Chemistry	2	\$79.95	
4	Calculus	7	\$65.99	
5	English	12	\$49.99	

Formulas and Functions

The distinguishing feature of a spreadsheet program such as Excel is that it allows you to create mathematical formulas and execute functions. Otherwise, it is not much more than a large table for displaying text. This page will show you how to create these calculations.

Formulas

Formulas are entered in the worksheet cell and must begin with an equal sign "=" . The formula then includes the addresses of the cells whose values will be manipulated with appropriate operands placed in between. After the formula is typed into the cell, the calculation executes immediately and the formula itself is visible in the formula bar. See the example to the right to view the formula for calculating the sub total for a number of textbooks. The formula multiplies the quantity and price of each textbook and adds the subtotal for each book.



Linking Worksheets

You may want to use the value from a cell in another worksheet within the same workbook in a formula. For example, the value of cell A1 in the current worksheet and cell A2 in the second worksheet can be added using the format "sheetname! cell-address". The formula for this example would be "=A1+Sheet2! A2" where the value of cell A1 in the current worksheet is added to the value of cell A2 in the worksheet named "Sheet2".

Relative, Absolute, and Mixed Referencing

Calling cells by just their column and row labels (such as "A1") is called **relative referencing**. When a formula contains relative referencing and it is copied from one cell to another, Excel does not create an exact copy of the formula. It will change cell addresses relative to the row and column they are moved to. For example, if a simple addition formula in cell C1 " $= (A1+B1)$ " is copied to cell C2, the formula would change to " $= (A2+B2)$ " to reflect the new row. To prevent this change, cells must be called by **absolute referencing** and this is accomplished by placing dollar signs "\$" within the cell addresses in the formula. Continuing the previous example, the formula in cell C1 would read " $= (\$A\$1+\$B\$1)$ " if the value of cell C2 should be the sum of cells A1 and B1. Both the column and row of both cells are absolute and will not change when copied. **Mixed referencing** can also be used where only the row OR column fixed. For example, in the formula " $= (A\$1+\$B2)$ ", the row of cell A1 is fixed and the column of cell B2 is fixed.

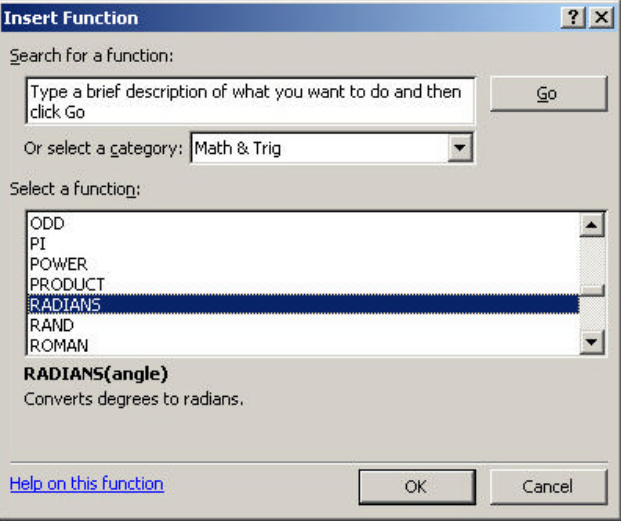
Basic Functions

Functions can be a more efficient way of performing mathematical operations than formulas. For example, if you wanted to add the values of cells D1 through D10, you would type the formula " $=D1+D2+D3+D4+D5+D6+D7+D8+D9+D10$ ". A shorter way would be to use the SUM function and simply type " $=SUM(D1:D10)$ ". Several other functions and examples are given in the table below:

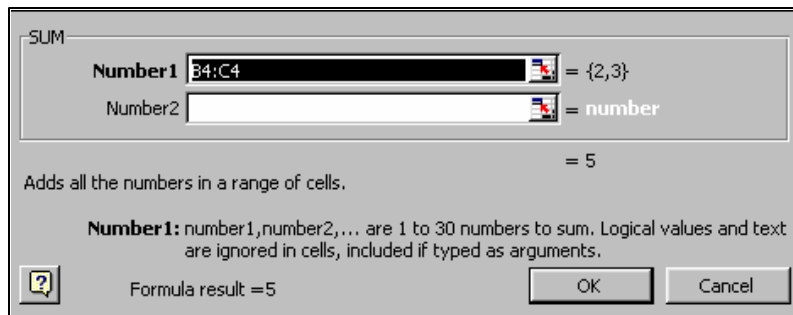
Function	Example	Description
SUM	$=SUM(A1:A100)$	finds the sum of cells A1 through A100
AVERAGE	$=AVERAGE(B1:B10)$	finds the average of cells B1 through B10
MAX	$=MAX(C1:C100)$	returns the highest number from cells C1 through C100
MIN	$=MIN(D1:D100)$	returns the lowest number from cells D1 through D100
SQRT	$=SQRT(D10)$	finds the square root of the value in cell D10
TODAY	$=TODAY()$	returns the current date (leave the parentheses empty)

Function Wizard

You can view all functions available in Excel by using the Function Wizard.

<ol style="list-style-type: none">1. Activate the cell where the function will be placed and click the Insert Function button next to the formula bar.2. From the Insert Function dialog box, browse through the functions by selecting a Function category from the drop-down menu, and select the function from the Function choices below. As each function name is highlighted a description and example of use is provided below the two boxes.	
--	--

3. Click **OK** to select a function.
4. The next window allows you to choose the cells that will be included in the function. In the example below, cells B4 and C4 were automatically selected for the sum function by Excel. The cell values {2, 3} are located to the right of the **Number 1** field where the cell addresses are listed. If another set of cells, such as B5 and C5, needed to be added to the function, those cells would be added in the format "B5:C5" to the **Number 2** field.



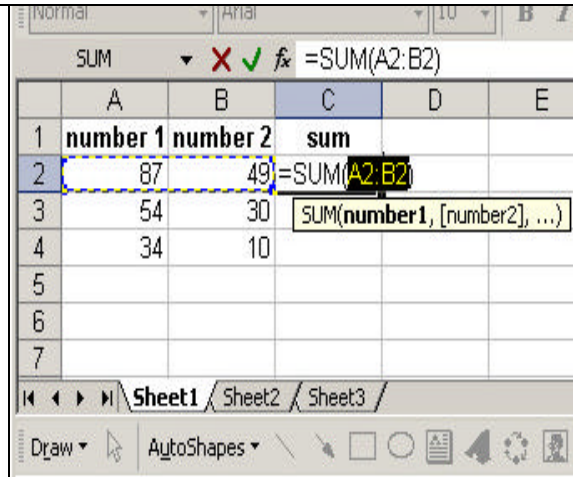
5. Click **OK** when all the cells for the function have been selected.

Autosum Σ

Use the Autosum function to add the contents of a cluster of adjacent cells.

1. Select the cell that the sum will appear in that is outside the cluster of cells whose values will be added. Cell C2 was used in this example.
2. Click the **Autosum** button (Greek letter sigma) on the standard toolbar.
3. Highlight the group of cells that will be summed (cells A2 through B2 in this example).

Press the **ENTER** key on the keyboard or click the green check mark button on the formula bar.



Sorting and Filling

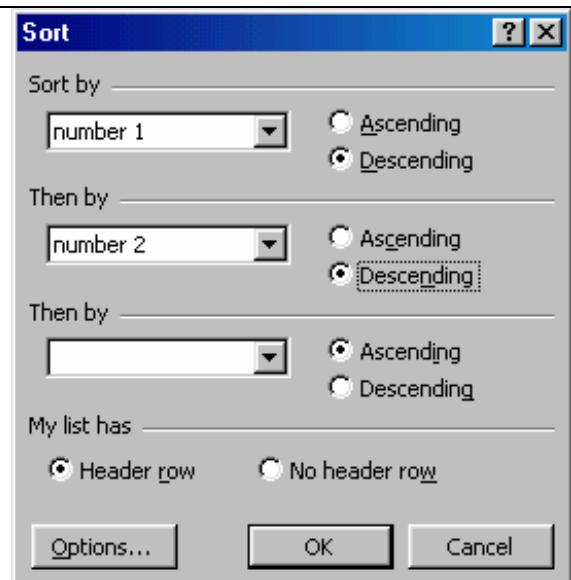
Basic Sorts

To execute a basic descending or ascending sort based on one column, highlight the cells that will be sorted and click the **Sort Ascending** (A-Z) button or **Sort Descending** (Z-A) button on the standard toolbar.

Complex Sorts

To sort by multiple columns, follow these steps:

1. Highlight the cells, rows, or columns that will be sorted.
2. Select **Data > Sort** from the menu bar.
3. From the **Sort** dialog box, select the first column for sorting from the “Sort by” drop-down menu and choose either ascending or descending.
4. Select the second column and, if necessary, the third sort column from the “Then By” drop-down menus.

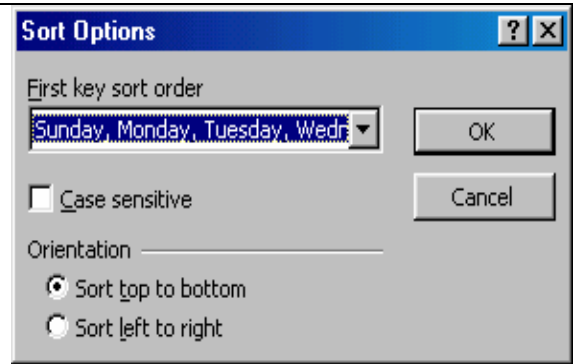


Make sure before you sort that all the cells contain text or numbers, and not formulas because sorting might not function properly.

If the cells you highlighted included the text headings in the first row, mark **My list has...Header row** and the first row will remain at the top of the worksheet.

Click the **Options** button for special non-alphabetic or numeric sorts such as months of the year and days of the week.

Click **OK** to execute the sort.



Autofill

The Autofill feature allows you to quickly fill cells with repetitive or sequential data such as chronological dates or numbers, and repeated text.

1. Type the beginning number or date of an incrementing series or the text that will be repeated into a cell.
2. Select the handle at the bottom, right corner of the cell with the left mouse button and drag it down as many cells as you want to fill.
3. Release the mouse button.

If you want to autofill a column with cells displaying the same number or date you must enter identical data to two adjacent cells in a column. Highlight the *two* cells and drag the handle of the selection with the mouse.

Alternating Text and Numbers with Autofill

The Autofill feature can also be used for alternating text or numbers. For example, to make a repeating list of the days of the week, type "Monday" into a cell in a column. Highlight the cell and drag across with the mouse.

Autofilling Functions

Autofill can also be used to copy functions. In the example below, column A and column B each contain a list of numbers and column C contains the sums of columns A and B for each row. The function in cell C2 would be "=SUM(A2:B2)". This function can then be copied to the remaining cells of column C by activating cell C2 and dragging the handle down to fill in the remaining cells. The autofill feature will automatically update the row numbers as shown below if the cells are **referenced relatively**.

	A	B	C	D
1	number 1	number 2	sum	
2	87	49	136	
3	54	30		
4	34	10		
5	43	8		
6	24	23		
7	93	97		
8	40	32		
9	59	30		
10	82	87		
11	39	57		
12				

	A	B	C	D
1	number 1	number 2	sum	
2	87	49	136	
3	54	30	84	
4	34	10	44	
5	43	8	51	
6	24	23	47	
7	93	97	190	
8	40	32	72	
9	59	30	89	
10	82	87	169	
11	39	57	96	
12				

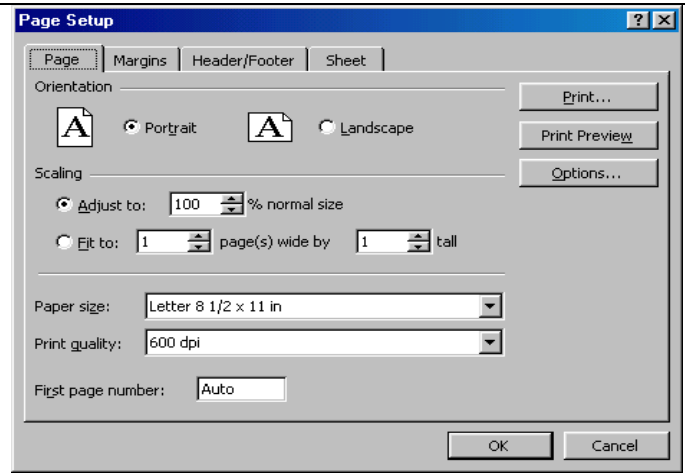
Page Properties and Printings

Page Breaks

To set page breaks within the worksheet, select the row you want to appear just below the page break by clicking the row's label. Then choose **Insert > Page Break** from the menu bar. (You may need to click the double-down arrow at the bottom of the menu list to view this option.)

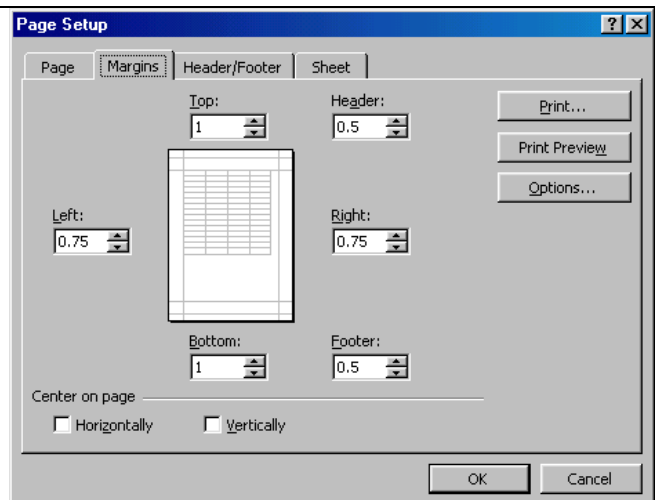
Page Setup

Select **File > Page Setup** from the menu bar to format the page, set margins, headers and footers. Select the Orientation under the Page tab in the Page Setup window to make the page Landscape or Portrait. The size of the worksheet on the page can also be formatted under Scaling. To force a worksheet to print only one page wide so all the columns appear on the same page, select Fit to 1 page(s) wide.



Margins

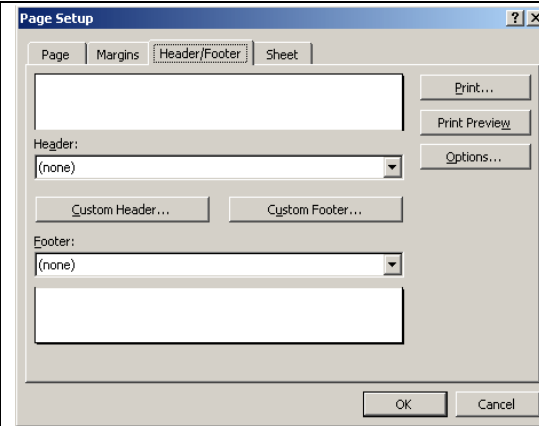
Change the top, bottom, left, and right margins under the **Margins** tab. Enter values in the header and footer fields to indicate how far from the edge of the page this text should appear. Check the boxes for centering horizontally or vertically on the page to center the page.



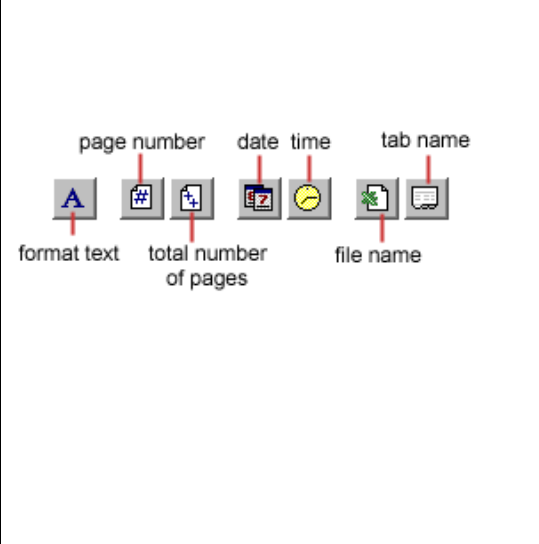
Header/Footer

Add preset headers and footers to the page by clicking the drop-down menus under the Header/Footer tab.

To modify a preset header or footer, or to make your own, click the **Custom Header/ Custom Footer** buttons. A new window will open allowing you to enter text in the left, center, or right on the page.



Format Text - Click this button after highlighting the text to change the font, size, and style.
Page Number - Insert the page number of each page.
Total Number of Pages - Use this feature along with the page number to create strings such as "page 1 of 15".
Date - Add the current date.
Time - Add the current time.
File Name - Add the name of the workbook file.
Tab Name - Add the name of the worksheet's tab.



Sheet

Check **Gridlines** if you want the gridlines dividing the cells to be printed on the page. If the worksheet is several pages long and only the first page includes titles for the columns, select **Rows to repeat at top** to choose a title row that will be printed at the top of each page.

