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Computer Science - First Semester

Microsoft Excel Spreadsheet

This Course covers all the fundamental techniques you need to know in order to create, edit, format, and print your own worksheets. In addition to showing you around the worksheet, also exposes you to the basics of charting, creating data lists, and performing data analysis. Keep in mind, though, that this course just touches on the easiest ways to get a few things done with these. In this part, I break down the Excel user interface and make sense of the tabs and command buttons you're going to face day after day after day. Of course, it does you no good just to know what's what onscreen; you need to be able to use all these bells and whistles (or buttons and boxes in this case). Therefore, I also show you how to use some of the more prominent buttons and boxes to enter your spreadsheet data. From this humble beginning, it's a quick trip to total screen mastery.

Latest Excel user interface includes all sorts of graphical improvements. Foremost is Live Preview that shows you how your actual worksheet data would appear in a particular font, table formatting, and so on before you actually select it. Additionally, Excel supports an honest to goodness Page Layout View that displays rulers and margins along with headers and footers for every worksheet and has a zoom slider at the bottom of the screen that enables you to zoom in and out on the spreadsheet data instantly. Finally, Excel is full of pop-up galleries that make spreadsheet formatting and charting a real breeze, especially in tandem with Live Preview.

The Excel User Experience

In this lecture:

- *Getting familiar with the Excel program window and Backstage View*
- *Selecting commands from the Ribbon*
- *Customizing the Quick Access toolbar*
- *Methods for starting Excel*
- *Surfing an Excel worksheet and workbook*
- *Getting some help with using this program*
- *Quick start for users migrating to Excel from earlier versions using pull-down menus*

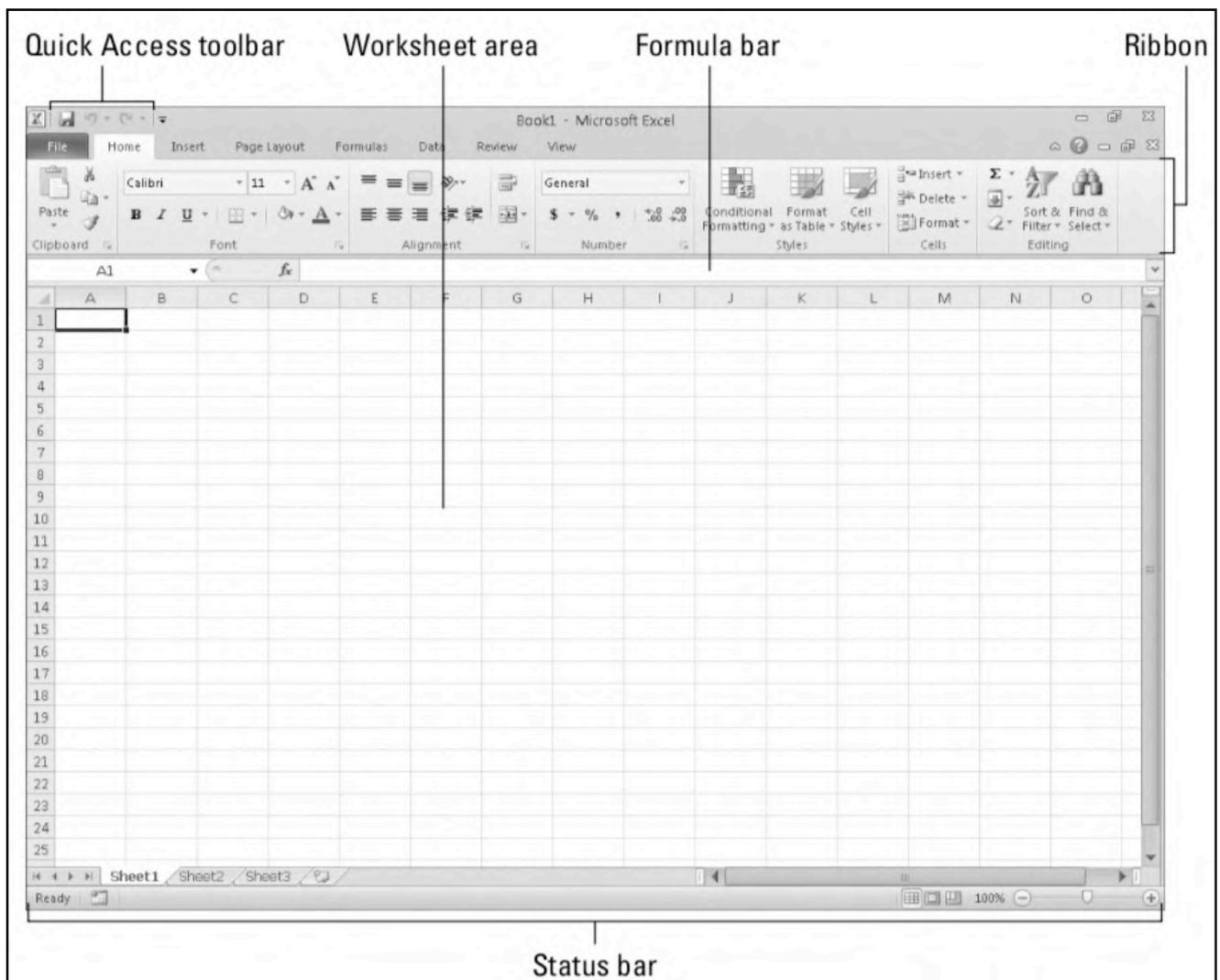
The Excel user interface, scraps its reliance on a series of pull-down menus, task panes, and multitudinous toolbars. Instead, it uses a single strip at the top of the worksheet called the Ribbon that puts the bulk of the Excel commands you use at your fingertips at all times. Add to the Ribbon a File tab and a Quick Access toolbar — along with a few remaining task panes (Clipboard, Clip Art, and Research) — and you end up with the handiest way to crunch your numbers, produce and print polished financial reports, as well as organize and chart your data. In other words, to do all the

wonderful things for which you rely on Excel.

Best of all, this new and improved Excel user interface includes all sorts of graphical improvements. Foremost is Live Preview that shows you how your actual worksheet data would appear in a particular font, table formatting, and so on before you actually select it. Additionally, Excel supports an honest to goodness Page Layout View that displays rulers and margins along with headers and footers for every worksheet and has a zoom slider at the bottom of the screen that enables you to zoom in and out on the spreadsheet data instantly. Finally, Excel is full of pop-up galleries that make spreadsheet formatting and charting a real breeze, especially in tandem with Live Preview.

Excel's Ribbon User Interface

When you launch Excel, the program opens the first of three new worksheets (named Sheet1) in a new workbook file (named Book1) inside a program window like the one shown in the figure below.



The Excel program window containing this worksheet of the workbook contains the following components:

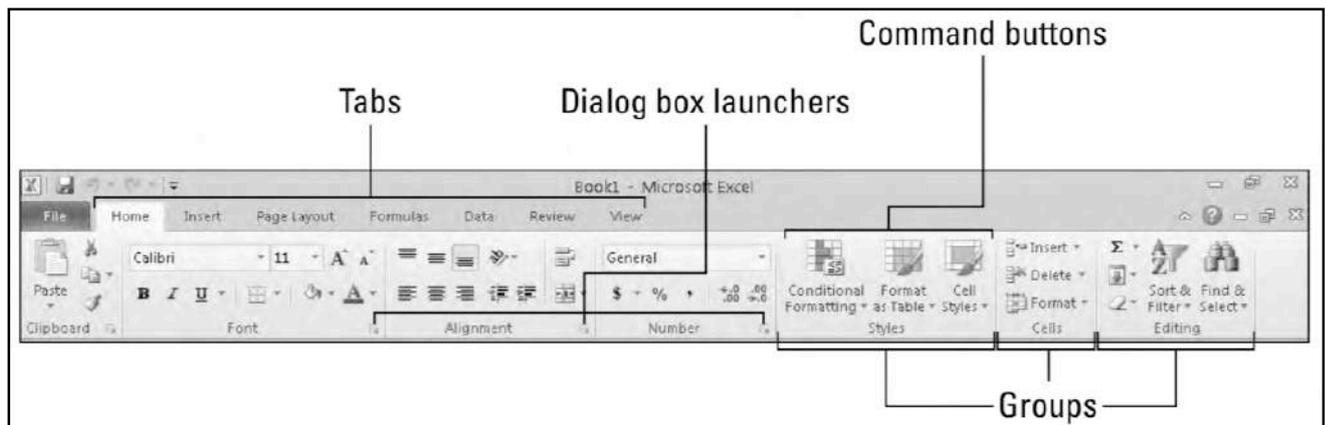
- ✓ **File tab** that when clicked opens the new Backstage View — a menu on the left that contains all the document- and file-related commands, including Info (selected by default), Save, Save As, Open, Close, Recent, New, Print, and Save & Send. Additionally, there's a Help option with add-

ins, an Options item that enables you to change many of Excel's default settings, and an Exit option to quit the program.

- ✓ Customizable **Quick Access toolbar** that contains buttons you can click to perform common tasks, such as saving your work and undoing and redoing edits.
- ✓ **Ribbon** that contains the bulk of the Excel commands arranged into a series of tabs ranging from Home through View.
- ✓ **Formula bar** that displays the address of the current cell along with the contents of that cell.
- ✓ **Worksheet area** that contains the cells of the worksheet identified by column headings using letters along the top and row headings using numbers along the left edge; tabs for selecting new worksheets; a horizontal scroll bar to move left and right through the sheet; and a vertical scroll bar to move up and down through the sheet.
- ✓ **Status bar** that keeps you informed of the program's current mode and any special keys you engage, and enables you to select a new worksheet view and to zoom in and out on the worksheet.

Bragging about the Ribbon

The Ribbon changes the way you work in Excel. Instead of having to memorize (or guess) on which pull-down menu or tool- bar Microsoft put the particular command you want to use, their designers and engineers came up with the Ribbon that shows you the most commonly used options needed to perform a particular Excel task.



Keeping Tabs on the Excel Ribbon

The first time you launch Excel, its Ribbon contains the following tabs from left to right:

- ✓ **Home** tab with the command buttons normally used when creating, formatting, and editing a spreadsheet, arranged into the Clipboard, Font, Alignment, Number, Styles, Cells, and Editing groups.
- ✓ **Insert** tab with the command buttons normally used when adding particular elements (including graphics, PivotTables, charts, hyperlinks, and headers and footers) to a spreadsheet, arranged into the Tables, Illustrations, Charts, Filter, Links, Text, and Symbols groups.
- ✓ **Page Layout** tab with the command buttons normally used when preparing a spreadsheet for printing or re-ordering graphics on the sheet, arranged into the Themes, Page Setup, Scale to Fit, Sheet Options, and Arrange groups.
- ✓ **Formulas** tab with the command buttons normally used when adding formulas and functions to a spreadsheet or checking a worksheet for formula errors, arranged into the Function Library, Defined Names, Formula Auditing, and Calculation groups. Note: This tab also contains a

Solutions group when you activate certain add-in programs, such as Analysis ToolPak and Euro Currency Tools.

- ✓ **Data** tab with the command buttons normally used when importing, querying, outlining, and subtotaling the data placed into a worksheet's data list, arranged into the Get External Data, Connections, Sort & Filter, Data Tools, and Outline groups. Note: This tab also contains an Analysis group when you activate add-ins, such as Analysis ToolPak and Solver.
- ✓ **Review** tab with the command buttons normally used when proofing, protecting, and marking up a spreadsheet for review by others, arranged into the Proofing, Language, Comments, and Changes groups. **Note:** This tab also contains an Ink group with a sole Start Inking button when you're running Office on a Tablet PC or a computer equipped with a digital ink tablet.
- ✓ **View** tab with the command buttons normally used when changing the display of the Worksheet area and the data it contains, arranged into the Workbook Views, Show, Zoom, Window, and Macros groups.

In addition to these standard seven tabs, Excel has an eighth, optional Developer tab that you can add to the Ribbon if you do a lot of work with macros and XML.

Although these standard tabs are the ones you always see on the Ribbon when it displays in Excel, they aren't the only things that can appear in this area. Excel can display contextual tools when you're working with a particular object that you select in the worksheet, such as a graphic image you've added or a chart or PivotTable you've created. The name of the contextual tools for the selected object appears immediately above the tab or tabs associated with the tools.

Selecting Commands From The Ribbon

The most direct method for selecting commands on the Ribbon is to click the tab that contains the command button you want and then click that button in its group. For example, to insert a piece of clip art into your spreadsheet, you click the Insert tab and then click the Clip Art button to open the Clip Art task pane in the Worksheet area.

The easiest method for selecting commands on the Ribbon — if you know your keyboard well — is to press the Alt key and then type the sequence of letters designated as the hot keys for the desired tab and associated command buttons.

When you press and release the Alt key, Excel displays the hot keys for all the tabs on the Ribbon. When you type one of the Ribbon tab hot keys to select it, all the command button hot keys appear along with the hot keys for the dialog box launchers. To select a command button or dialog box launcher, simply type its hot key letter(s).

If you know the old Excel shortcut keys from versions Excel 97 through 2003, you can still use them. For example, instead of going through the rigmarole of pressing Alt+HC to copy a cell selection to the Office Clipboard and then Alt+HV to paste it elsewhere in the sheet, you can still press Ctrl+C to copy the selection and then press Ctrl+V when you're ready to paste it. Note, however, that when using a hot key combination with the Alt key, you don't need to keep the Alt key depressed while typing the remaining letter(s) as you do when using a shortcut key combo with the Ctrl key.

Customizing The Quick Access Toolbar

When you start using Excel, the Quick Access toolbar contains only the following few buttons:

- ✓ **Save** to save any changes made to the current workbook using the same filename, file format, and location
- ✓ **Undo** to undo the last editing, formatting, or layout change you made
- ✓ **Redo** to reapply the previous editing, formatting, or layout change that you just removed with the

Undo button

The Quick Access toolbar is very customizable because Excel makes it easy to add any Ribbon command to it. Moreover, you're not restricted to adding buttons for just the commands on the Ribbon; you can add any Excel command you want to the toolbar, even the obscure ones that don't rate an appearance on any of its tabs.

By default, the Quick Access toolbar appears above the Ribbon tabs immediately to the right of the Excel program button (used to resize the workbook window or quit the program). To display the toolbar beneath the Ribbon immediately above the Formula bar, click the Customize Quick Access Toolbar button (the drop-down button to the right of the toolbar with a horizontal bar above a down-pointing triangle) and then click Show Below the Ribbon on its drop-down menu. You will definitely want to make this change if you start adding more buttons to the toolbar so that the growing Quick Access toolbar doesn't start crowding the name of the current workbook that appears to the toolbar's right.

Adding Command Buttons on The Customize Quick Access Toolbar's Drop-Down Menu

When you click the Customize Quick Access Toolbar button, a drop-down menu appears containing the following commands:

- ✓ **New** to open a new workbook
- ✓ **Open** to display the Open dialog box for opening an existing workbook
- ✓ **Save** to save changes to your current workbook
- ✓ **E-mail** to open your mail
- ✓ **Quick Print** to send the current worksheet to your default printer
- ✓ **Print Preview** to open the Print settings in Backstage View with a pre-view of the current worksheet in the right pane
- ✓ **Spelling** to check the current worksheet for spelling errors
- ✓ **Undo** to undo your latest worksheet edit
- ✓ **Redo** to reapply the last edit that you removed with Undo
- ✓ **Sort Ascending** to sort the current cell selection or column in A to Z alphabetical order, lowest to highest numerical order, or oldest to newest date order
- ✓ **Sort Descending** to sort the current cell selection or column in Z to A alphabetical order, highest to lowest numerical order, or newest to oldest date order.

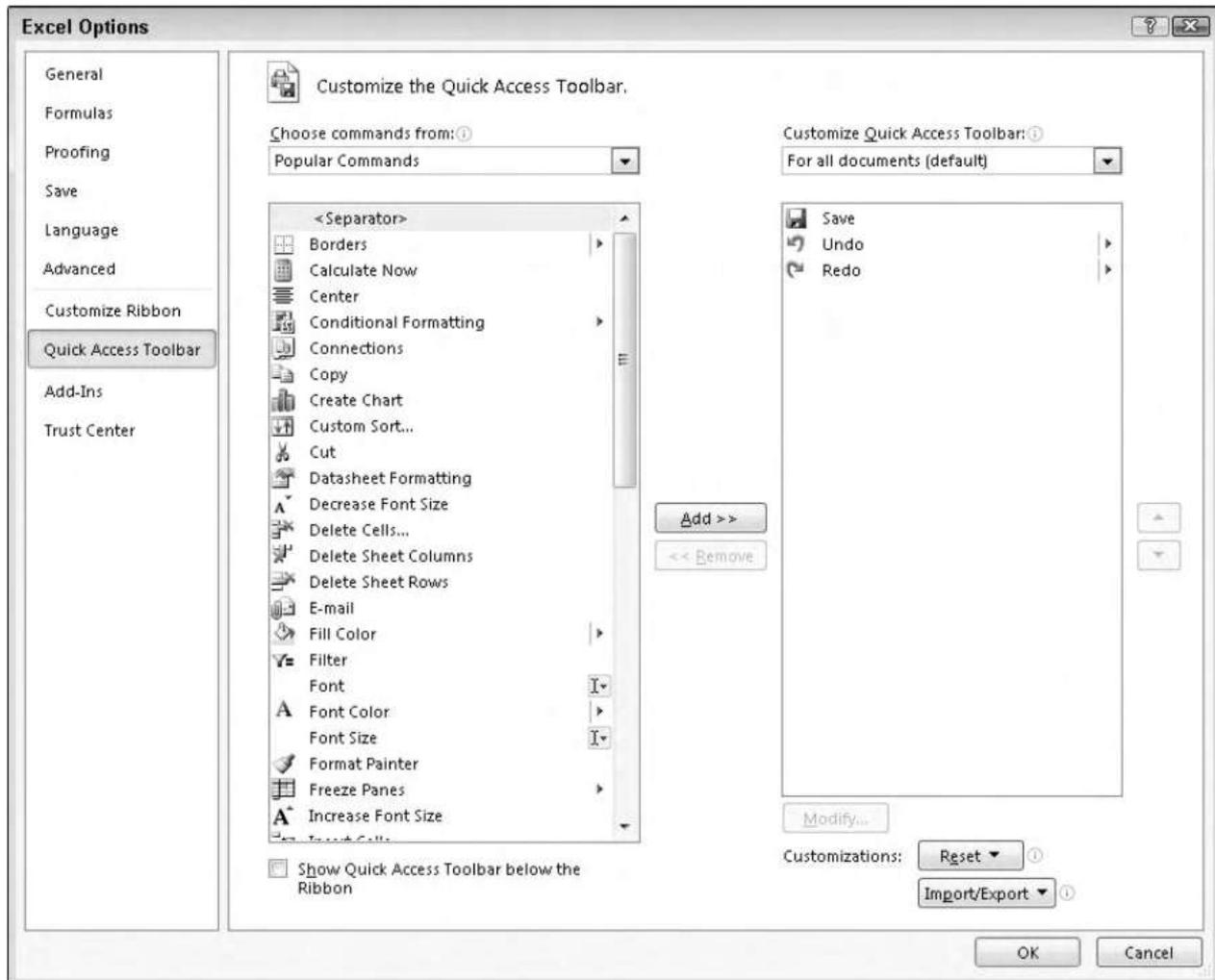
Adding Command Buttons on The Ribbon

To add a Ribbon command to the Quick Access toolbar, simply right-click its command button on the Ribbon and then click Add to Quick Access Toolbar on its shortcut menu. Excel then immediately adds the command button to the very end of the Quick Access toolbar, immediately in front of the Customize Quick Access Toolbar button.

If you want to move the command button to a new location on the Quick Access toolbar or group it with other buttons on the toolbar, click the Customize Quick Access Toolbar button and then click the More Commands option near the bottom of its drop-down menu. Excel then opens the Excel Options dialog box with the Quick Access Toolbar tab selected similar to the one shown in the figure below. On the right side of the dialog box, Excel shows all the buttons added to the Quick Access toolbar.

The order in which they appear from left to right on the toolbar corresponds to the top-down order

in the list box.



Formula Bar

The Formula bar displays the cell address (determined by a column letter(s) followed by a row number) and the contents of the current cell. For example, cell A1 is the first cell of each worksheet at the intersection of column A and row 1; cell XFD1048576 is the last cell of each worksheet at the intersection of column XFD and row 1048576. The type of entry you make determines the contents of the current cell: text or numbers, for example, if you enter a heading or particular value, or the details of a formula if you enter a calculation.

The Formula bar has three sections:

- ✓ **Name box:** The left-most section that displays the address of the current cell address.
- ✓ **Formula bar buttons:** The second, middle section that appears as a rather nondescript button displaying only an indented circle on the left (used to narrow or widen the Name box) and the Insert Function button (labeled fx) on the right. When you start making or editing a cell entry, Cancel (an X) and Enter (a check mark) buttons appear between them.
- ✓ **Cell contents:** The third, right-most white area to the immediate right of the Insert Function button takes up the rest of the bar and expands as necessary to display really long cell entries that won't fit in the normal area.

The cell contents section of the Formula bar is important because it always shows you the contents of the cell even when the worksheet does not. (When you're dealing with a formula, excel

displays only the calculated result in the cell in the worksheet and not the formula by which that result is derived.) Additionally, you can edit the contents of the cell in this area at anytime. Similarly, when the cell contents area is blank, you know that the cell is empty as well.

What to Do in The Worksheet Area

The Worksheet area is where most of the Excel spreadsheet action takes place because it's the place that displays the cells in different sections of the current worksheet and it's right inside the cells that you do all your spread- sheet data entry and formatting, not to mention a great deal of your editing.

To enter or edit data in a cell, that cell must be current. Excel indicates that a cell is current in three ways:

- ✓ The cell cursor — the dark black border surrounding the cell's entire perimeter — appears in the cell.
- ✓ The address of the cell appears in the Name box of the Formula bar.
- ✓ The cell's column letter(s) and row number are shaded (in a kind of an orange-beige color on most monitors) in the column headings and row headings that appear at the top and left of the Worksheet area, respectively.

Moving Around The Worksheet

An Excel worksheet contains far too many columns and rows for all a work- sheet's cells to be displayed at one time regardless of how large your personal computer monitor screen is or how high the screen resolution. (After all, we're talking 17,179,869,184 cells total!) Therefore, Excel offers many methods for moving the cell cursor around the worksheet to the cell where you want to enter new data or edit existing data:

- ✓ Click the desired cell — assuming that the cell is displayed within the section of the sheet visible in the Worksheet area.
Click the Name box, type the address of the desired cell, and then press the Enter key.
- ✓ Press F5 to open the Go To dialog box, type the address of the desired cell into its Reference text box, and then click OK.
- ✓ Use the cursor keys, as shown in Table 1-1, to move the cell cursor to the desired cell.
- ✓ Use the horizontal and vertical scroll bars at the bottom and right edge of the Worksheet area to move the part of the worksheet that contains the desired cell and then click the cell to put the cell cursor in it.

Keystroke Shortcuts for Moving The Cell Cursor

Excel offers a wide variety of keystrokes for moving the cell cursor to a new cell. When you use one of these keystrokes, the program automatically scrolls a new part of the worksheet into view, if this is required to move the cell pointer. In the table bellow summarize these keystrokes; including how far each one moves the cell pointer from its starting position.

Keystroke	Where the Cell Cursor Moves
→ or Tab	Cell to the immediate right.
← or Shift+Tab	Cell to the immediate left.
↑	Cell up one row.
↓	Cell down one row.
Home	Cell in Column A of the current row.
Ctrl+Home	First cell (A1) of the worksheet.
Ctrl+End or End, Home	Cell in the worksheet at the intersection of the last column that has data in it and the last row that has data in it (that is, the last cell of the so-called active area of the worksheet).
Page Up	Cell one full screen up in the same column.
Page Down	Cell one full screen down in the same column.
Ctrl+→ or End, →	First occupied cell to the right in the same row that is either preceded or followed by a blank cell. If no cell is occupied, the pointer goes to the cell at the very end of the row.
Ctrl+← or End, ←	First occupied cell to the left in the same row that is either preceded or followed by a blank cell. If no cell is occupied, the pointer goes to the cell at the very beginning of the row.
Ctrl+↑ or End, ↑	First occupied cell above in the same column that is either preceded or followed by a blank cell. If no cell is occupied, the pointer goes to the cell at the very top of the column.
Ctrl+↓ or End, ↓	First occupied cell below in the same column that is either preceded or followed by a blank cell. If no cell is occupied, the pointer goes to the cell at the very bottom of the column.
Ctrl+Page Down	The cell pointer's location in the next worksheet of that workbook.
Ctrl+Page Up	The cell pointer's location in the previous worksheet of that workbook.

Surfing The Sheets in a Workbook

Each new workbook you open in excel contains three blank worksheets, each with its own 16,384 columns and 1,048,576 rows (giving you a truly staggering 51,539,607,552 blank cells!). But, that's not all. If ever you need more worksheets in your workbook, you can add them simply by clicking the Insert Worksheet button that appears to the immediate right of the last sheet tab see the figure bellow or by pressing Shift+F11.



Showing Off The Status Bar

The Status bar is the last component at the very bottom of the Excel program window see the figure bellow. The Status bar contains the following:

- ✓ **Mode indicator** that shows the current state of the Excel program (Ready, Edit, and so on) as well as any special keys that are engaged (Caps Lock, Num Lock, and Scroll Lock).
- ✓ **Auto Calculate** indicator that displays the average and sum of all the numerical entries in the current cell selection along with the count of every cell in the selection.
- ✓ **Layout selector** that enables you to select between three layouts for the Worksheet area: Normal, the default view that shows only the worksheet cells with the column and row headings; Page Layout View that adds rulers, page margins, and shows page breaks for the worksheet; and Page Break Preview that enables you to adjust the paging of a report.
- ✓ **Zoom slider** that enables you to zoom in and out on the cells in the Worksheet area by dragging the slider to the right or left, respectively.

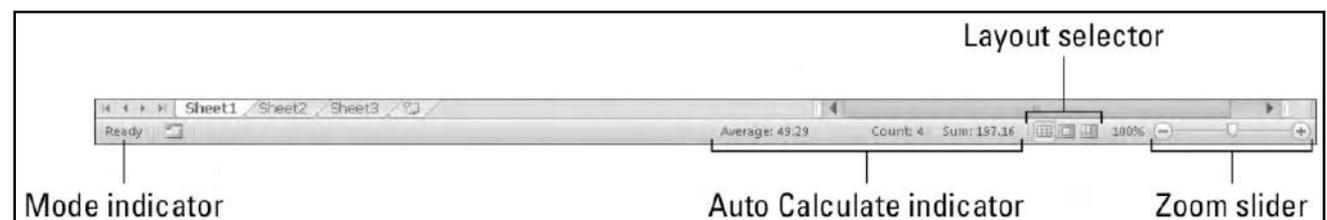


Table of Some Shortcuts in Excel

Button		Shortcut Keys	Shortcut Keys
New	File→New	Ctrl+N	Alt+FN
Open	File→Open	Ctrl+O	Alt+FO
Save	File→Save or Save button on Quick Access toolbar	Ctrl+S	Alt+FS
Permission	<i>Available only as a custom Permission button added to Quick Access toolbar</i>		
E-mail	File→Share→Send Using E-mail		Alt+FHE
Print	Quick Print button on Quick Access toolbar		
Print Preview	File→Print		Alt+FP
Spelling	Review→Spelling	F7	Alt+RS
Research	Review→Research		Alt+RR
Cut	Home→Cut (scissors icon in Clipboard group)	Ctrl+X	Alt+HX
Copy	Home→Copy (double-sheet icon in Clipboard group)	Ctrl+C	Alt+HC
Paste	Home→Paste	Ctrl+V	Alt+HV

Finding The Formatting Toolbar Buttons Equivalents

Finding the excel equivalents for the buttons on the Formatting toolbar in earlier versions of Excel couldn't be easier: Every one of the buttons on the Formatting toolbar is displayed prominently on the Home tab of the Ribbon. They're all easy to identify because they use the same icons as before and are located in the Font, Alignment, or Number group on the Home tab.

In addition to the Font, Font Size, Bold, Italic, Underline, Borders, Fill Color, and Font Color buttons from the Formatting toolbar, the Font group also contains the following two buttons:

- ✓ **Increase Font Size** button that bumps up the current font size a point.
- ✓ **Decrease Font Size** button that reduces the current font size by a point.

In addition to the Left Align, Center, Right Align, Decrease Indent, Increase Indent, and Merge & Center buttons, the Alignment group also contains the following buttons:

- ✓ **Top Align** button that vertically aligns the data entered into the current cell selection with the top edge of the cell.
- ✓ **Middle Align** button that vertically centers the data entered into the current cell selection.
- ✓ **Bottom Align** button that aligns the data entered in the current cell selection with the bottom edge of the cell.
- ✓ **Orientation** button that opens a pop-menu of orientation options that enable you to change the direction of the text entered into the current cell selection (by angling it up or down, converting it to vertical text, or rotating it up or down) and open the Alignment tab of the Format Cells dialog box.
- ✓ **Wrap Text** button that applies wrap text to the current cell selection so that Excel expands the row heights as needed to fit all its text within the current column widths.

In addition to the Percent Style, Comma Style, Increase Decimal, and Decrease Decimal buttons from the Formatting toolbar, the Numbers group contains the following buttons:

- ✓ **Accounting Number** Format button that enables you to select among several different currency formats from U.S. dollars to Swiss Francs, as well as to open the Number tab of the Format Cells dialog box with the Accounting number format selected.
- ✓ **Number Format button** that opens a pop-up menu of different number options from General through Text, as well as opens the Number tab in the Format Cells dialog box when you select its More Number Formats option.

Creating a Spreadsheet From Scratch

In this lecture:

- *Starting a new workbook*
- *Entering the three different types of data in a worksheet*
- *Creating simple formulas by hand*
- *Fixing your data-entry boo-boos*
- *Using the AutoCorrect feature*
- *Using the AutoFill feature to complete a series of entries*
- *Entering and editing formulas containing built-in functions*
- *Totaling columns and rows of numbers with the AutoSum button*
- *Saving your precious work and recovering workbooks after a computer crash*

After you know how to launch Excel, it's time to find out how not to get yourself into trouble when actually using it! In this lecture, you find out how to put all kinds of information into all those little, blank worksheet cells. Here you find out about the Excel AutoCorrect and AutoComplete features and how they can help cut down on errors and speed up your work. You also get some basic pointers on other smart ways to minimize the drudgery of data entry, such as filling out a series of entries with the AutoFill feature and entering the same thing in a bunch of cells all at the same time.

After discovering how to fill up a worksheet with all this raw data, you find out what has to be the most important lesson of all — how to save all that information on disk so that you don't ever have to enter the stuff again!

Doing The Data-Entry Thing

Begin by reciting (in unison) the basic rule of worksheet data entry. All together now:

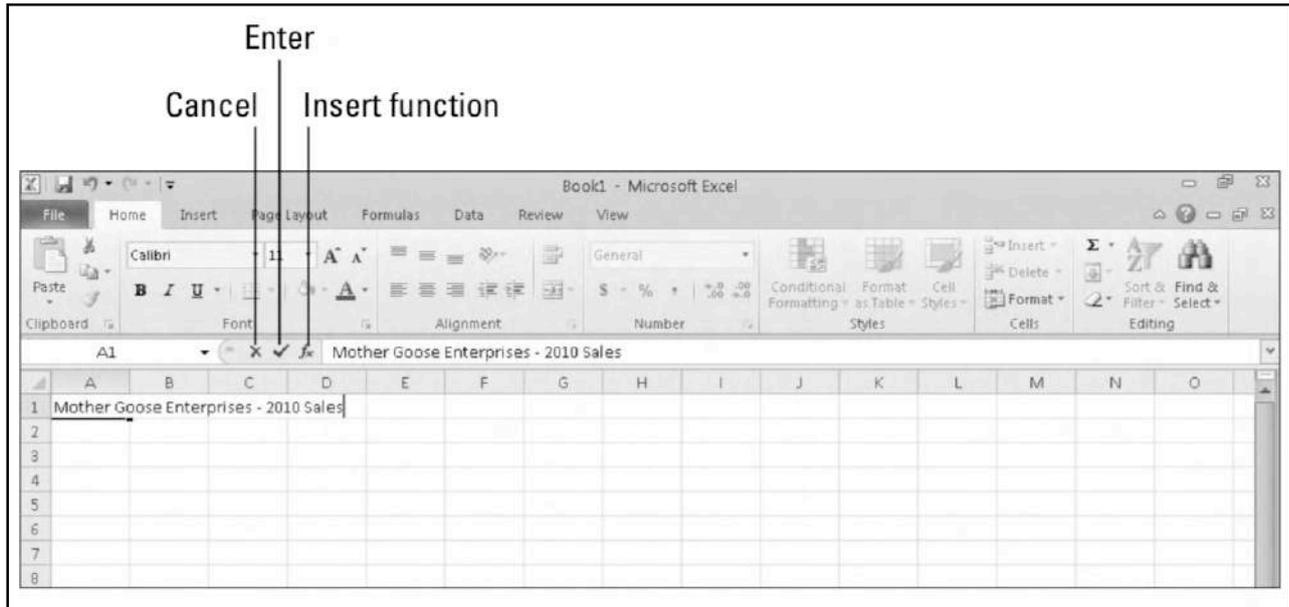
To enter data in a worksheet, position the cell pointer in the cell where you want the data and then begin typing the entry.

Before you can position the cell pointer in the cell where you want the entry, Excel must be in Ready mode (look for Ready as the Mode indicator at the beginning of the Status bar). When you start typing the entry, however, Excel goes through a mode change from Ready to Enter mode (and Enter replaces Ready as the Mode indicator).

If you're not in Ready mode, try pressing Esc.

As soon as you begin typing in Enter mode, the characters that you type in a cell in the worksheet area simultaneously appear on the Formula bar near the top of the screen. Typing something in the current cell also triggers a change to the Formula bar because two new buttons, Cancel and Enter, appear between the Name box drop-down button and the Insert Function button.

As you continue to type, Excel displays your progress on the Formula bar and in the active cell in the worksheet see the figure bellow. However, the insertion point (the flashing vertical bar that acts as your cursor) displays only at the end of the characters displayed in the cell.



After you finish typing your cell entry, you still have to get it into the cell so that it stays put. When you do this, you also change the program from Enter mode back to Ready mode so that you can move the cell pointer to another cell and, perhaps, enter or edit the data there.

To complete your cell entry and, at the same time, get Excel out of Enter mode and back into Ready mode, you can click the Enter button on the Formula bar, press the Enter key, or press one of the arrow keys (↓, ↑, →, or ←) to move to another cell. You can also press the Tab key or Shift+Tab keys to complete a cell entry.

Now, even though each of these alternatives gets your text into the cell, each does something a little different afterward, so please take note:

- ✓ If you click the Enter button (the one with the check mark) on the Formula bar, the text goes into the cell, and the cell pointer just stays in the cell containing the brand-new entry.
- ✓ If you press the Enter key on your keyboard, the text goes into the cell, and the cell pointer moves down to the cell below in the next row.
- ✓ If you press one of the arrow keys, the text goes into the cell, and the cell pointer moves to the next cell in the direction of the arrow. Press ↓, and the cell pointer moves below in the next row just as it does when you finish off a cell entry with the Enter key. Press → to move the cell pointer right to the cell in the next column; press ← to move the cell pointer left to the cell in the previous column; and press ↑ to move the cell pointer up to the cell in the next row above.
- ✓ If you press Tab, the text goes into the cell, and the cell pointer moves to the adjacent cell in the column on the immediate right (the same as pressing the → key). If you press Shift+Tab, the cell pointer moves to the adjacent cell in the column on the immediate left (the same as pressing the ← key) after putting in the text.

No matter which of the methods you choose when putting an entry in its place, as soon as you complete your entry in the current cell, Excel deactivates the Formula bar by removing the Cancel and Enter buttons. Thereafter, the data you entered continues to appear in the cell in the worksheet (with certain exceptions that I discuss later in this chapter), and every time you put the cell pointer into that cell, the data will reappear on the Formula bar as well.

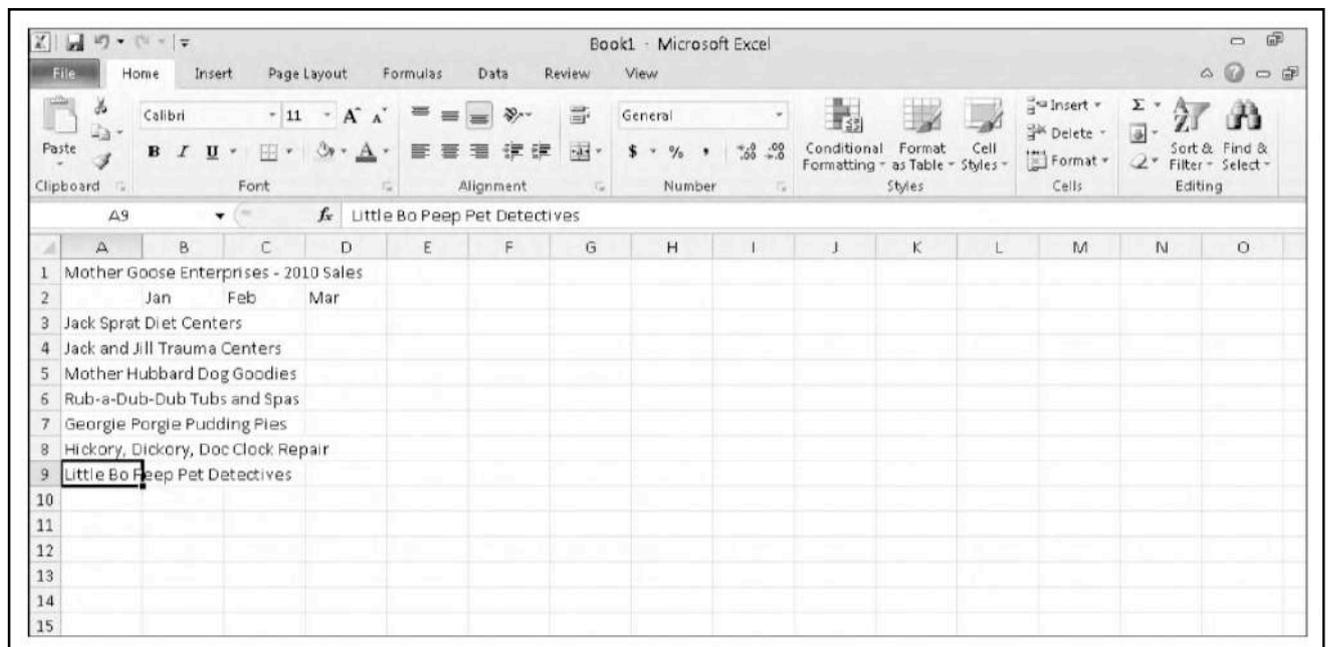
If, while still typing an entry or after finishing typing but prior to completing the entry, you realize that you're just about to stick it in the wrong cell, you can clear and deactivate the Formula bar by

clicking the Cancel button (the one with the X in it) or by pressing Esc. If, however, you don't realize that you had the wrong cell until after you enter your data there, you have to either move the entry to the correct cell or delete the entry and then reenter the data in the correct cell.

The Telltale Signs of Text

A text entry is simply an entry that Excel can't pigeonhole as either a formula or value. This makes text the catchall category of Excel data types. As a practical rule, most text entries (also known as labels) are a combination of letters and punctuation or letters and numbers. Text is used mostly for titles, headings, and notes in the worksheet.

You can tell right away whether Excel has accepted a cell entry as text because text entries automatically align at the left edge of their cells. If the text entry is wider than the cell can display, the data spills into the neighboring cell or cells on the right, as long as those cells remain blank see the figure below.



If, sometime later, you enter information in a cell that contains spillover text from a cell to its left, Excel cuts off the spillover of the long text entry see the figure below. Not to worry: Excel doesn't actually lop these characters off the cell entry — it simply shaves the display to make room for the new entry. To redisplay the seemingly missing portion of the long text entry, you have to widen the column that contains the cell where the text is entered.

	A	B	C	D	E	F	G	H	I
1	Mother Goose Enterprises - 2010 Sales								
2		Jan	Feb	Mar					
3	Jack Sprat	80138.58							
4	Jack and Jill Trauma Centers								
5	Mother Hubbard Dog Goodies								
6	Rub-a-Dub-Dub Tubs and Spas								
7	Georgie Porgie Pudding Pies								
8	Hickory, Dickory, Doc Clock Repair								
9	Little Bo Peep Pet Detectives								
10									
11									
12									
13									
14									
15									

How Excel Evaluates its Values

Values are the building blocks of most of the formulas that you create in Excel. As such, values come in two flavors: numbers that represent quantities (14 stores or \$140,000 dollars) and numbers that represent dates (July 30, 1995) or times (2 p.m.).

You can tell whether Excel has accepted your entry as a value because values automatically align at the right edge of their cells. If the value that you enter is wider than the column containing the cell can display, Excel automatically converts the value to (of all things) scientific notation. To restore a value that's been converted into that weird scientific notation stuff to a regular number, simply widen the column for that cell.

Making Sure That Excel's Got Your Number

When building a new worksheet, you'll probably spend a lot of your time entering numbers, representing all types of quantities from money that you made (or lost) to the percentage of the office budget that went to coffee and donuts. (You mean you don't get donuts?)

To enter a numeric value that represents a positive quantity, like the amount of money you made last year, just select a cell, type the numbers — for example, 459600 — and complete the entry in the cell by clicking the Enter button, pressing the Enter key, and so on. To enter a numeric value that represents a negative quantity, such as the amount of money the office spent on coffee and donuts last year, begin the entry with the minus sign or hyphen (–) before typing the numbers and then complete the entry. For example, –175 (that's not too much to spend on coffee and donuts when you just made \$459,600).

If you're trained in accounting, you can enclose the negative number (that's expense to you) in parentheses. You'd enter it like this: (175). If you go to all the trouble to use parentheses for your negatives (expenses), Excel goes ahead and automatically converts the number so that it begins with a minus sign; if you enter (175) in the Coffee and Donut expense cell, Excel spits back –175.

With numeric values that represent dollar amounts, like the amount of money you made last year, you

can include dollar signs (\$) and commas (,) just as they appear in the printed or hand written numbers you're working from.

Just be aware that when you enter a number with commas, Excel assigns a number format to the value that matches your use of commas. Likewise, when you preface a financial figure with a dollar sign, Excel assigns an appropriate dollar-number format to the value (one that automatically inserts commas between the thousands).

When entering numeric values with decimal places, use the period as the decimal point. When you enter decimal values, the program automatically adds a zero before the decimal point (Excel inserts 0.34 in a cell when you enter .34) and drops trailing zeros entered after the decimal point (Excel inserts 12.5 in a cell when you enter 12.50).

If you don't know the decimal equivalent for a value that contains a fraction, you can just go ahead and enter the value with its fraction. For example, if you don't know that 2.1875 is the decimal equivalent for $23/16$, just type $23 / 16$ (making sure to add a space between the 2 and 3) in the cell. After completing the entry, when you put the cell pointer in that cell, you see $23/16$ in the cell of the worksheet, but 2.1875 appears on the Formula bar. As you see in Chapter 3, it's then a simple trick to format the display of $23/16$ in the cell so that it matches the 2.1875 on the Formula bar.

If you need to enter simple fractions, such as $3/4$ or $5/8$, you must enter them as a mixed number preceded by zero; for example, enter $0 3 / 4$ or $0 5 / 8$ (be sure to include a space between the zero and the fraction). Otherwise, Excel thinks that you're entering the dates March 4 ($3/4$) and May 8 ($5/8$).

When entering in a cell a numeric value that represents a percentage (so much out of a hundred), you have this choice:

- ✓ You can either divide the number by 100 and enter the decimal equivalent (by moving the decimal point two places to the left like your teacher taught you; for example, enter .12 for 12 percent).
- ✓ You can enter the number with the percent sign (for example, enter 12%).

Either way, Excel stores the decimal value in the cell (0.12 in this example). If you use the percent sign, Excel assigns a percentage-number format to the value in the worksheet so that it appears as 12%.

How to Fix Your Decimal Places (when you don't even know they're broken)

If you find that you need to enter a whole slew of numbers that use the same number of decimal places, you can turn on Excel's Fixed Decimal setting and have the program enter the decimals for you. This feature really comes in handy when you have to enter hundreds of financial figures that all use two decimal places (for example, for the number of cents).

To fix the number of decimal places in a numeric entry, follow these steps:

1. Choose File ⇨ Options ⇨ Advanced.

The Advanced tab of the Excel Options dialog box opens.

2. Click the Automatically Insert a Decimal Point check box in the Editing Options section to fill it with a check mark.

By default, Excel fixes the decimal place two places to the left of the last number you type. To change the default Places setting, go to Step 3; otherwise move to Step 4.

3. (Optional) Type a new number in the Places text box or use the spinner buttons to change the value.

For example, you could change the Places setting to 3 to enter numbers with the following decimal placement: 00.000.

4. Click OK or press Enter.

Excel displays the Fixed Decimal status indicator on the Status bar to let you know that the Fixed Decimal feature is now active.

After fixing the decimal place in numeric values, Excel automatically adds a decimal point to any numeric value that you enter using the number of places you selected; all you do is type the digits and complete the entry in the cell. For example, to enter the numeric value 100.99 in a cell after fixing the decimal point to two places, type the digits 10099 without adding any period for a decimal point. When you complete the cell entry, Excel automatically inserts a decimal point two places from the right in the number you typed, leaving 100.99 in the cell.

When you're ready to return to normal data entry for numerical values (where you enter any decimal points yourself), open the Advanced tab of the Excel Options dialog box, click the Automatically Insert a Decimal Point check box again, this time to clear it, and then click OK or press Enter. Excel removes the Fixed Decimal indicator from the Status bar.

Tapping on The Old Ten-Key

You can make the Fixed Decimal feature work even better by selecting the block of cells where you want to enter numbers and then pressing Num-Lock so that you can enter all the data for this cell selection from the numeric keypad (à la ten-key adding machine).

Using this approach, all you have to do to enter the range of values in each cell is type the number's digits and press Enter on the numeric keypad. Excel inserts the decimal point in the proper place while it moves the cell pointer down to the next cell. Even better, when you finish entering the last value in a column, pressing Enter automatically moves the cell pointer to the cell at the top of the next column in the selection.

Look at the two figures bellow to see how you can make the ten-key method work for you. In first figure, the Fixed Decimal feature is turned on (using the default of two decimal places), and the block of cells from B3 through D9 are selected. You also see that six entries have already been made in cells B3 through B8 and a seventh, 30834.63, is about to be completed in cell B9. To make this entry when the Fixed Decimal feature is on, you simply type 3083463 from the numeric keypad.

	A	B	C	D	E	F	G	H	I
1	Mother Goose Enterprises - 2010 Sales								
2		Jan	Feb	Mar					
3	Jack Sprat	80138.58							
4	Jack and J	12345.62							
5	Mother H	12657.05							
6	Rub-a-Du	17619.79							
7	Georgie P	57133.56							
8	Hickory, C	168591							
9	Little Bo F	3083463	etectives						
10									
11									
12									
13									
14									
15									

In the second figure, check out what happens when you press Enter (on either the regular keyboard or the numeric keypad). Not only does Excel automatically add the decimal point to the value in cell B9, but it also moves the cell pointer up and over to cell C3 where you can continue entering the values for this column.

	A	B	C	D	E	F	G	H	I
1	Mother Goose Enterprises - 2010 Sales								
2		Jan	Feb	Mar					
3	Jack Sprat	80138.58							
4	Jack and J	12345.62							
5	Mother H	12657.05							
6	Rub-a-Dub	17619.79							
7	Georgie P	57133.56							
8	Hickory, C	168591							
9	Little Bo F	3083463							
10									
11									
12									
13									
14									
15									

Fabricating Those Fabulous Formulas!

As entries go in Excel, formulas are the real workhorses of the worksheet.

If you set up a formula properly, it computes the correct answer when you enter the formula into a cell. From then on, the formula stays up to date, recalculating the results whenever you change any of the values that the formula uses.

You let Excel know that you're about to enter a formula (rather than some text or a value), in the current cell by starting the formula with the equal sign (=). Most simple formulas follow the equal sign with a built-in function, such as SUM or AVERAGE. (See the section "Inserting a function into a formula with the Insert Function button," later in this chapter, for more information on using functions in formulas.) Other simple formulas use a series of values or cell references that contain values separated by one or more of the following mathematical operators:

- + (plus sign) for addition
- (minus sign or hyphen) for subtraction
- * (asterisk) for multiplication
- / (slash) for division
- ^ (caret) for raising a number to an exponential power

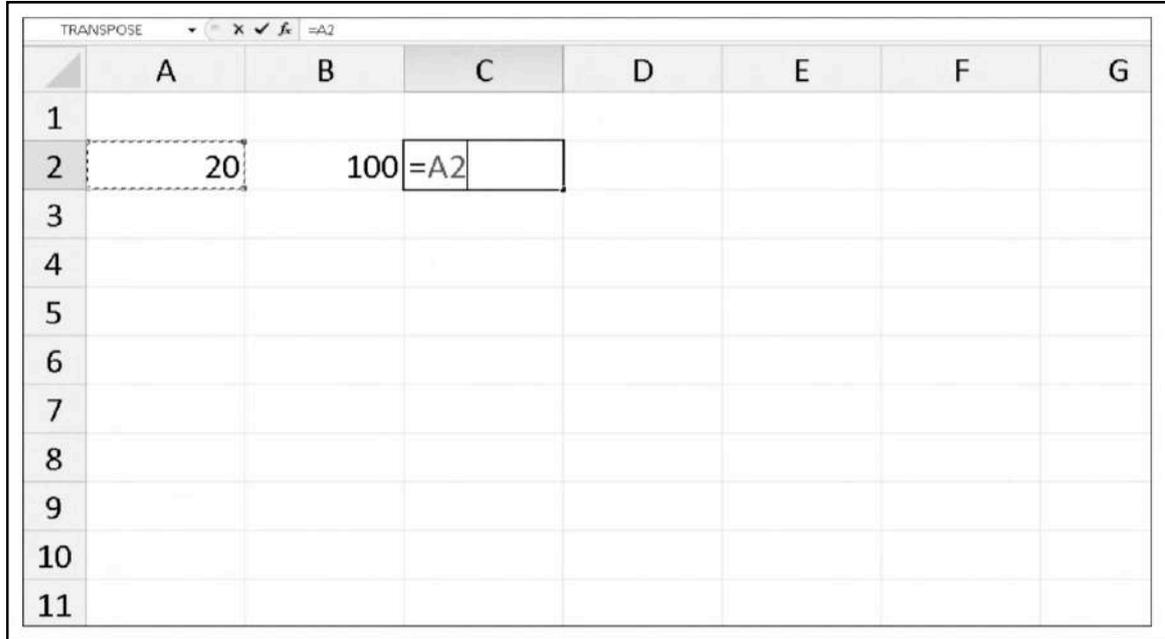
For example, to create a formula in cell C2 that multiplies a value entered in cell A2 by a value in cell B2, enter the following formula in cell C2: =A2*B2. To enter this formula in cell C2, follow these steps:

1. Select cell C2.
2. Type the entire formula =A2*B2 in the cell.
3. Press Enter.

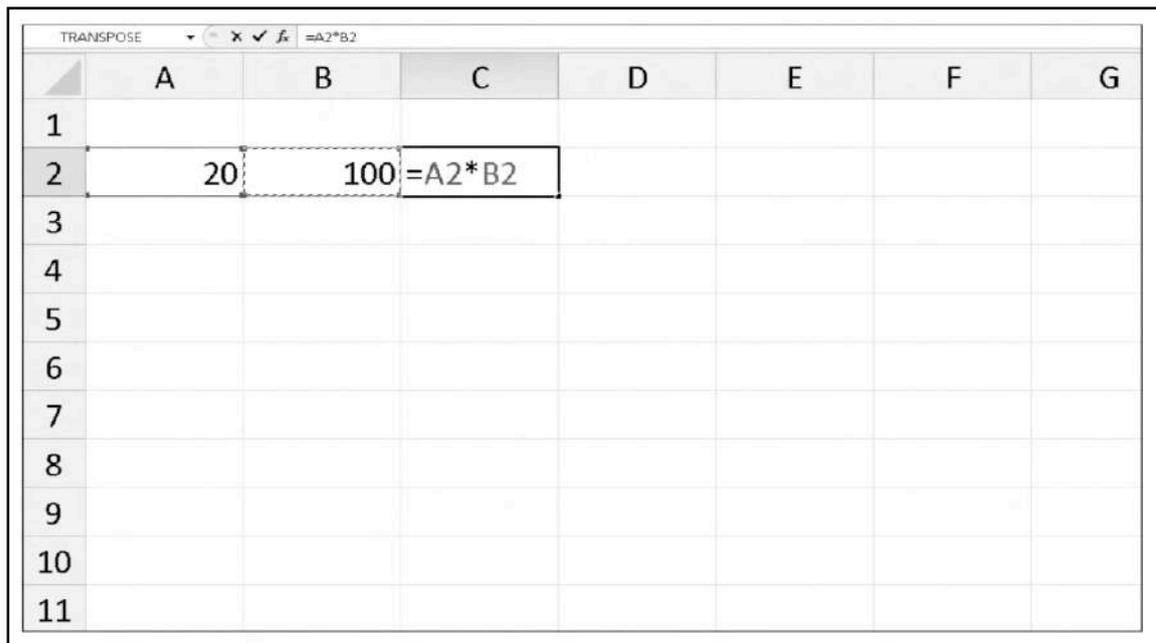
Or

1. Select cell C2.
2. Type = (equal sign).
3. Select cell A2 in the worksheet by using the mouse or the keyboard.

This action places the cell reference A2 in the formula in the cell as shown in the figure bellow.



4. Type * (Shift+8 on the top row of the keyboard).
The asterisk is used for multiplication rather than the × symbol you used in school.
5. Select cell B2 in the worksheet by using the mouse or the keyboard.
This action places the cell reference B2 in the formula as shown in the figure bellow.



6. Click the Enter button to complete the formula entry while keeping the cell pointer in cell C2.

Excel displays the calculated answer in cell C2 and the formula =A2*B2 in the Formula bar as shown in figure bellow.

	A	B	C	D	E	F	G
1							
2	20	100	2000				
3							
4							
5							
6							
7							
8							
9							
10							
11							

When you finish entering the formula =A2*B2 in cell C2 of the worksheet, Excel displays the calculated result, depending on the values currently entered in cells A2 and B2. The major strength of the electronic spreadsheet is the capability of formulas to change their calculated results automatically to match changes in the cells referenced by the formulas.

Now comes the fun part: After creating a formula like the preceding one that refers to the values in certain cells (rather than containing those values itself), you can change the values in those cells, and Excel automatically recalculates the formula, using these new values and displaying the updated answer in the worksheet! Using the example shown in Figure 2-8, suppose that you change the value in cell B2 from 100 to 50. The moment that you complete this change in cell B2, Excel recalculates the formula and displays the new answer, 1000, in cell C2.

Altering The Natural Order of Operations

Many formulas that you create perform more than one mathematical operation. Excel performs each operation, moving from left to right, according to a strict pecking order (the natural order of arithmetic operations). In this order, multiplication and division pull more weight than addition and subtraction and, therefore, perform first, even if these operations don't come first in the formula (when reading from left to right).

Consider the series of operations in the following formula:

$$=A2+B2*C2$$

If cell A2 contains the number 5, B2 contains the number 10, and C2 contains the number 2, Excel evaluates the following formula:

$$=5+10*2$$

In this formula, Excel multiplies 10 times 2 to equal 20 and then adds this result to 5 to produce the result 25.

If you want Excel to perform the addition between the values in cells A2 and B2 before the program multiplies the result by the value in cell C2, enclose the addition operation in parentheses as follows:

=(A2+B2)*C2

The parentheses around the addition tell Excel that you want this operation performed before the multiplication. If cell A2 contains the number 5, B2 contains the number 10, and C2 contains the number 2, Excel adds 5 and 10 to equal 15 and then multiplies this result by 2 to produce the result 30.

In fancier formulas, you may need to add more than one set of parentheses, one within another (like the wooden Russian dolls that nest within each other) to indicate the order in which you want the calculations to take place. When nesting parentheses, Excel first performs the calculation contained in the most inside pair of parentheses and then uses that result in further calculations as the program works its way outward. For example, consider the following formula:

=(A4+(B4-C4))*D4

Excel first subtracts the value in cell C4 from the value in cell B4, adds the difference to the value in cell A4, and then finally multiplies that sum by the value in D4.

Without the additions of the two sets of nested parentheses, left to its own devices, Excel would first multiply the value in cell C4 by that in D4, add the value in A4 to that in B4, and then perform the subtraction.

Don't worry too much when nesting parentheses in a formula if you don't pair them properly so that you have a right parenthesis for every left parenthesis in the formula. If you do not include a right parenthesis for every left one, Excel displays an alert dialog box that suggests the correction needed to balance the pairs. If you agree with the program's suggested correction, you simply click the Yes button. However, be sure that you only use parentheses: (). Excel balks at the use of brackets — [] — or braces — { } — in a formula by giving you an Error alert box.

Formula Flub-Ups

Under certain circumstances, even the best formulas can appear to have freaked out after you get them in your worksheet. You can tell right away that a formula's gone haywire because instead of the nice calculated value you expected to see in the cell, you get a strange, incomprehensible message in all uppercase letters beginning with the number sign (#) and ending with an exclamation point (!) or, in one case, a question mark (?). This weirdness, in the parlance of spreadsheets, is as an error value. Its purpose is to let you know that some element — either in the formula itself or in a cell referred to by the formula — is preventing Excel from returning the anticipated calculated value.

When one of your formulas returns one of these error values, an alert indicator (in the form of an exclamation point in a diamond) appears to the left of the cell when it contains the cell pointer, and the upper-left corner of the cell contains a tiny green triangle. When you position the mouse pointer on this alert indicator, Excel displays a brief description of the formula error and adds a drop-down button to the immediate right of its box. When you click this button, a pop-up menu appears with a number of related options. To access online help on this formula error, including suggestions on how to get rid of the error, click the Help on This Error item on this pop-up menu.

The worst thing about error values is that they can contaminate other formulas in the worksheet. If a formula returns an error value to a cell and a second formula in another cell refers to the value calculated by the first formula, the second formula returns the same error value, and so on down the line.

After an error value shows up in a cell, you have to discover what caused the error and edit the formula in the worksheet. In the table below, I list some error values that you might run into in a worksheet and then explain the most common causes.

What Shows Up in the Cell	What's Going On Here?
#DIV/0!	Appears when the formula calls for division by a cell that either contains the value 0 or, as is more often the case, is empty. Division by zero is a no-no in mathematics.
#NAME?	Appears when the formula refers to a <i>range name</i> (see Chapter 6 for info on naming ranges) that doesn't exist in the worksheet. This error value appears when you type the wrong range name or fail to enclose in quotation marks some text used in the formula, causing Excel to think that the text refers to a range name.
#NULL!	Appears most often when you insert a space (where you should have used a comma) to separate cell references used as arguments for functions.
#NUM!	Appears when Excel encounters a problem with a number in the formula, such as the wrong type of argument in an Excel function or a calculation that produces a number too large or too small to be represented in the worksheet.
#REF!	Appears when Excel encounters an invalid cell reference, such as when you delete a cell referred to in a formula or paste cells over the cells referred to in a formula.
#VALUE!	Appears when you use the wrong type of argument or operator in a function, or when you call for a mathematical operation that refers to cells that contain text entries.

AutoFill

Many of the worksheets that you create with Excel require the entry of a series of sequential dates or numbers. For example, a worksheet may require you to title the columns with the 12 months, from January through December, or to number the rows from 1 to 100.

Excel's AutoFill feature makes short work of this kind of repetitive task. All you have to enter is the starting value for the series. In most cases, AutoFill is smart enough to figure out how to fill out the series for you when you drag the fill handle to the right (to take the series across columns to the right) or down (to extend the series to the rows below).

The AutoFill handle looks like this — + — and appears only when you position the mouse pointer on the lower-right corner of the active cell (or the last cell, when you've selected a block of cells). If you drag a cell selection with the white cross mouse pointer rather than the AutoFill handle, Excel simply extends the cell selection to those cells you drag through.

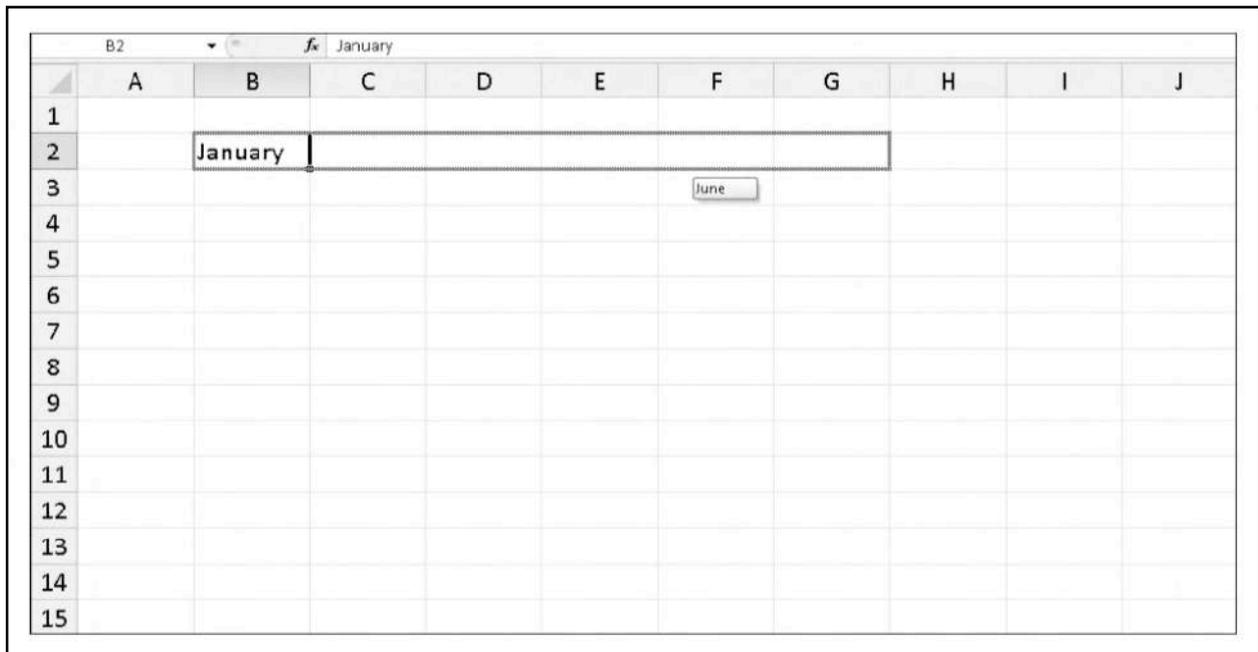
If you drag a cell selection with the arrowhead pointer, Excel moves the cell selection. When creating a series with the fill handle, you can drag in only one direction at a time. For example, you can fill the series or copy the entry to the range to the left or right of the cell that contains the initial values, or you can fill the series or copy to the range above or below the cell containing the initial

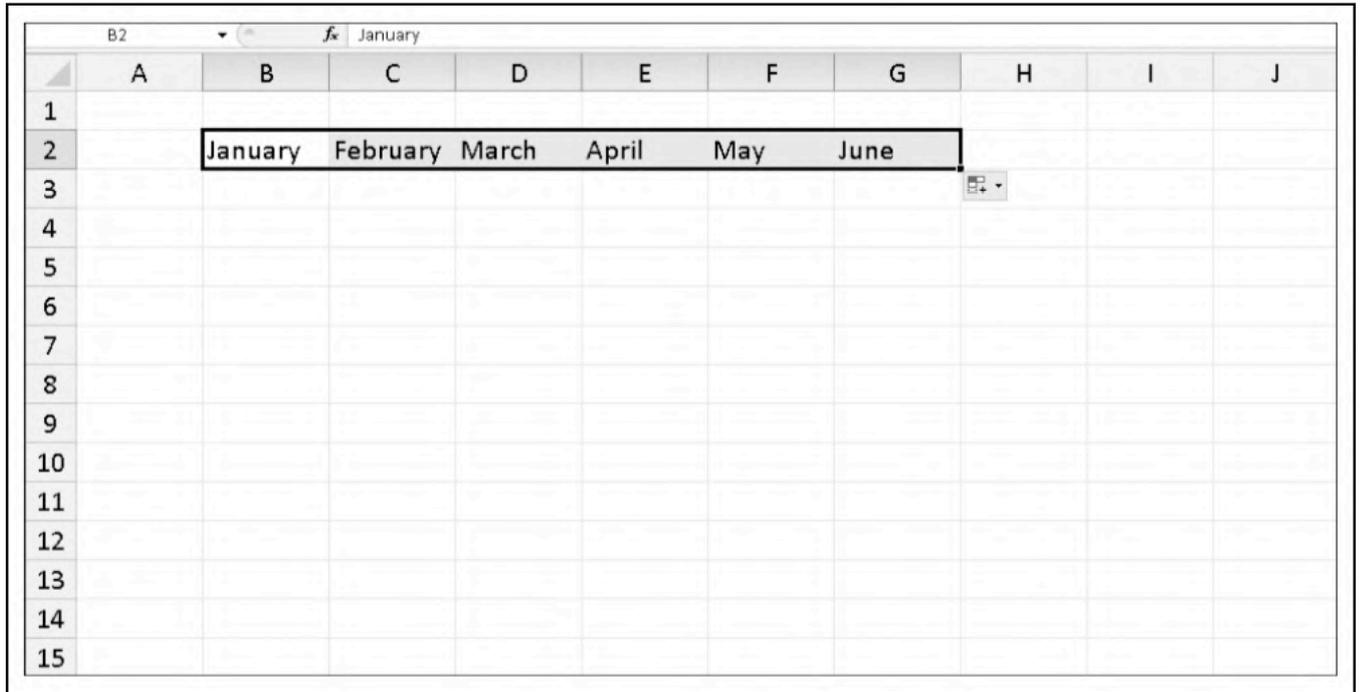
values. You can't, however, fill or copy the series to two directions at the same time (such as down and to the right by dragging the fill handle diagonally).

While you drag the mouse, the program keeps you informed of whatever entry will be entered into the last cell selected in the range by displaying that entry next to the mouse pointer (a kind of AutoFill tip, if you will). When you release the mouse button after extending the range with the fill handle, Excel either creates a series in all of the cells that you select or copies the entire range with the initial value. To the right of the last entry in the filled or copied series, Excel also displays a drop-down button that contains a shortcut menu of options. You can use this shortcut menu to override Excel's default filling or copying. For example, when you use the fill handle, Excel copies an initial value into a range of cells. But, if you want a sequential series, you could do this by selecting the Fill Series command on the AutoFill Options shortcut menu.

In the two figures bellow, I illustrate how to use AutoFill to enter a row of months, starting with January in cell B2 and ending with June in cell G2. To do this, you simply enter January in cell B2 and then position the mouse pointer on the fill handle in the lower-right corner of this cell before you drag through to cell G2 on the right as shown in the figure bellow. When you release the mouse button, Excel fills in the names of the rest of the months (February through June) in the selected cells (as shown in Figure 2-12). Excel keeps the cells with the series of months selected, giving you another chance to modify the series. (If you went too far, you can drag the fill handle to the left to cut back on the list of months; if you didn't go far enough, you can drag it to the right to extend the list of months further.

Also, you can use the options on the AutoFill Options drop-down menu (opened by clicking the drop-down button that appears on the fill handle to the right of June) to override the series created by default. To have Excel copy January into each of the selected cells, choose Copy Cells on this menu. To have the program fill the selected cells with the formatting used in cell B2, you select Fill Formatting Only on this menu. To have Excel fill in the series of months in the selected cells without copying the format- ting used in cell B2, you select the Fill without Formatting command from this shortcut menu.





Working With a Spaced Series

AutoFill uses the initial value that you select (date, time, day, year, and so on) to design the series. All the sample series I show in the table below change by a factor of one (one day, one month, or one number). You can tell AutoFill to create a series that changes by some other value: Enter two sample values in neighboring cells that describe the amount of change you want between each value in the series. Make these two values the initial selection that you extend with the fill handle.

For example, to start a series with Saturday and enter every other day across a row, enter Saturday in the first cell and Monday in the cell next door. After selecting both cells, drag the fill handle across the cells to the right as far as you need to fill out a series based on these two initial values. When you release the mouse button, Excel follows the example set in the first two cells by entering every other day (Wednesday to the right of Monday, Friday to the right of Wednesday, and so on).

Value Entered in First Cell	Extended Series Created by AutoFill in the Next Three Cells
June	July, August, September
Jun	Jul, Aug, Sep
Tuesday	Wednesday, Thursday, Friday
Tue	Wed, Thu, Fri
4/1/99	4/2/99, 4/3/99, 4/4/99
Jan-00	Feb-00, Mar-00, Apr-00
15-Feb	16-Feb, 17-Feb, 18-Feb
10:00 PM	11:00 PM, 12:00 AM, 1:00 AM
8:01	9:01, 10:01, 11:01
Quarter 1	Quarter 2, Quarter 3, Quarter 4
Qtr2	Qtr3, Qtr4, Qtr1
Q3	Q4, Q1, Q2
Product 1	Product 2, Product 3, Product 4

Copying With AutoFill

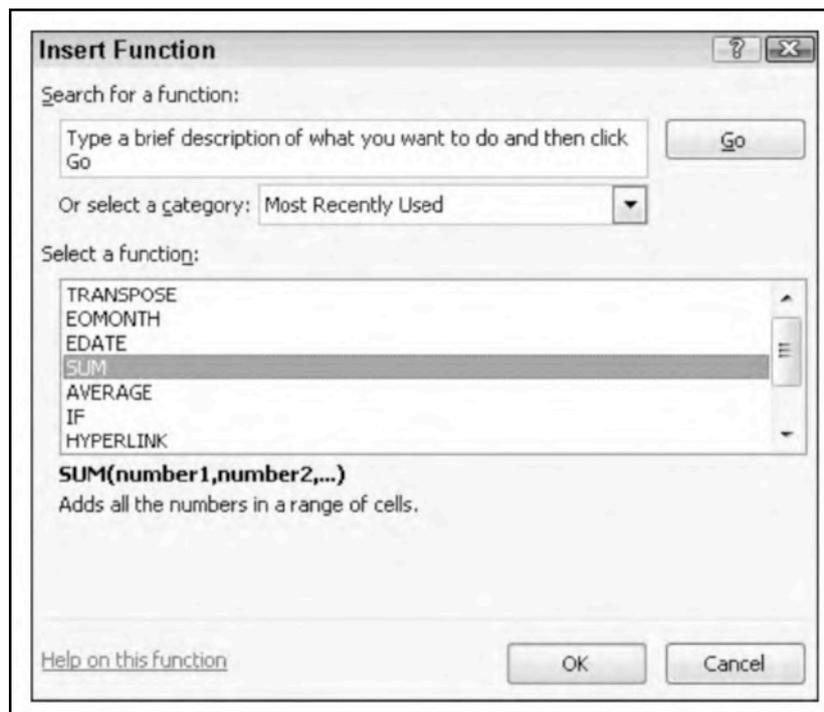
You can use AutoFill to copy a text entry throughout a cell range (rather than fill in a series of related entries). To copy a text entry to a cell range, hold down the Ctrl key while you click and drag the Fill handle. When you hold down the Ctrl key while you click the fill handle, a plus sign appears to the right of the Fill handle — your sign that AutoFill will copy the entry in the active cell instead of creating a series using it. You can also tell because the entry that appears as the AutoFill tip next to the mouse pointer while you drag contains the same text as the original cell. If you decide after copying an initial label or value to a range that you should have used it to fill in a series, click the drop-down button that appears on the fill handle at the cell with the last copied entry and then select the Fill Series command on the AutoFill Options shortcut menu that appears.

Although holding down Ctrl while you drag the fill handle copies a text entry, just the opposite is true when it comes to values! Suppose that you enter the number 17 in a cell and then drag the fill handle across the row — Excel just copies the number 17 in all the cells that you select. If, however, you hold down Ctrl while you drag the fill handle, Excel then fills out the series (17, 18, 19, and so on). If you forget and create a series of numbers when you only need the value copied, rectify this situation by selecting the Copy Cells command on the AutoFill Options shortcut menu.

Inserting a Function into a Formula With The Insert Function Button

Although you can enter a function by typing it directly in a cell, Excel provides an Insert Function button on the Formula bar you can use to select any of Excel's functions. When you click this button, Excel opens the Insert Function dialog box shown in the figure below where you can select the function you want to use. After you select your function, Excel opens the Function Arguments dialog box. In this dialog box, you can specify the function arguments. The real boon comes when you're fooling with an unfamiliar function or one that's kind of complex (some of these puppies can be hairy).

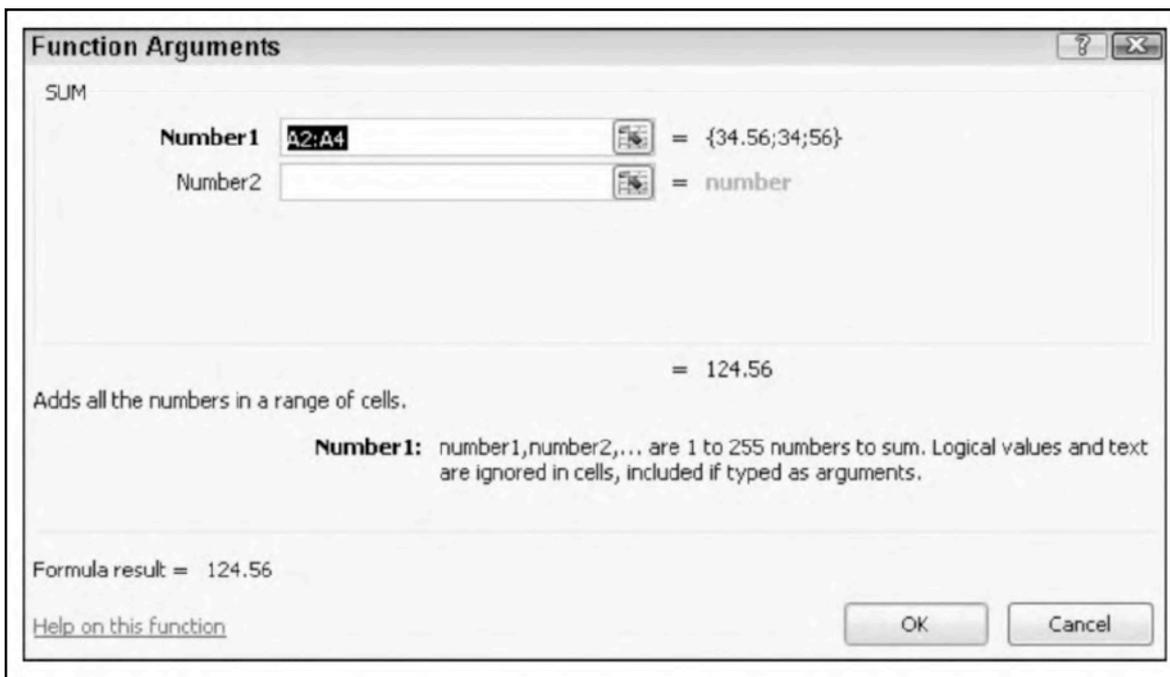
You can get loads of help in completing the argument text boxes in the Function Arguments dialog box by clicking the Help on This Function link in the lower-left corner.



The Insert Function dialog box contains three boxes: a Search for a Function text box, an Or Select a Category drop-down list box, and a Select a Function list box. When you open the Insert Function dialog box, Excel automatically selects Most Recently Used as the category in the Select a Category drop-down list box and displays the functions you usually use in the Select a Function list box.

If your function isn't among the most recently used, you must then select the appropriate category of your function in the Select a Category drop-down list box. If you don't know the category, you must search for the function by typing a description of its purpose in the Search for a Function text box and then press Enter or click the Go button. For example, to locate all the Excel functions that total values, you enter total in the Search for Function list box and click the Go button. Excel then displays its list of recommended functions for calculating totals in the Select a Function list box. You can peruse the recommended functions by selecting each one. While you select each function in this list, the Insert Function dialog box shows you the required arguments followed by a description, at the bottom of the dialog box, of what the function does.

After you locate and select the function that you want to use, click the OK button to insert the function into the current cell and open the Function Arguments dialog box. This dialog box displays the required arguments for the function along with any that are optional. For example, suppose that you select the SUM function (the crown jewel of the Most Recently Used function category) in the Select a Function list box and then click OK. As soon as you do, the program inserts SUM() in the current cell and on the Formula bar (following the equal sign), and the Function Arguments dialog box showing the SUM arguments appears on the screen (as shown in Figure 2-16). This is where you add the arguments for the SUM function.



As shown the figure up, you can sum up to 255 numbers in the Function Arguments dialog box. What's not obvious, however (there's always some trick, huh?), is that these numbers don't have to be in single cells. In fact, most of the time you'll be selecting a whole slew of numbers in nearby cells (in a multiple cell selection — that range thing) that you want to total.

To select your first number argument in the dialog box, you click the cell (or drag through the block of cells) in the worksheet while the insertion point is in the Number1 text box. Excel then displays the cell address (or range address) in the Number1 text box while, at the same time, showing

the value in the cell (or values, if you select a bunch of cells) in the box to the right. Excel displays the total near the bottom of the Function Arguments dialog box after the words Formula result=.

When selecting cells, you can minimize this arguments dialog box to just the contents of the Number1 text box by dragging the cell pointer through the cells to sum in the worksheet. After you minimize the arguments dialog box while selecting the cells for the first argument, you can then expand it again by releasing the mouse button.

You can also reduce the dialog box to the Number1 argument text box by clicking the Minimize Dialog Box button on the right of the text box, selecting the cells, and then clicking the Maximize Dialog Box button (the only button displayed on the far right) or by pressing the Esc key. Instead of minimizing the dialog box, you can also temporarily move it out of the way by clicking on any part and then dragging the dialog box to its new destination on the screen.

If you're adding more than one cell (or bunch of cells) in a worksheet, press the Tab key or click the Number2 text box to move the insertion point to that text box. (Excel responds by extending the argument list with a Number3 text box.) Here is where you specify the second cell (or cell range) to add to the one now showing in the Number1 text box. After you click the cell or drag through the second cell range, the program displays the cell address(es), the numbers in the cell(s) to the right, and the running total near the bottom of the Function Arguments dialog box after Formula result= as shown in the last figure before. You can minimize the entire Function Arguments dialog box down to just the contents of the argument text box you're dealing with (Number2, Number3, and so on) by clicking its particular Minimize Dialog Box button if the dialog box obscures the cells that you need to select.

When you finish pointing out the cells or bunch of cells to sum, click the OK button to close the Function Arguments dialog box and put the SUM function in the current cell.

I'd be Totally Lost Without AutoSum

Before leaving this fascinating discussion on entering functions, I want you to get to the AutoSum tool in the Editing group on the Home tab of the Ribbon.

Look for the Greek sigma (Σ) symbol. This little tool is worth its weight in gold. In addition to entering the SUM, AVERAGE, COUNT, MAX, or MIN functions, it also selects the most likely range of cells in the current column or row that you want to use as the function's argument and then automatically enters them as the function's argument. Nine times out of ten, Excel selects (with the marquee or moving dotted line) the correct cell range to total, average, count, and so forth. For that tenth case, you can manually correct the range by simply dragging the cell pointer through the block of cells to sum.

Simply click the AutoSum button on the Home tab when you want to insert the SUM function into the current cell. If you want to use this button to insert another function, such as AVERAGE, COUNT, MAX, or MIN, you need to click its drop-down button and select the name of the desired function on its pop-up menu (click Count Numbers on the menu to insert the COUNT function). If you select the More Functions command on this menu, Excel opens the Insert Function dialog box as though you had clicked the fx button on the Formula bar.

In the figure bellow, check out how to use the AutoSum tool to total the sales of Jack Sprat Diet Centers in row 3. Position the cell pointer in cell E3 where the first-quarter total is to appear and then click the AutoSum tool. Excel inserts SUM (equal sign and all) onto the Formula bar; places a marquee around the cells B3, C3, and D3; and uses the cell range B3:D3 as the argument of the SUM function.

	A	B	C	D	E	F	G
1	Mother Goose Enterprises - 2010 Sales						
2		Jan	Feb	Mar	Qtr 1		
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	=SUM(B3:D3)		
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	SUM(number1, [number2], ...)		
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28			
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99			
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75			
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13			
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24			
10	Total						
11							
12							
13							
14							
15							

Now look at the worksheet after you insert the function in cell E3 (see Figure 2-18). The calculated total appears in cell E3 while the following SUM function formula appears in the Formula bar:

=SUM(B3:D3)

	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84		
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28		
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99		
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75		
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13		
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24		
10	Total					
11						
12						
13						
14						
15						

After entering the function to total the sales of Jack Sprat Diet Centers, you can copy this formula to total sales for the rest of the companies by dragging the fill handle down column E until the cell range E3:E10 is highlighted.

Look at the figure bellow to see how you can use the AutoSum tool to total the January sales for all the Mother Goose Enterprises in column B. Position the cell pointer in cell B10 where you want the total to appear. Click the AutoSum tool, and Excel places the marquee around cells B3 through B9 and correctly enters the cell range B3:B9 as the argument of the SUM function.

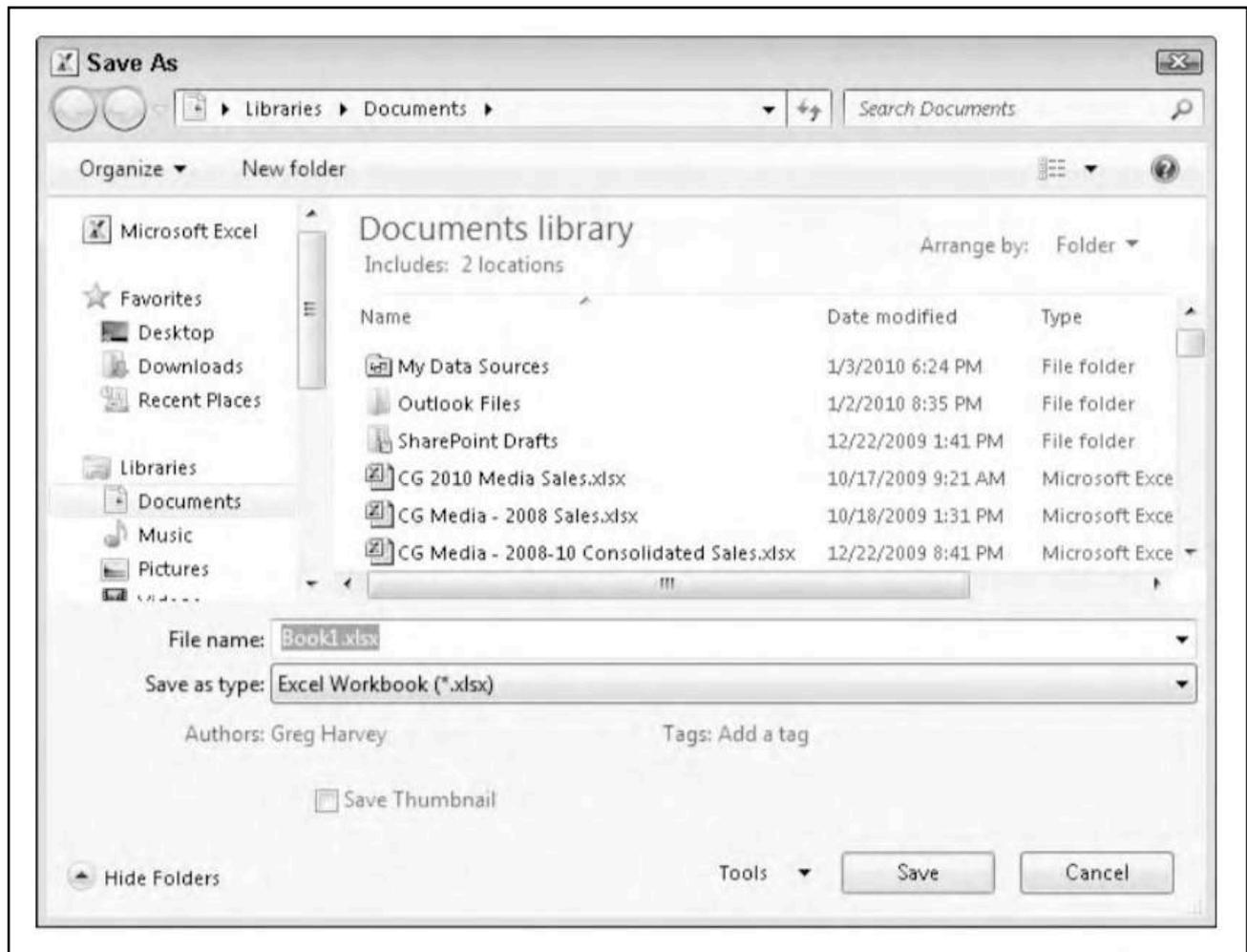
	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	127428.2	
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28	115550.9	
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99	101069.8	
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75	132468.6	
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13	297505.2	
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24	176872.1	
10	Total	=SUM(B3:B9)			0	
11						
12						
13						
14						
15						

In the figure bellow, you see the worksheet after inserting the function in cell B10 and using the AutoFill feature to copy the formula to cells C10 and D10 to the right. To use AutoFill, drag the fill handle through the cells to the right until you reach cell D10. Release the mouse button.

	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	127428.2	
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28	115550.9	
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99	101069.8	
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75	132468.6	
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13	297505.2	
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24	176872.1	
10	Total	379320.2	509019.5	222043.3	1110383	
11						
12						
13						
14						
15						

The Save As Dialog Box in Windows

The figure bellow shows you the Save As dialog box as it appears in excel when running the program under Windows. Here, you can replace the temporary filename (Book1, Book2, and so on) with a more descriptive name by clicking the File Name text box and typing in the new name (up to 255 characters total, including spaces).



To select a new folder in which to save the new workbook file, follow these steps:

1. In the Navigation Pane, click the name of the folder in the Favorites, Libraries, Computer, or Network section in which you want to save the workbook file.
2. To save the workbook file within a subfolder of one of the folders now displayed in the main pane of the Save As dialog box, double-click its folder icon to open it up.
3. (Optional) If you want to save the workbook file inside a new sub- folder within the folder currently open in the Save As dialog box, click the New Folder button on the toolbar, replace the suggested New Folder name by typing the actual name of the folder, and then press Enter.
4. Click the Save button to save the file in the selected folder.

When the Save As dialog box is expanded by clicking the Browse Folders button, you can modify the authors or add tags to the new workbook file by clicking the Add an Author or Add a Tag text boxes. You can then use this information later when searching for the workbook.

The Difference Between The XLSX & XLS File Format

Excel 2010, 2013, 2016, 2019 supports the use of the XML-based file format first introduced in Excel 2007 (which Microsoft officially calls the Microsoft Office Open XML format). This default file format is touted as being more efficient in saving data resulting in smaller file size and offering superior integration with external data sources (especially, when these resources are Web-based ones

supporting XML files). This XML-based file format carries the filename extension .xlsx and is the file format in which Excel automatically saves any new workbook you create.

The only problem with this newfangled XML-based file format is that it can't be opened by earlier Excel versions (before Excel 2007). Therefore, if someone who needs to work with the workbook you've just created isn't using Excel 2007 or hasn't yet upgraded to Excel 2010, you need to save the new workbook in the earlier file format used in Excel versions 97 through 2003 with the old .xls filename extension.

To do this, click the Save As Type drop-down button in the Save As dialog box and then click Excel 97-2003 Workbook (*.xls) on the drop-down menu. (If you work in an office where all workbooks must be backwardly compatible with earlier versions.

Filename extensions, such as .xlsx and .xls, do not appear as part of the filename (even though they are appended) in the File Name text box in the Excel Save As dialog box unless you've specifically changed Windows' folder options to show them. To make this change, open the Folder Options dialog box in Windows Explorer and then deselect the Hide Extensions for Known File Types check box on the View tab. To open the Folder Options dialog box, select Tools Options on the Explorer window's pull-down menus in Windows XP or click the Organize button and then select Folder and Search Options on its drop-down menu in Windows.

Excel 2010 up to Excel 2019 also supports a special binary file format called Excel Binary Workbook that carries the .xlsb filename extension. Select this binary format for huge spreadsheets that you create that have to be compatible with earlier versions of Excel.

Saving The Workbook as a PDF File

The PDF (Portable Document File) file format developed by Adobe Systems Incorporated enables people to open up and print documents without access to the original programs with which the documents were created.

Excel enables you to save your workbook files directly in this special PDF file format. You can readily share your Excel workbooks with users who don't have Excel installed on their computers by saving them as PDF files. All they need to open and print the PDF copy of the workbook file is the free Adobe Reader software (which they can download from the Adobe Web site at www.adobe.com).

To save your workbook as a PDF file, you simply select the PDF option on the Save as Type drop-down list in the Save As dialog box. Excel then adds PDF- specific options to the bottom of the Save As dialog box, with the Standard (Publishing Online and Printing) button under the Optimize For heading and the Open File after Publishing check box selected.

If you want to make the resulting PDF file as small as possible (because your worksheet is so large), click the Minimum Size (Publishing Online) button under the Optimize For heading. If you want to change which parts of the workbook are saved in the resulting PDF (Excel automatically saves all ranges in the active worksheet of the workbook), click the Options button directly beneath the Minimum Size (Publishing Online) option and make the appropriate changes in the Options dialog box before you click OK.

If you don't need to edit the filename (Excel automatically appends .pdf to the current filename) or the folder location in the Save As dialog box, simply click the Save button. Excel then saves a copy of the workbook in a PDF file format and, provided you don't deselect the Open File after Publishing check box, automatically opens the workbook for your inspection in Adobe Reader. After viewing the PDF version in Adobe Reader, you can then return to your worksheet in Excel by clicking Reader's Close button (or pressing Alt+F4).

If you create an Excel workbook that incorporates new features not supported in earlier versions of Excel, instead of saving the workbook as an .xls file, thereby losing all of its 2010 enhancements,

consider saving it as a PDF file. That way, co-workers still using pre-2010 Excel versions can still access the data in all its glory via Adobe Reader.

Making It All Look Pretty

In This Lecture

- *Selecting the cells to format*
- *Formatting data tables with the Format as Table command button*
- *Using various number formats on cells containing values*
- *Adjusting column width and row height in a worksheet*
- *Hiding columns and rows in a worksheet*
- *Formatting cell ranges from the Home tab of the Ribbon*
- *Formatting cell ranges using Styles and the Format Painter*
- *Formatting cells under certain conditions*

In spreadsheet programs like Excel, you normally don't worry about how the stuff looks until after you enter all the data in the worksheets of your workbook and save it all safe and sound. Only then do you pretty up the information so that it's clearer and easy to read.

After you decide on the types of formatting that you want to apply to a portion of the worksheet, you can select all the cells to beautify and then click the appropriate tool or choose the menu command to apply those formats to the cells. However, before you discover all the fabulous formatting features you can use to dress up cells, you need to know how to pick the group of cells that you want to apply the formatting to — that is, selecting the cells or, alternately, making a cell selection.

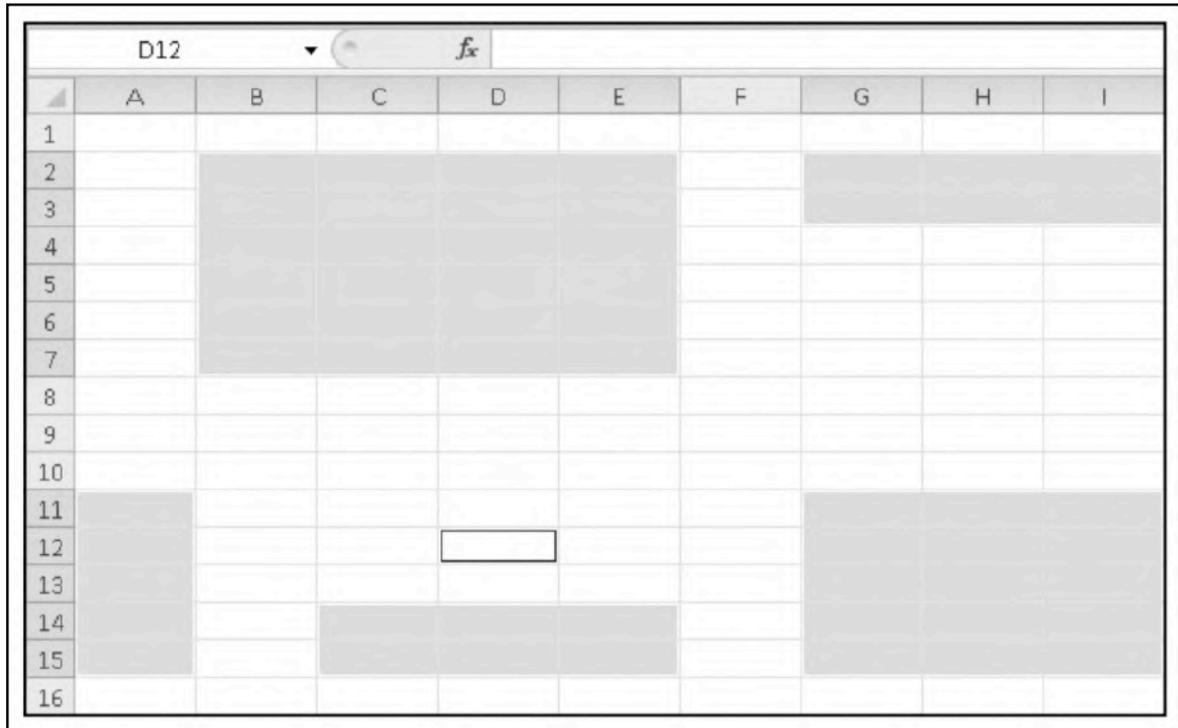
Be aware, also, that entering data into a cell and formatting that data are two completely different things in Excel. Because they're separate, you can change the entry in a formatted cell, and new entries assume the cell's formatting. This enables you to format blank cells in a worksheet, knowing that when you get around to making entries in those cells, those entries automatically assume the formatting you assign to those cells.

Choosing a Select Group of Cells

Given the monotonously rectangular nature of the worksheet and its components, it shouldn't come as a surprise to find that all the cell selections you make in the worksheet have the same kind of cubist feel to them. After all, worksheets are just blocks of cells of varying numbers of columns and rows.

A cell selection (or cell range) is whatever collection of neighboring cells you choose to format or edit. The smallest possible cell selection in a worksheet is just one cell: the so-called active cell. The cell with the cell cursor is really just a single cell selection. The largest possible cell selection in a worksheet is all the cells in that worksheet (the whole enchilada, so to speak). Most of the cell selections you need for formatting a worksheet will probably fall somewhere in between, consisting of cells in several adjacent columns and rows.

Excel shows a cell selection in the worksheet by highlighting in color the entire block of cells within the extended cell cursor except for the active cell that keeps its original color. The figure below shows several cell selections of different sizes and shapes.



In Excel, you can select more than one cell range at a time (a phenomenon somewhat ingloriously called a noncontiguous or nonadjacent selection). In fact, although the figure appears to contain several cell selections, it's really just one big, nonadjacent cell selection with cell D12 (the active one) as the cell that was selected last.

Point-And-Click Cell Selections

The mouse is a natural for selecting a range of cells. Just position the mouse pointer (in its thick, white cross form) on the first cell and then click and drag in the direction that you want to extend the selection.

- ✓ To extend the cell selection to columns to the right, drag your mouse to the right, highlighting neighboring cells as you go.
- ✓ To extend the selection to rows to the bottom, drag your mouse down.
- ✓ To extend the selection down and to the right at the same time, drag your mouse diagonally toward the cell in the lower-right corner of the block you're highlighting.

Shifty Cell Selections

To speed up the old cell-selection procedure, you can use the Shift+click method, which goes as follows:

1. Click the first cell in the selection.
This selects that cell.
2. Position the mouse pointer in the last cell in the selection.
This is kitty-corner from the first cell in your selected rectangular block.
3. Press the Shift key and hold it down while you click the mouse button again.
When you click the mouse button the second time, Excel selects all the cells in the columns and rows between the first cell and last cell.

The Shift key works with the mouse like an extend key to extend a selection from the first object you select through to, and including, the second object you select. See the section “Extend that cell selection,” later in this chapter. Using the Shift key enables you to select the first and last cells, as well as all the intervening cells in a worksheet or all the document names in a dialog list box.

If, when making a cell selection with the mouse, you notice that you include the wrong cells before you release the mouse button, you can deselect the cells and resize the selection by moving the pointer in the opposite direction. If you already released the mouse button, click the first cell in the highlighted range to select just that cell (and deselect all the others) and then start the whole selection process again.

Nonadjacent Cell Selections

To select a nonadjacent cell selection made up of more than one non-touching block of cells, drag through the first cell range and release the mouse button. Then hold down the Ctrl key while you click the first cell of the second range and drag the pointer through the cells in this range. As long as you hold down Ctrl while you select the subsequent ranges, Excel doesn’t deselect any of the previously selected cell ranges.

The Ctrl key works with the mouse like an add key to include non-neighboring objects in Excel. See the section “Nonadjacent cell selections with the key- board,” later in this chapter. By using the Ctrl key, you can add to the selection of cells in a worksheet or to the document names in a dialog list box without having to deselect those already selected.

Going for the “big” cell selections

You can select the cells in entire columns or rows or even all the cells in the worksheet by applying the following clicking-and-dragging techniques to the worksheet frame:

- ✓ To select every single cell in a particular column, click its column letter on the frame at the top of the worksheet document window.
- ✓ To select every cell in a particular row, click its row number on the frame at the left edge of the document window.
- ✓ To select a range of entire columns or rows, drag through the column letters or row numbers on the frame surrounding the workbook.
- ✓ To select more than entire columns or rows that are not right next to each other (that old noncontiguous stuff, again), press and hold down the Ctrl key while you click the column letters or row numbers of the columns and rows that you want to add to the selection.
- ✓ To select every cell in the worksheet, press Ctrl+A or click the Select All button, which is the button with the triangle pointing downward on the diagonal (reminding me of the corner of a dog-eared book page). It’s in the upper-left corner of the workbook frame, formed by the intersection of the row with the column letters and the column with the row numbers.

Selecting The Cells in a Table of Data, Courtesy of AutoSelect

Excel provides a quick way (called AutoSelect) to select all the cells in a table of data entered as a solid block. To use AutoSelect, simply follow these steps:

1. Click the first cell of the table to select it.
This is the cell in the table’s upper-left corner.
2. Hold down the Shift key while you double-click the right or bottom edge of the selected cell with the arrowhead mouse pointer, see the figure bellow.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	127428.2	
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28	115550.9	
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99	101069.8	
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75	132468.6	
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13	297505.2	
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24	176872.1	
10	Total	379320.2	509019.5	222043.3	1110383	
11						
12						
13						
14						
15						
16						

The cell A3 is selected, and a mouse cursor is positioned at the bottom edge of the cell.

Double-clicking the bottom edge of the cell causes the cell selection to expand to the cell in the last row of the first column as shown in the figure bellow. If you double-click the right edge of the cell, the cell selection expands to the cell in the last column of the first row.

The screenshot shows the same Excel spreadsheet as above, but with a different selection:

	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	127428.2	
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28	115550.9	
6	Rub-a-Dub-Dub Tubs and Spas	17619.79	40635	42814.99	101069.8	
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75	132468.6	
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13	297505.2	
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24	176872.1	
10	Total	379320.2	509019.5	222043.3	1110383	
11						
12						
13						
14						
15						
16						

The cells from A3 to A10 are selected, and a mouse cursor is positioned at the right edge of the cell A6.

3.A. Double-click somewhere on the right edge of the cell selection I refer to the previous figure if the cell selection now consists of the first column of the table.

This selects all the remaining rows of the table of data as shown in the next figure.

3.B. Double-click somewhere on the bottom edge of the current cell selection if the cell selection now consists of the first row of the table.

This selects all the remaining rows in the table.

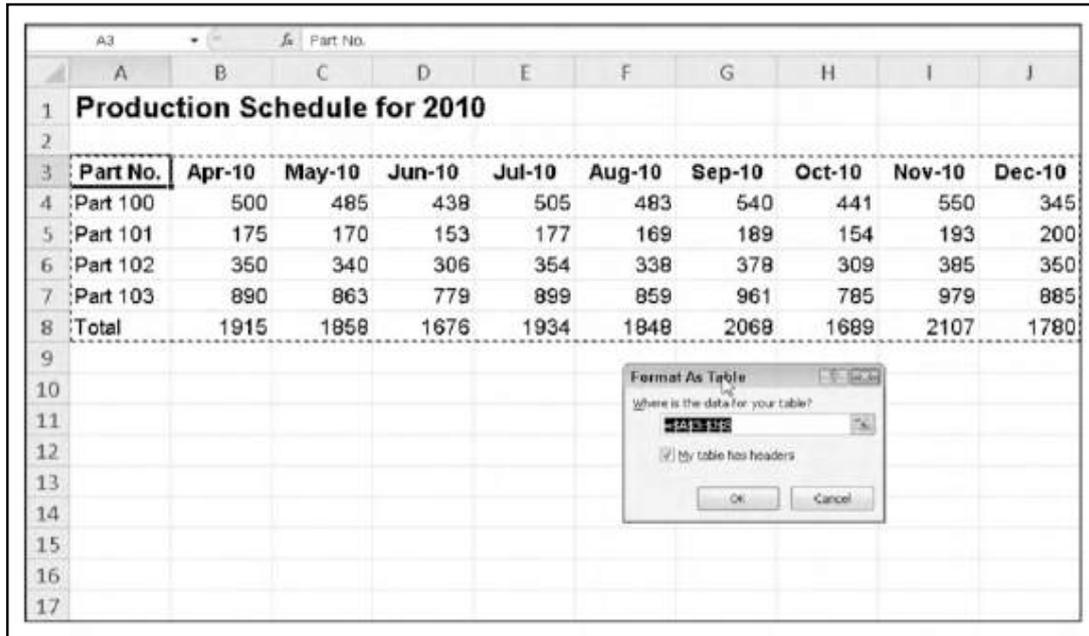
	A	B	C	D	E	F
1	Mother Goose Enterprises - 2010 Sales					
2		Jan	Feb	Mar	Qtr 1	
3	Jack Sprat Diet Centers	80138.58	59389.56	19960.06	159488.2	
4	Jack and Jill Trauma Centers	12345.62	89645.7	25436.84	127428.2	
5	Mother Hubbard Dog Goodies	12657.05	60593.56	42300.28	115550.9	
6	Rub-a-Dub-Dub Tubs and Spas	17679	40635	42814.99	101069.8	
7	Georgie Porgie Pudding Pies	57133.56	62926.31	12408.75	132468.6	
8	Hickory, Dickory, Doc Clock Repair	168591	124718.1	4196.13	297505.2	
9	Little Bo Peep Pet Detectives	30834.63	71111.25	74926.24	176872.1	
10	Total	379320.2	509019.5	222043.3	1110383	
11						
12						
13						
14						
15						
16						

Although the preceding steps may lead you to believe that you have to select the first cell of the table when you use AutoSelect, you can actually select any of the cells in the four corners of the table. Then, when expanding the cell selection in the table with the Shift key depressed, you can choose whatever direction you like to either select the first or last row of the table or the first or last column. (Choose left, by clicking the left edge; right, by clicking the right edge; up, by clicking the top edge; or down, by clicking the bottom edge.) After expanding the cell selection to include either the first or last row or first or last column, you need to click whichever edge of that current cell selection that will expand it to include all the remaining table rows or columns.

Format As Table Gallery

Here's a formatting technique that doesn't require you to do any prior cell selecting. The Format as Table feature is so automatic that the cell cursor just has to be within the table of data prior to you clicking the Format as Table command button in the Styles group on the Home tab. Clicking the Format as Table command button opens its rather extensive Table gallery with the formatting thumbnails divided into three sections — Light, Medium, and Dark — each of which describes the intensity of the colors used by its various formats.

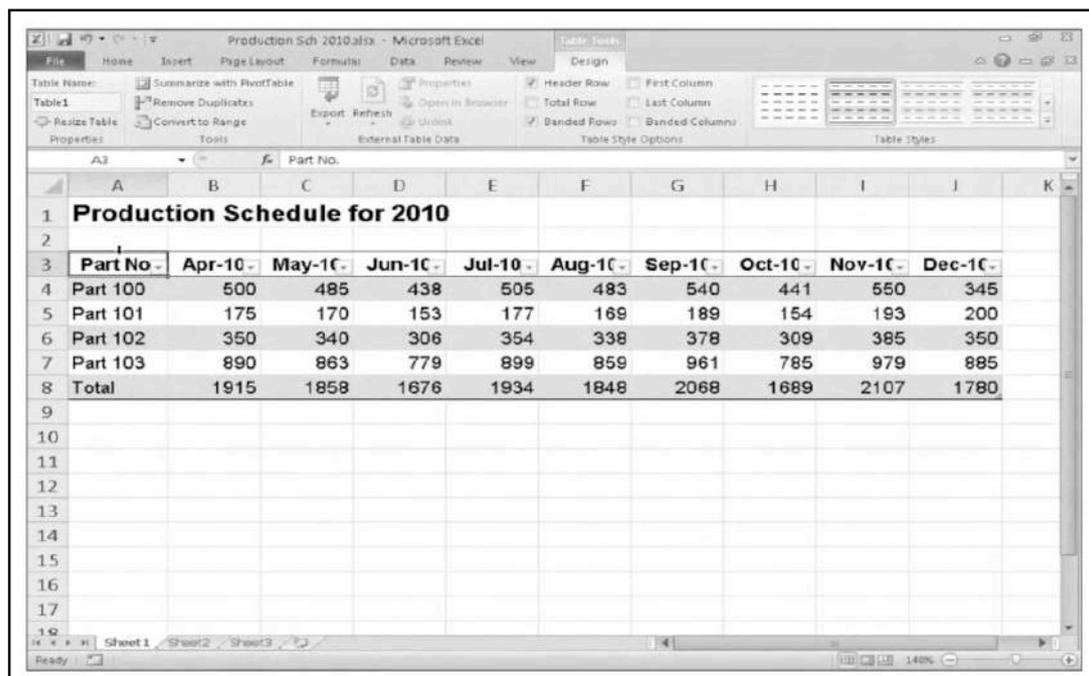
As soon as you click one of the table formatting thumbnails in this Table gallery, Excel makes its best guess as to the cell range of the data table to apply it to (indicated by the marquee around its perimeter) and the Format As Table dialog box, similar to the one shown in the figure below.



This dialog box contains a Where Is the Data for Your Table text box that shows the address of the cell range currently selected by the marquee and a My Table Has Headers check box. If Excel does not correctly guess the range of the data table you want to format, drag through the cell range to adjust the marquee and the range address in the Where Is the Data for Your Table text box. If your data table doesn't use column headers or, if the table has them, but you still don't want Excel to add Filter drop-down buttons to each column heading, deselect the My Table Has Headers check box before you click the OK button.

The table formats in the Table gallery are not available if you select multiple nonadjacent cells before you click the Format as Table command button on the Home tab.

After you click the OK button in the Format As Table dialog box, Excel applies the format of the thumbnail you clicked in the gallery to the data table. Additionally, the Design tab appears under the Table Tools contextual tab at the end of the Ribbon, as shown in the figure below.



The Design tab enables you to use Live Preview to see how your table would appear. Simply position the mouse pointer over any of the format thumbnails in the Table Styles group to see the data in your table appear in that table format. Click the button with the triangle pointing downward to scroll up new rows of table formats in the Table Styles group and the button with the triangle pointing upward to scroll down rows without opening the Table gallery and possibly obscuring the actual data table in the Worksheet area. Click the More button (the one with the horizontal bar above the downward pointing triangle) to redisplay the Table gallery and then mouse over the thumbnails in the Light, Medium, and Dark sections to have Live Preview apply them to the table.

In addition to enabling you to select a new format from the Table gallery in the Table Styles group, the Design tab contains a Table Style Options group containing a bunch of check boxes that enable you to customize the look of the selected table format even further:

- ✓ **Header Row** to add special formatting and Filter buttons to each of the column headings in the first row of the table.
- ✓ **Total Row** to have Excel add a Total Row to the bottom of the table that displays the sums of each column that contains values. To apply another Statistical function to the values in a particular column, click the cell in that column's Total Row to display a drop-down list button and then select the function — Average, Count, Count Numbers, Max, Min, Sum, StdDev (Standard Deviation), or Var (Variance).
- ✓ **First Column** to have Excel display the row headings in the first column of the table in bold.
- ✓ **Last Column** to have Excel display the row headings in the last column of the table in bold.
- ✓ **Banded Rows** to have Excel apply shading to every other row in the table.
- ✓ **Banded Columns** to have Excel apply shading to every other column in the table.

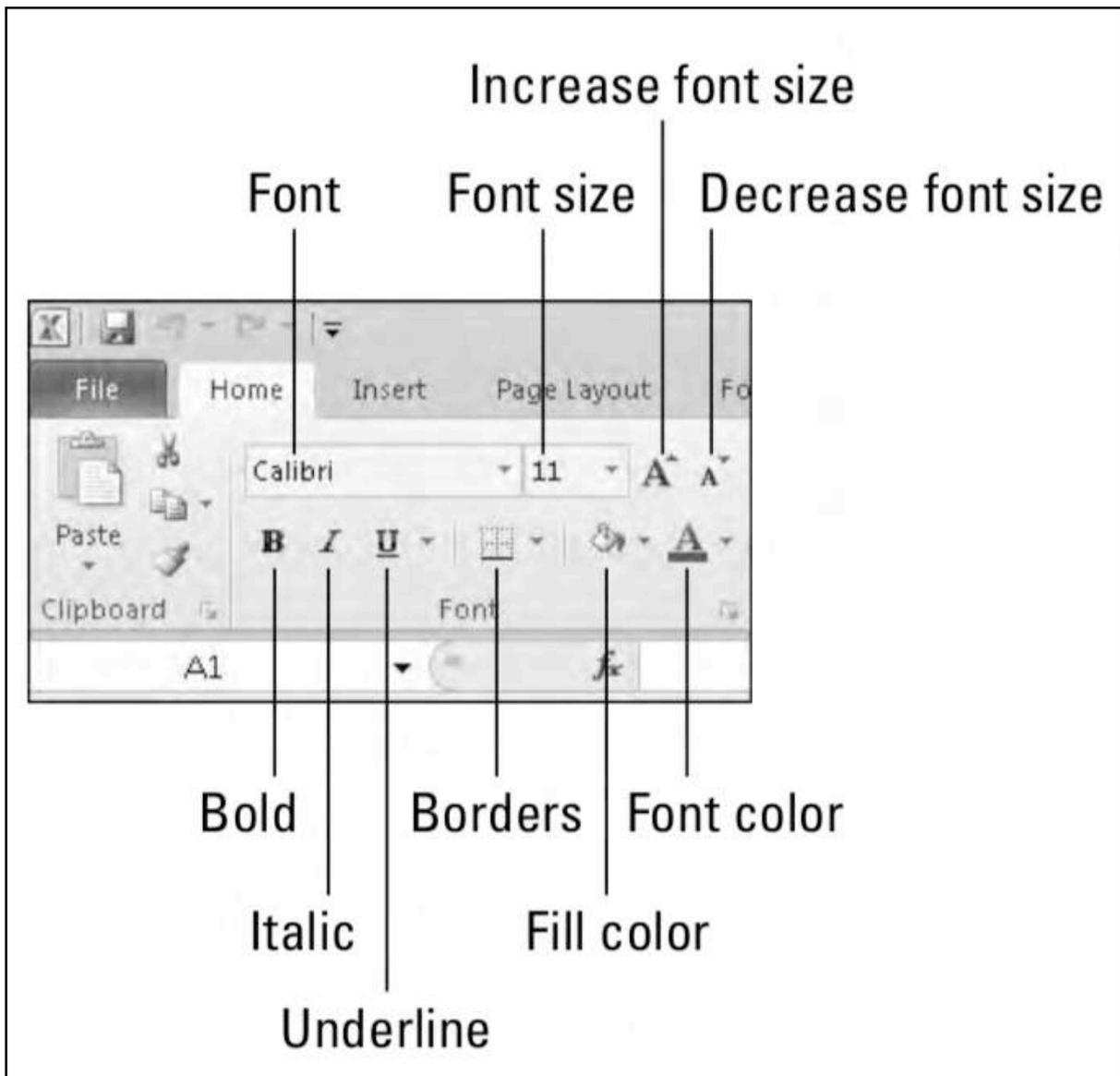
Whenever you assign a format in the Table gallery to one of the data tables in your workbook, Excel automatically assigns that table a generic range name (Table1, Table2, and so on). You can use the Table Name text box in the Properties group on the Design tab to rename the data table by giving it a more descriptive range name.

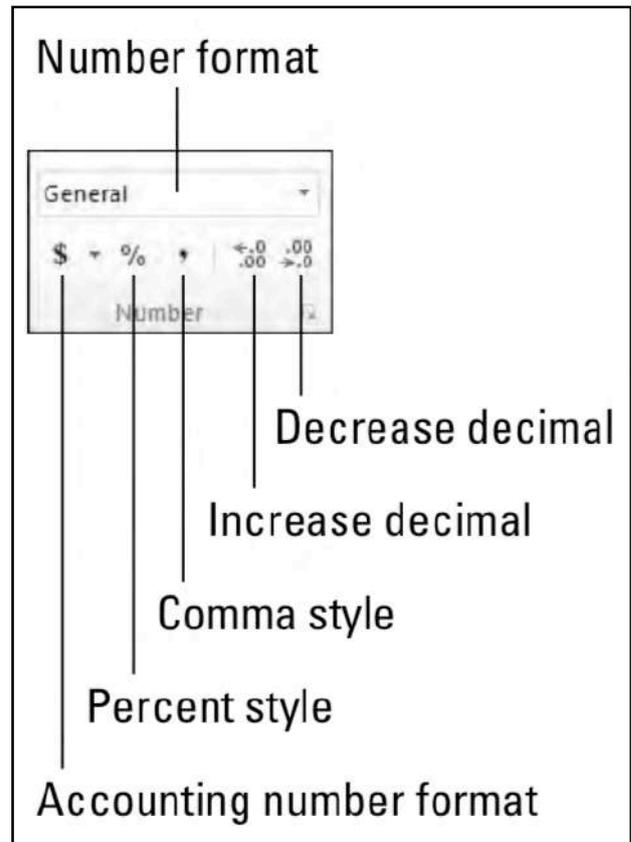
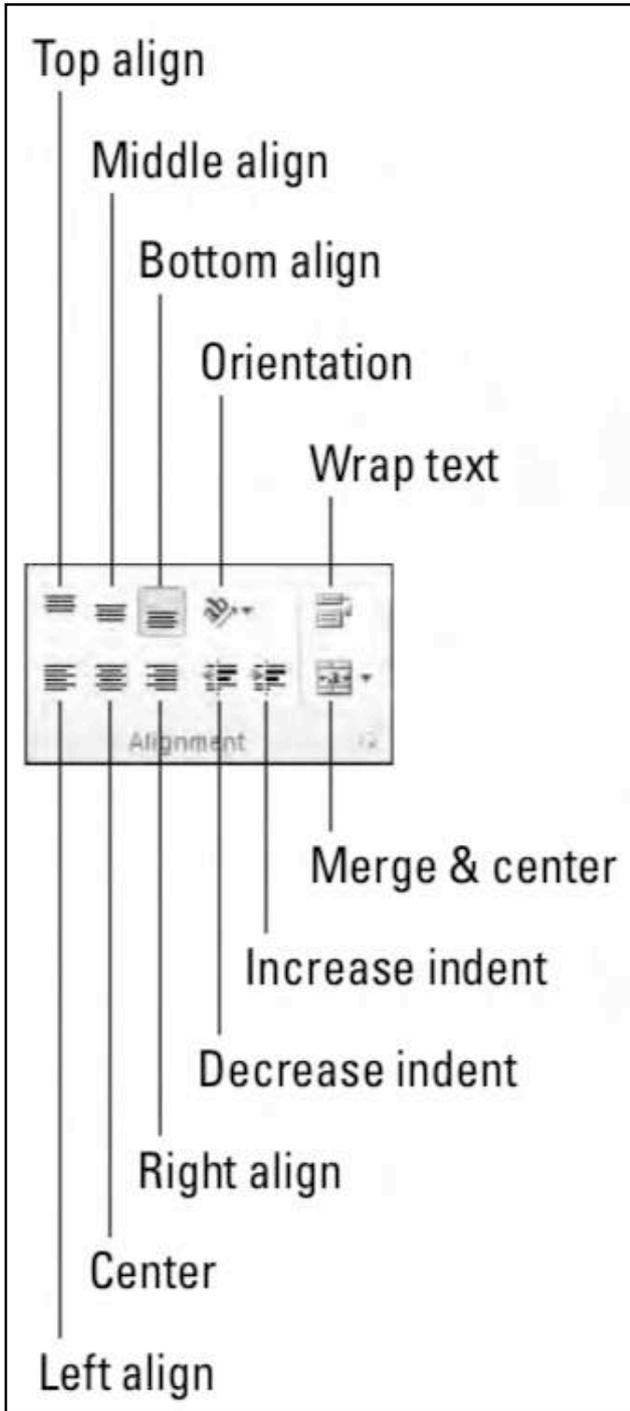
When you finish selecting and/or customizing the formatting of your data table, click a cell outside of the table to remove the Table Tools contextual tab (with its Design tab) from the Ribbon. If later, you decide that you want to further experiment with the table's formatting, click any of the table's cells to redisplay the Table Tools' Design tab at the end of the Ribbon.

Cell Formatting From The Home Tab

Some spreadsheet tables or ranges within them require a lighter touch than the Format as Table command button offers. For example, you may have a data table where the only emphasis you want to add is to make the column headings bold at the top of the table and to underline the row of totals at the bottom (done by drawing a borderline along the bottom of the cells).

The formatting buttons that appear in the Font, Alignment, and Number groups on the Home tab enable you to accomplish just this kind of targeted cell formatting. The next three figures identify all the formatting buttons in these three groups on the Home tab. See the Table below the figures for a complete rundown on how to use each of these formatting buttons.





Group	Button Name	Function
Font		
	Font	Displays a Font drop-down menu from which you can select a new font for your cell selection
	Font Size	Displays a Font Size drop-down menu from which you can select a new font size for your cell selection — click the Font Size text box and enter the desired point size if it doesn't appear on the drop-down menu
	Increase Font Size	Increases the size of the font in the cell selection by one point
	Decrease Font Size	Decreases the size of the font in the cell selection by one point
	Bold	Applies boldface to the entries in the cell selection
	Italic	Italicizes the entries in the cell selection
	Underline	Underlines the entries in the cell selection
	Borders	Displays a Borders drop-down menu from which you can select a border style for the cell selection

Group	Button Name	Function
	Fill Color	Displays a Color drop-down palette from which you can select a new background color for the cell selection
	Font Color	Displays a Color drop-down palette from which you can select a new font color for the cell selection
Alignment		
	Align Left	Aligns all the entries in the cell selection with the left edge of their cells
	Center	Centers all the entries in the cell selection within their cells
	Align Right	Aligns all the entries in the cell selection with the right edge of their cells
	Decrease Indent	Decreases the margin between entries in the cell selection and their left cell borders by one tab stop
	Increase Indent	Increases the margin between the entries in the cell selection and their left cell borders by one tab stop

Top Align	Aligns the entries in the cell selection with the top border of their cells
Middle Align	Vertically centers the entries in the cell selection between the top and bottom borders of their cells
Bottom Align	Aligns the entries in the cell selection with the bottom border of their cells
Orientation	Displays a drop-down menu with options for changing the angle and direction of the entries in the cell selection
Wrap Text	Wraps the entries in the cell selection that spill over their right borders onto multiple lines within the current column width
Merge and Center	Merges the cell selection into a single cell and the centers the entry in the first cell between its new left and right border — click the Merge and Center drop-down button to display a menu of options that enable you to merge the cell selection into a single cell without centering the entries as well as to split up a merged cell back into its original individual cells

Group Number	Button Name	Function
	Number Format	Displays the number format applied to the active cell in the cell selection — click its drop-down button to display a menu showing the active cell in cell selection formatted with all of Excel's major number formats
	Accounting Number Format	Formats the cell selection using the Accounting number format that adds a dollar sign, uses commas to separate thousands, displays two decimal places, and encloses negative values in a closed pair of parentheses — click the Accounting Number Format's drop-down button to display a menu of other major Currency number formats from which you can choose
	Percent Style	Formats the cell selection using the Percentage number format that multiplies the values by 100 and adds a percent sign with no decimal places
	Comma Style	Formats the cell selection with the Comma Style number format that uses commas to separate thousands, displays two decimal places, and encloses negative values in a closed pair of parentheses
	Increase Decimal	Adds a decimal place to the values in the cell selection
	Decrease Decimal	Removes a decimal place from the values in the cell selection

Don't forget about these shortcut keys for quickly adding or removing attributes from the entries in the cell selection: Ctrl+B for toggling on and off bold in the cell selection, Ctrl+I for toggling on and off italic, and Ctrl+U for toggling on and off underlining.

Altering The Alignment

The horizontal alignment assigned to cell entries when you first make them is simply a function of the type of entry it is: All text entries are left aligned, and all values are right-aligned with the borders of their cells. However, you can alter this standard arrangement anytime it suits you.

The Alignment group of the Home tab contains three normal horizontal alignment tools: the Align Left, Center, and Align Right buttons. These buttons align the current cell selection exactly as you expect them to. On the right side of the Alignment group, you usually find the special alignment button called Merge & Center.

Despite its rather strange name, you'll want to get to know this button. You can use it to center a worksheet title across the entire width of a table in seconds (or faster, depending upon your machine). I show you in the figures below how you can use this tool. In first figure, notice that the worksheet title Mother Goose Enterprises – 2010 Sales is in cell A1. To center this title over the table (which extends from column A through E), select the cell range A1:E1 (the width of the table) and then click the Merge & Center button in the Alignment group on the Ribbon's Home tab.

	A	B	C	D	E
1	Mother Goose Enterprises - 2010 Sales				
2		Jan	Feb	Mar	Qtr 1
3	Jack Sprat Diet Centers	80,138.58	59,389.56	19,960.06	\$ 159,488.20
4	Jack and Jill Trauma Centers	12,345.62	89,645.70	25,436.84	\$ 127,428.16
5	Mother Hubbard Dog Goodies	12,657.05	60,593.56	42,300.28	\$ 115,550.89
6	Rub-a-Dub-Dub Tubs and Spas	17,619.79	40,635.00	42,814.99	\$ 101,069.78
7	Georgie Porgie Pudding Pies	57,133.56	62,926.31	12,408.75	\$ 132,468.62
8	Hickory, Dickory, Doc Clock Repair	168,591.00	124,718.10	4,196.13	\$ 297,505.23
9	Little Bo Peep Pet Detectives	30,834.63	71,111.25	74,926.24	\$ 176,872.12
10	Total	\$ 379,320.23	\$ 509,019.48	\$ 222,043.29	\$ 1,110,383.00
11					
12	Month/Qtrly Percentage	34.16%	45.84%	20.00%	
13					
14					
15					
16					
17					

Look at the next figure below to see the result: The cells in row 1 of columns A through E are merged into one cell, and now the title is properly centered in this "super" cell and consequently over the entire table.

If you ever need to split up a super cell that you've merged with Merge & Center back into its original, individual cells, select the cell and then simply click the Merge & Center button in the Alignment group on the Home tab again. You can also do this by clicking the drop-down button attached to the Merge & Center button on the Home tab and then clicking Unmerge Cells on this drop-down menu (a few more steps, I'd say!).

Mother Goose Enterprises - 2010 Sales				
	Jan	Feb	Mar	Qtr 1
Jack Sprat Diet Centers	80,138.58	59,389.56	19,960.06	\$ 159,488.20
Jack and Jill Trauma Centers	12,345.62	89,645.70	25,436.84	\$ 127,428.16
Mother Hubbard Dog Goodies	12,657.05	60,593.56	42,300.28	\$ 115,550.89
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Little Bo Peep Pet Detectives	30,834.63	71,111.25	74,926.24	\$ 176,872.12
Total	\$ 379,320.23	\$ 509,019.48	\$ 222,043.29	\$ 1,110,383.00
Month/Qtrly Percentage	34.16%	45.84%	20.00%	

Intent on Indents

In Excel, you can indent the entries in a cell selection by clicking the Increase Indent button. The Increase Indent button in the Alignment group of the Home tab sports a picture of an arrow pushing the lines of text to the right. Each time you click this button, Excel indents the entries in the current cell selection to the right by three character widths of the standard font. You can remove an indent by clicking the Decrease Indent button (to the immediate left of the Increase Indent button) on the Home tab with the picture of the arrow pushing the lines of text to the left. Additionally, you can change how many characters an entry indents with the Increase Indent button (or outdents with the Decrease Indent button). Open the Format Cells dialog box (Ctrl+1). Select the Alignment tab, and then alter the value in the Indent text box (by typing a new value in this text box or by dialing up a new value with its spinner buttons).

From Top to Bottom

Left, right, and center alignment all refer to the horizontal positioning of a text entry in relation to the left and right cell borders (that is, horizontally). You can also align entries in relation to the top and bottom borders of their cells (that is, vertically). Normally, all entries align vertically with the bottom of the cells (as though they were resting on the very bottom of the cell). You can also vertically center

an entry in its cell or align it with the top of its cell.

To change the vertical alignment of a cell range that you've selected, click the appropriate button (Top Align, Middle Align, or Bottom Align) in the Alignment group on the Home tab.

The bellow figure shows the title for the 2010 Mother Goose Enterprises sales worksheet after centering it vertically in its cell by clicking the Middle Align button on the Home tab. (This text entry was previously centered across the cell range A1:E1; the height of row 1 is increased from the normal 15 points to 36 points.)

	Jan	Feb	Mar	Qtr 1
3	Jack Sprat Diet Centers	80,138.58	59,389.56	19,960.06 \$ 159,488.20
4	Jack and Jill Trauma Centers	12,345.62	89,645.70	25,436.84 \$ 127,428.16
5	Mother Hubbard Dog Goodies	12,657.05	60,593.56	42,300.28 \$ 115,550.89
6	Rub-a-Dub-Dub Tubs and Spas	17,619.79	40,635.00	42,814.99 \$ 101,069.78
7	Georgie Porgie Pudding Pies	57,133.56	62,926.31	12,408.75 \$ 132,468.62
8	Hickory, Dickory, Doc Clock Repair	168,591.00	124,718.10	4,196.13 \$ 297,505.23
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10	Total	\$ 379,320.23	\$ 509,019.48	\$ 222,043.29 \$ 1,110,383.00
12	Month/Qtrly Percentage	34.16%	45.84%	20.00%

Tampering With How the Text Wraps

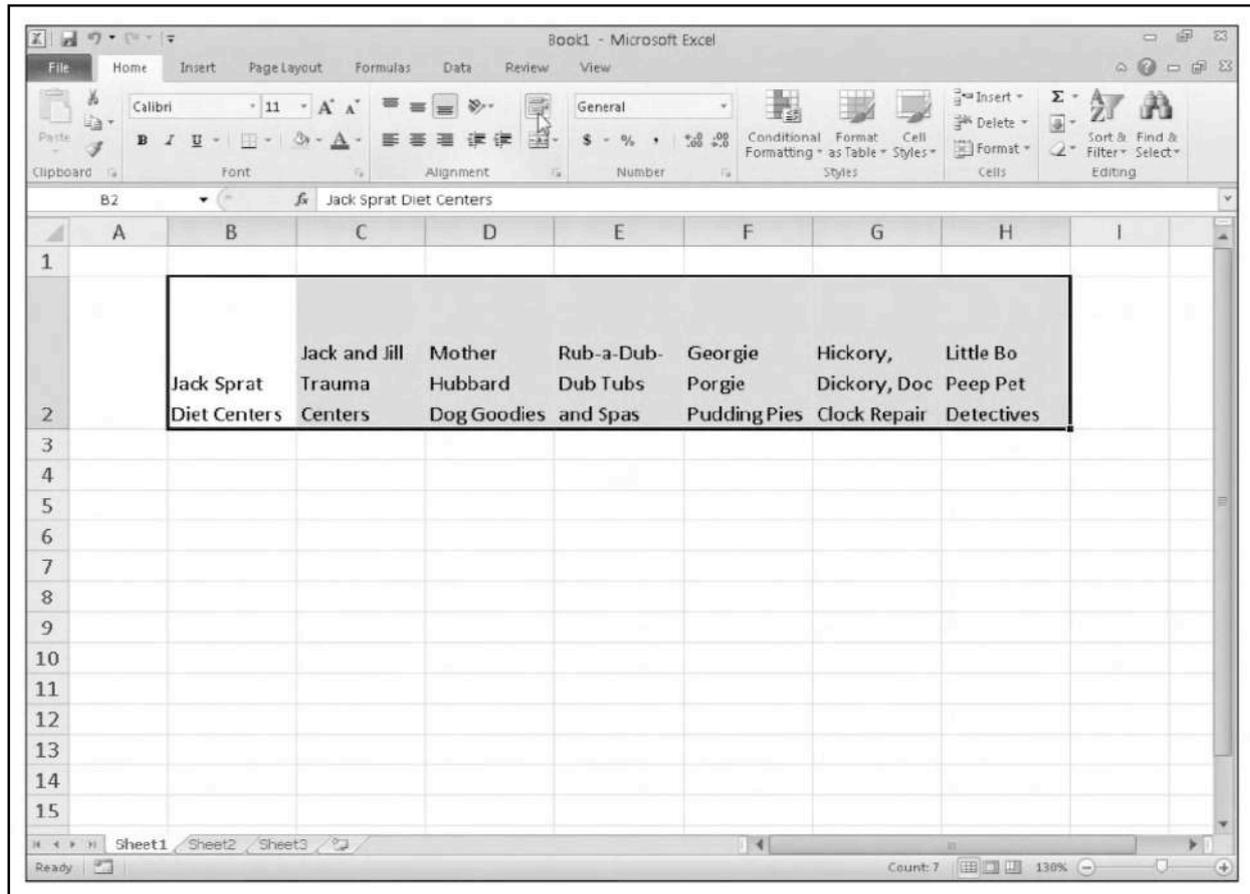
Traditionally, column headings in worksheet tables have been a problem — you had to keep them really short or abbreviate them if you wanted to avoid widening all the columns more than the data warranted. You can avoid this problem in Excel by using the Wrap Text button in the Alignment group on the Home tab (the one to the immediate right of the Orientation button). In the next figure bellow, I show a new worksheet in which the column headings containing the various companies within the vast Mother Goose Enterprises conglomerate use the Wrap Text feature to avoid widening the columns as much as these long company names would otherwise require.

To create the effect shown in the figure bellow, select the cells with the column headings (the cell range B2:H2) and then click the Wrap Text button in the Alignment group on the Home tab.

Selecting Wrap Text breaks up the long text entries (that either spill over or cut off) in the selection into separate lines. To accommodate more than one line in a cell, the program automatically expands the row height so that the entire wrapped-text entry is visible.

When you select Wrap Text, Excel continues to use the horizontal and vertical alignment you specify for the cell. You can use any of the Horizontal alignment options found on the Alignment tab of the Format Cells dialog box (Ctrl+1), including Left (Indent), Center, Right (Indent), Justify, or Center Across Selection. However, you can't use the Fill option or Distributed (Indent) option. Select the Fill option on the Horizontal drop-down list box only when you want Excel to repeat the entry across the entire width of the cell.

If you want to wrap a text entry in its cell and have Excel justify the text with both the left and right borders of the cell, select the Justify option from the Horizontal drop-down list box in the Alignment tab in the Format Cells dialog box.



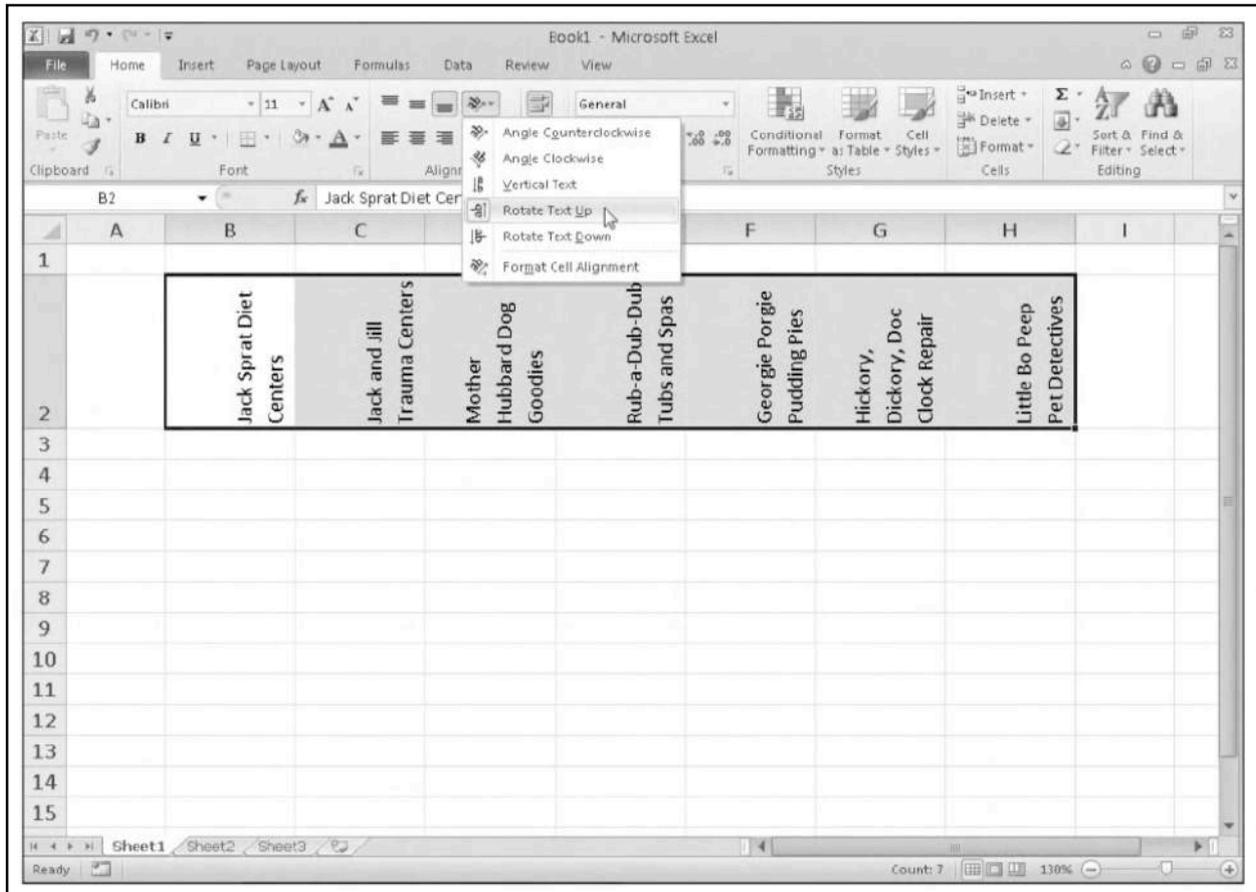
You can break a long text entry into separate lines by positioning the insertion point in the cell entry (or on the Formula bar) at the place where you want the new line to start and pressing Alt+Enter. Excel expands the row containing the cell (and the Formula bar above) when it starts a new line. When you press Enter to complete the entry or edit, Excel automatically wraps the text in the cell, according to the cell's column width and the position of the line break.

Reorienting Cell Entries

Instead of wrapping text entries in cells, you may find it more beneficial to change the orientation of the text by rotating the text up (in a counterclockwise direction) or down (in a clockwise direction). Peruse the figure below for a situation where changing the orientation of the wrapped column headings works much better than just wrapping them in their normal orientation in the cells.

This example shows the same column headings for the sample order form I introduced in the previous figure after rotating them 90 degrees counterclockwise. To make this switch, first select the

cell range B2:H2. Next, click the Orientation button in the Alignment group on the Home tab and then click the Rotate Text Up option on the drop-down menu.



Fooling Around With The Format Painter

Using cell styles to format ranges of worksheet cells is certainly the way to go when you have to apply the same formatting repeatedly in the workbooks you create. However, there may be times when you simply want to reuse a particular cell format and apply it to particular groups of cells in a single workbook without ever bothering to open the Cell Styles gallery.

For those occasions when you feel the urge to format on the fly (so to speak), use the Format Painter button (the paintbrush icon) in the Clipboard group on the Home tab. This wonderful little tool enables you to take the formatting from a particular cell that you fancy up and apply its formatting to other cells in the worksheet simply by selecting those cells.

To use the Format Painter to copy a cell's formatting to other worksheet cells, just follow these easy steps:

1. Format an example cell or cell range in your workbook, selecting whatever fonts, alignment, borders, patterns, and color you want it to have.
2. With the cell cursor in one of the cells you just fancied up, click the Format Painter button in the Clipboard group on the Home tab.

The mouse pointer changes from the standard thick, white cross to a thick, white cross with an animated paintbrush by its side, and you see a marquee around the selected cell with the formatting to be used by the Format Painter.

3. Drag the white-cross-plus-animated-paintbrush pointer (the Format Painter pointer) through all the

cells you want to format.

As soon as you release the mouse button, Excel applies all the formatting used in the example cell to all the cells you just selected!

To keep the Format Painter selected so that you can format a bunch of different cell ranges with the Format Painter pointer, double-click the Format Painter button on the Home tab after you select the sample cell with the desired formatting. To stop formatting cells with the Format Painter pointer, you simply click the Format Painter button on the Home tab again (it remains selected when you double-click it) to restore the button to its unselected state and return the mouse pointer to its normal thick, white cross shape.

You can use the Format Painter to restore a cell range that you gussied all up back to its boring default (General) cell format. To do this, click an empty, previously unformatted cell in the worksheet before you click the Format Painter button and then use the Format Painter pointer to drag through the cells you want returned to the default General format.

Conditional Formatting

Before leaving behind the scintillating subject of cell formatting, there's one more formatting button in the Styles group of the Home tab of which you need to be aware. The Conditional Formatting button enables you to apply provisional formatting to a cell range based solely on the categories into which its current values fall. The cool thing about this kind of conditional formatting is that should you edit the numbers in the cell range so that their values fall into other categories, the program automatically changes their cell formatting to suit.

When you click the Conditional Formatting button in the Styles group of the Home tab, a drop-down menu appears with the following options:

- ✓ **Highlight Cells Rules** opens a continuation menu with various options for defining formatting rules that highlight the cells in the cell selection that contain certain values, text, or dates; that have values greater or less than a particular value; or that fall within a certain ranges of values.
- ✓ **Top/Bottom Rules** opens a continuation menu with various options for defining formatting rules that highlight the top and bottom values, percentages, and above and below average values in the cell selection.
- ✓ **Data Bars** opens a palette with different color data bars that you can apply to the cell selection to indicate their values relative to each other by clicking the data bar thumbnail.
- ✓ **Color Scales** opens a palette with different two- and three-colored scales that you can apply to the cell selection to indicate their values relative to each other by clicking the color scale thumbnail.
- ✓ **Icon Sets** opens a palette with different sets of icons that you can apply to the cell selection to indicate their values relative to each other by clicking the icon set.
- ✓ **New Rule** opens the New Formatting Rule dialog box where you define a custom conditional formatting rule to apply to the cell selection.
- ✓ **Clear Rules** opens a continuation menu where you can remove conditional formatting rules for the cell selection by clicking the Clear Rules from Selected Cells option, for the entire worksheet by clicking the Clear Rules from Entire Sheet option, or for just the current data table by clicking the Clear Rules from This Table option.
- ✓ **Manage Rules** opens the Conditional Formatting Rules Manager dialog box where you edit and delete particular rules as well as adjust their rule precedence by moving them up or down in the

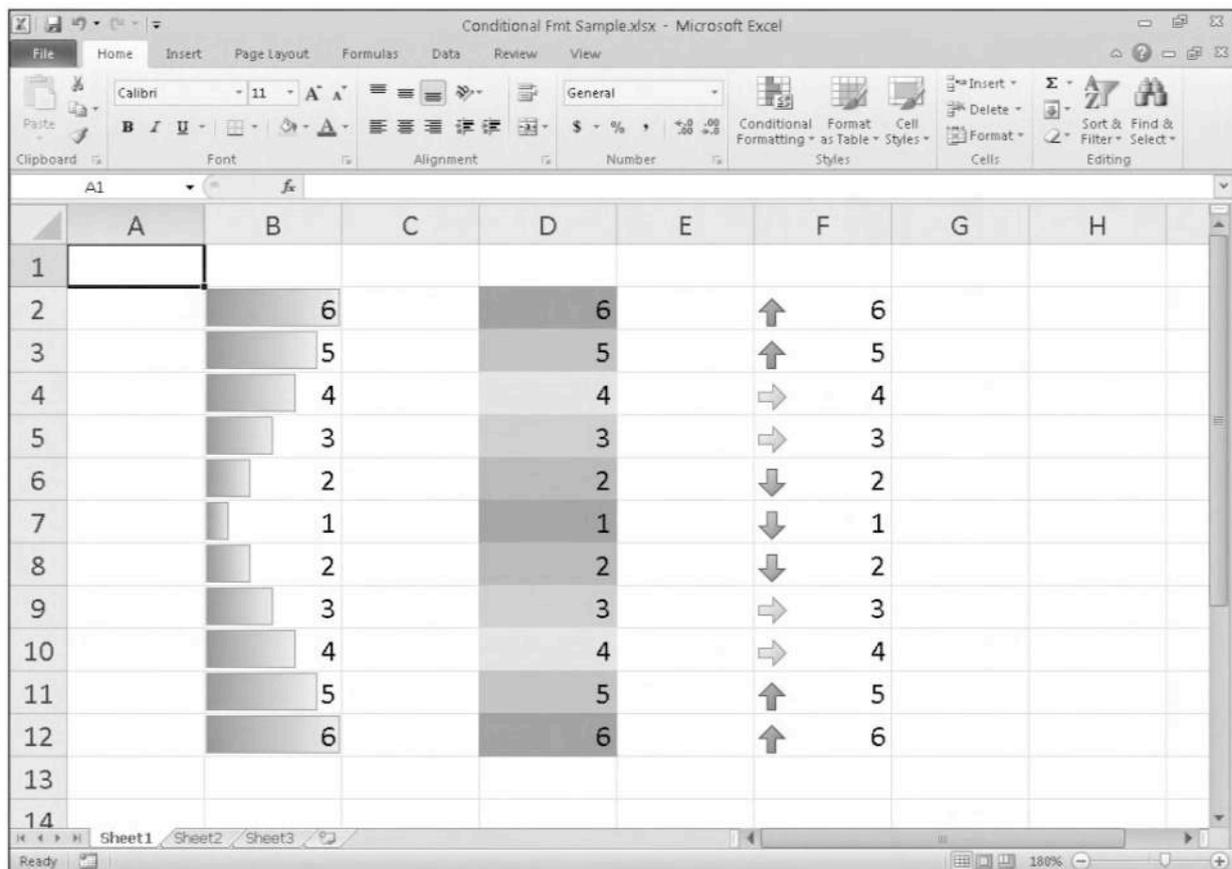
Rules list box.

Conditionally Formatting Values With Sets of Graphic Scales & Markers

The easiest conditional formatting that you can apply to a worksheet cell range is using the pop-up palettes of graphical scales and markers attached to the Data Bars, Color Scales, and Icon Sets options on the Conditional Formatting button's drop-down menu:

- ✓ **Data Bars** represents the relative values in the cell selection by the length of the color bar in each cell and are great for helping you quickly spot the lower and higher values within a large range of data.
- ✓ **Color Scales** classify the relative values in a cell selection with a color gradation using a one-, two-, or three-color scale and are great for identifying the distribution of values across a large range of data.
- ✓ **Icon Sets** classify the values in the cell selection into three to five categories and each icon within the set represents a range of values that go from high to low. Icon sets are great for quickly identifying the different ranges of values in a range of data.

The figure below shows you an example of cell ranges (containing identical values) using each of the three formatting types. The values in the first range (B2:B12) are conditionally formatted using blue Gradient Fill Data Bars. The values in the second range (D2:D12) are conditionally formatted using the Green, Yellow, Red Color Scale. The values in the third range (F2:F12) are conditionally formatted using the 3 Arrows Directional Icon set.



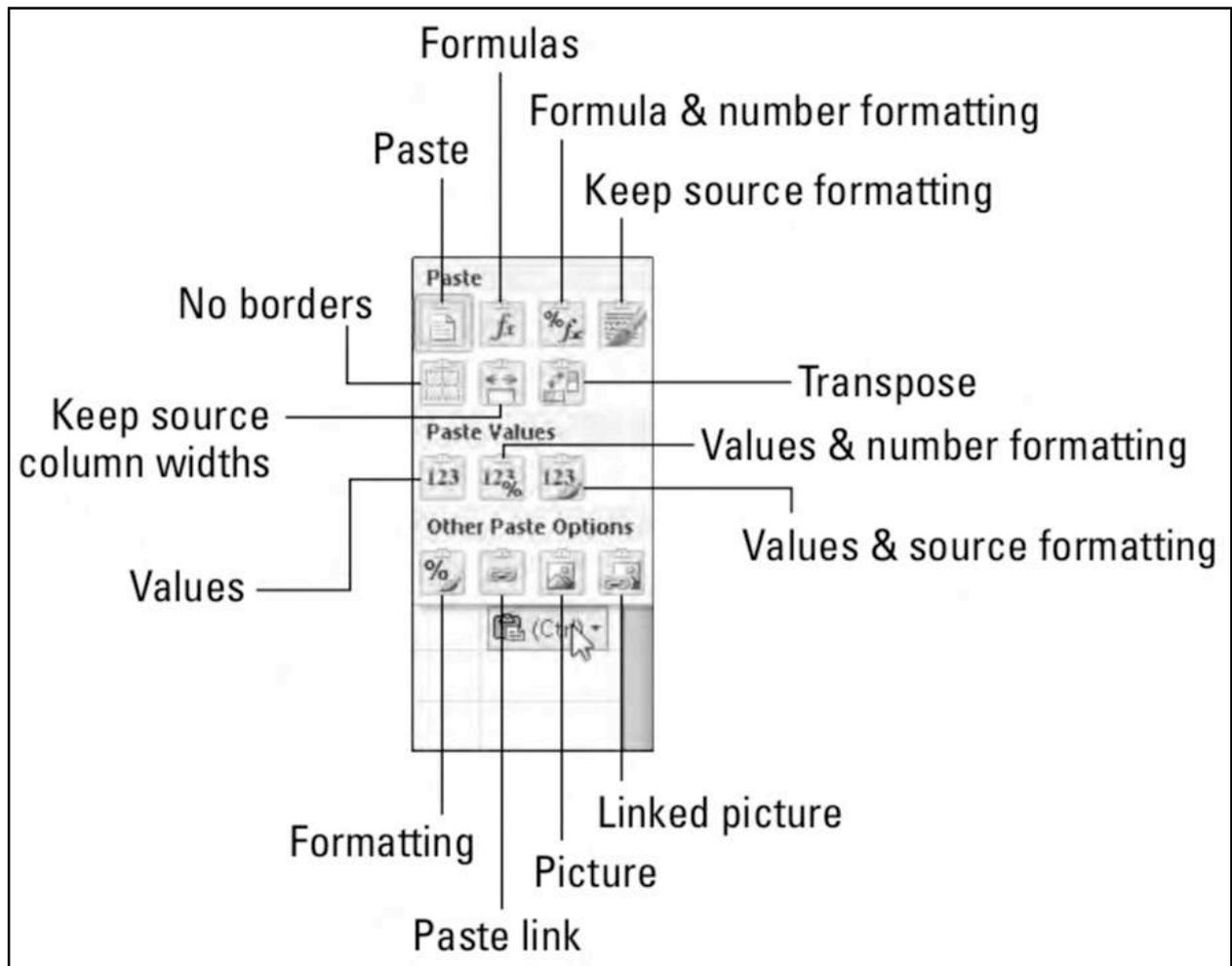
In this figure up, the particular conditional formatting types Excel assigned to each cell range can

be interpreted as follows:

- ✓ **Data bars** added to the cells in the first cell range, B2:B12, represent the relative size of its values graphically, much like a standard bar chart.
- ✓ **Color scale** applied to the second range, D2:D12, represent the relative size of the values in the range by color and hue (red hues applied to the lower values, yellow to the middle values, and green to the higher values).
- ✓ **Directional icons** applied to the third cell range, F2:F12, represent the relative size of the values in the range with arrow icons pointing in different directions (arrows pointing straight down for the lower values, straight up for the higher values, and sideways for middling values).

Keeping Pace With Paste Options

Right after you click the Paste button on the Home tab of the Ribbon or press Ctrl+V to paste cell entries that you copy (not cut) to the Clipboard, Excel displays a Paste Options button with the label, (Ctrl), to its immediate right at the end of the pasted range. When you click this drop-down button or press the Ctrl key, a palette similar to the one shown in the figure below appears with three groups of buttons (Paste, Paste Values, and Other Paste Options).



You can use these paste options to control or restrict the type of content and formatting that's included in the pasted cell range. The paste options (complete with the hot key sequences you can type to select them) on the Paste Options palette include:

- ✓ **Paste(P)**: Excel pastes all the stuff in the cell selection (formulas, for- mationg, you name it).

- ✓ **Formulas (F):** Excel pastes all the text, numbers, and formulas in the current cell selection without their formatting.
- ✓ **Formulas & Number Formatting (O):** Excel pastes the number formats assigned to the copied values along with their formulas.
- ✓ **Keep Source Formatting (K):** Excel copies the formatting from the original cells and pastes this into the destination cells (along with the copied entries).
- ✓ **No Borders (B):** Excel pastes all the stuff in the cell selection without copying any borders applied to its cell range.
- ✓ **Keep Source Column Widths (W):** Excel makes the width of the columns in the destination range the same as those in the source range when it copies their cell entries.
- ✓ **Transpose (T):** Excel changes the orientation of the pasted entries.

For example, if the original cells' entries run down the rows of a single column of the worksheet, the transposed pasted entries will run across the columns of a single row.

- ✓ **Values (V):** Excel pastes only the calculated results of any formulas in the source cell range.
- ✓ **Values & Number Formatting (A):** Excel pastes the calculated results of any formulas along with all the formatting assigned to the labels, values, and formulas in the source cell range into the destination range. This means that all the labels and values in the destination range appear formatted just like the source range even though all the original formulas are lost and only the calculated values are retained.
- ✓ **Values & Source Formatting (E):** Excel pastes the calculated results of any formulas along with all formatting assigned to the source cell range.
- ✓ **Formatting (R):** Excel pastes only the formatting (and not the entries) copied from the source cell range to the destination range.
- ✓ **Paste Link (N):** Excel creates linking formulas in the destination range so that any changes that you make to the entries in cells in the source range are immediately brought forward and reflected in the corresponding cells of the destination range.
- ✓ **Picture (U):** Excel pastes only the pictures in the copied cell selection.
- ✓ **Linked Picture (I):** Excel pastes a link to the pictures in the copied cell selection.

The options that appear on the Paste Options palette are context sensitive. This means that the particular paste options available on the palette depend directly upon the type of cell entries previously copied to the Office Clipboard. Additionally, you can access this same palette of paste options by clicking the drop-down button that appears directly beneath the Paste button on the Ribbon instead of clicking the Paste Options button that appears at the end of the pasted range in the worksheet or pressing the Ctrl key on your keyboard.

Printing the Masterpiece

In This Lecture

- *Previewing pages in Page Layout View and printouts in Backstage View*
- *Quick Printing from the Quick Access toolbar*
- *Printing all the worksheets in a workbook*
- *Printing just some of the cells in a worksheet*
- *Changing page orientation*
- *Printing the whole worksheet on a single page*
- *Changing margins for a report*
- *Adding a header and footer to a report*
- *Printing column and row headings as print titles on every page of a report*
- *Inserting page breaks in a report*
- *Printing the formulas in your worksheet*

For most people, getting data down on paper is what spreadsheets are all about (all the talk about a so-called paperless office to the contrary). Everything — all the data entry, all the formatting, all the formula checking, all the things you do to get a spreadsheet ready — is really just preparation for printing its information.

In this chapter, you find out just how easy it is to print reports with Excel. Thanks to the program's new Print panel in Backstage View (Alt+FP), its Page Layout worksheet view, and its handy Page Layout tab on the Ribbon, you discover how to produce top-notch reports the first time you send the document to the printer (instead of the second or even the third time around).

The only trick to printing a worksheet is getting used to the paging scheme and learning how to control it. Many of the worksheets you create with Excel are not only longer than one printed page but also wider. Word processors, such as Word 2010, page the document only vertically; they won't let you create a document wider than the page size you're using. Spreadsheet programs like Excel, however, often have to break up pages both vertically and horizontally to print a worksheet document (a kind of tiling of the print job, if you will).

When breaking a worksheet into pages, Excel first pages the document vertically down the rows in the first columns of the print area (just like a word processor). After paging the first columns, the program pages down the rows of the second set of columns in the print area. Excel pages down and then over until the entire document included in the current print area (which can include the entire worksheet or just sections) is paged.

When paging the worksheet, Excel doesn't break up the information within a row or column. If not all the information in a row will fit at the bottom of the page, the program moves the entire row to the following page. If not all the information in a column will fit at the right edge of the page, the program moves the entire column to a new page. (Because Excel pages down and then over, the column may not appear on the next page of the report.)

You can deal with such paging problems in several ways, and in this chapter, you see all of them! After you have these page problems under control, printing is a proverbial piece of cake.

Printing Just The Current Worksheet

As long as you want to use Excel's default print settings to print all the cells in the current worksheet, printing in Excel is a breeze. Simply add the Quick Print button to the Quick Access toolbar (by clicking the Customize Quick Access Toolbar button and then clicking Quick Print on its drop-down menu).

After adding the Quick Print button to the Quick Access toolbar, you can use this button to print a single copy of all the information in the current work- sheet, including any charts and graphics — but not including comments you add to cells.

When you click the Quick Print button, Excel routes the print job to the Windows print queue, which acts like a middleman and sends the job to the printer. While Excel sends the print job to the print queue, Excel displays a Printing dialog box to inform you of its progress (displaying such updates as Printing Page 2 of 3). After this dialog box disappears, you are free to go back to work in Excel. To stop the printing while the job is still being sent to the print queue, click the Cancel button in the Printing dialog box.

If you don't realize that you want to cancel the print job until after Excel finishes shipping it to the print queue (that is, while the Printing dialog box appears onscreen), you must:

1. Click the printer icon in the Notification area at the far right of the Windows taskbar (to the immediate left of the current time) with the secondary mouse button to open its shortcut menu.

This printer icon displays the ScreenTip 1 document(s) pending for so-and-so. For example, when I'm printing, this message reads 1 document(s) pending for Greg when I position the mouse pointer over the printer icon.

2. Right-click the printer icon and then select the Open All Active Printers command from its shortcut menu.

This opens the dialog box for the printer with the Excel print job in its queue (as described under the Document Name heading in the list box).

3. Select the Excel print job that you want to cancel in the list box of your printer's dialog box.
4. Choose Document ⇨ Cancel from the menu bar and then click Yes to confirm you want to cancel the print job.
5. Wait for the print job to disappear from the queue in the printer's dialog box and then click the Close button to return to Excel.

My Page Was Set Up!

About the only thing the slightest bit complex in printing a worksheet is figuring out how to get the pages right. Fortunately, the command buttons in the Page Setup group on the Ribbon's Page Layout tab give you a great deal of control over what goes on which page.

Three groups of buttons on the Page Layout tab help you get your page set- tings exactly as you want them. The Page Setup group, the Scale to Fit group, and the Sheet Options group are described in the following sections.

To see the effect of changes you make in the Worksheet area, put the work- sheet into Page Layout View by clicking the Page Layout button on the Status bar while you work with the command buttons in the Page Setup, Scale to Fit, and Sheet Options groups on the Page Layout tab of the Ribbon.

Using The Buttons in The Page Setup Group

The Page Setup group of the Page Layout tab contains the following important command buttons:

- ✓ **Margins** button to select one of three preset margins for the report or to set custom margins on the Margins tab of the Page Setup dialog box.
- ✓ **Orientation** button to switch between Portrait and Landscape mode for printing. (See the “Getting the lay of the landscape” section, later in this chapter.)
- ✓ **Size Button** to select one of the preset paper sizes, set a custom size, or change the printing resolution or page number on the Page tab of the Page Setup dialog box.
- ✓ **Print Area** button to set and clear the print area. (See the nearby “Understanding and using the print area” sidebar.)
- ✓ **Breaks Button** to insert or remove page breaks. (See “Solving Page Break Problems” later in this chapter.)
- ✓ **Background Button** to open the Sheet Background dialog box where you can select a new graphic image or photo to use as a background for the current worksheet. (This button changes to Delete Background as soon as you select a background image.)
- ✓ **Print Titles** button to open the Sheet tab of the Page Setup dialog box where you can define rows of the worksheet to repeat at the top and columns of the worksheet to repeat at the left as print titles for the report.