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WRITTEN BY
JOHN WALKENBACH

Microsoft® Excel® 2013 BIBLE

THE COMPREHENSIVE TUTORIAL RESOURCE

MASTER EXCEL FORMULAS FOR USEFUL WORKSHEETS | CREATE COMPELLING CHARTS AND DIAGRAMS | ANALYZE AND PRESENT DATA WITH PIVOT TABLES

Excel® 2013
BIBLE

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Acknowledgments

Thanks again to everyone who bought the previous editions of this book. Your suggestions have helped make this edition the best one yet.

And a special thanks to two behind-the-scenes folks who helped considerably: Elizabeth Kuball (who made it more readable) and Niek Otten (who made it more accurate).

Contents

Introduction

Thank you for purchasing *Excel 2013 Bible.* If you're just starting with Excel, you'll be glad to know that Excel 2013 is the easiest version ever.

My goal in writing this book is to share with you some of what I know about Excel and, in the process, make you more efficient on the job. The book contains everything that you need to know to learn the basics of Excel and then move on to more advanced topics at your own pace. You'll find many useful examples and lots of tips and tricks that I've accumulated over the years.

Is This Book for You?

The *Bible* series from John Wiley & Sons, Inc., is designed for beginning, intermediate, and advanced users. This book covers all the essential components of Excel and provides clear and practical examples that you can adapt to your own needs.

In this book, I've tried to maintain a good balance between the basics that every Excel user needs to know and the more complex topics that will appeal to power users. I've used Excel for more than 20 years, and I realize that almost everyone still has something to learn (including myself). My goal is to make that learning an enjoyable process.

Software Versions

This book was written for Excel 2013 for Windows. Much of the information also applies to Excel 2007 and Excel 2010, but if you're using an older version of Excel, I suggest that you put down this book immediately and find a book that's appropriate for your version of Excel. The user interface changes introduced in Excel 2007 are so extensive that this book will be very confusing if you use an earlier version.

Also, please note that this book is not applicable to Excel for Mac.

Office 2013 is available in several versions, including a web version, and a version for tablets and phones. This book covers only the standard desktop version of Excel 2013.

Conventions Used in This Book

Take a minute to scan this section to learn some of the typographical and organizational conventions that this book uses.

Excel commands

Excel 2013 (like the two previous versions) features a "menu-less" user interface. In place of a menu system, Excel uses a context-sensitive Ribbon system. The words along the top (such as File, Insert, Page Layout, and so on) are known as *tabs*. Click a tab, and the Ribbon displays the commands for the selected tab. Each command has a name, which is (usually) displayed next to or below the icon. The commands are arranged in groups, and the group name appears at the bottom of the Ribbon.

The convention I use is to indicate the tab name, followed by the group name, followed by the command name. So, the command used to toggle word wrap within a cell is indicated as

Home➪Alignment➪Wrap Text

You'll learn more about the Ribbon user interface in Chapter 1.

Filenames, named ranges, and your input

Anything you're supposed to type using the keyboard appears in **bold**. Named ranges appear in a `monofont`. Lengthy input usually appears on a separate line. For example, I may instruct you to enter a formula such as the following:

```
="Part Name: " &VLOOKUP(PartNumber,PartList,2)
```

Key names

Names of the keys on your keyboard appear in normal type. When two keys should be pressed simultaneously, they're connected with a plus sign, like this: "Press Ctrl+C to copy the selected cells."

The four "arrow" keys are collectively known as the *navigation keys*.

Functions

Excel built-in worksheet functions appear in uppercase monofont, like this: "Note the `SUM` formula in cell C20."

Mouse conventions

You'll come across some of the following mouse-related terms, all standard fare:

- **Mouse pointer:** The small graphic figure that moves onscreen when you move your mouse. The mouse pointer is usually an arrow, but it changes shape when you move to certain areas of the screen or when you're performing certain actions.
- **Point:** Move the mouse so that the mouse pointer is on a specific item: for example, "Point to the Save button on the toolbar."
- **Click:** Press the left mouse button once and release it immediately.
- **Right-click:** Press the right mouse button once and release it immediately. The right mouse button is used in Excel to pop up shortcut menus that are appropriate for whatever is currently selected.
- **Double-click:** Press the left mouse button twice in rapid succession.
- **Drag:** Press the left mouse button and keep it pressed while you move the mouse. Dragging is often used to select a range of cells or to change the size of an object.

For Tablet Users

Excel 2013 is also available for mobile devices such as tablets and smartphones. If you happen to be using one of these devices, you probably already know the basic touch gestures.

This book doesn't cover specific touchscreen gestures, but these three guidelines should work most of the time:

- When you read "click," you should tap. Quickly touching and releasing your finger on a button is the same as clicking it with a mouse.
- When you read "double-click," tap twice. Touching twice in rapid succession is equivalent to double-clicking.
- When you read "right-click," press and hold your finger on the item until a menu appears. Tap an item on the pop-up menu to execute the command.

Make sure you enable Touch mode from the Quick Access toolbar. Touch mode increases the spacing between the Ribbon commands, making it less likely that you'll touch the wrong command. If the Touch mode command is not in your Quick Access toolbar, touch the rightmost control and select Touch Mode. This command toggles between normal mode and Touch mode.

How This Book Is Organized

Notice that the book is divided into six main parts, followed by three appendixes.

- **Part I: Getting Started with Excel:** This part consists of nine chapters that provide background about Excel. These chapters are considered required reading for Excel newcomers, but even experienced users will probably find some new information here.
- **Part II: Working with Formulas and Functions:** The chapters in Part II cover everything that you need to know to become proficient with performing calculations in Excel.
- **Part III: Creating Charts and Graphics:** The chapters in Part III describe how to create effective charts. In addition, you'll find chapters on the conditional formatting visualization features, Sparkline graphics, and a chapter with lots of tips on integrating graphics into your worksheet.
- **Part IV: Using Advanced Excel Features:** This part consists of eight chapters that deal with topics that are sometimes considered advanced. However, many beginning and intermediate users may find this information useful as well.
- **Part V: Analyzing Data with Excel:** Data analysis is the focus of the chapters in Part V. Users of all levels will find some of these chapters of interest.
- **Part VI: Programming Excel with VBA:** Part VI is for those who want to customize Excel for their own use or who are designing workbooks or add-ins that are to be used by others. It starts with an introduction to recording macros and VBA programming and then provides coverage of UserForms, add-ins, and events.
- **Part VII: Appendixes:** This book has two appendixes that cover Excel worksheet functions and Excel shortcut keys.

How to Use This Book

Although you're certainly free to do so, I didn't write this book with the intention that you would read it cover to cover. Instead, it's a reference book that you can consult when

- You're stuck while trying to do something.
- You need to do something that you've never done before.
- You have some time on your hands, and you're interested in learning something new about Excel.

The index is comprehensive, and each chapter typically focuses on a single broad topic. If you're just starting out with Excel, I recommend that you read the first few chapters to gain a basic understanding of the product and then do some experimenting on your own. After you become familiar with Excel's environment, you can refer to the chapters that interest you most. Some readers, however, may prefer to follow the chapters in order.

Don't be discouraged if some of the material is over your head. Most users get by just fine by using only a small subset of Excel's total capabilities. In fact, the 80/20 rule applies here: 80% of Excel users use only 20% of its features. However, using only 20% of Excel's features still gives you *lots* of power at your fingertips.

What's on the Website

This book contains many examples, and you can download the workbooks for those examples from the web. The files are arranged in directories that correspond to the chapters.

The URL is `www.wiley.com/go/excel2013bible`.

Part I

Getting Started with Excel

The chapters in this part are intended to provide essential background information for working with Excel. Here, you'll see how to make use of the basic features that are required for every Excel user. If you've used Excel (or even a different spreadsheet program) in the past, much of this information may seem like review. Even so, it's likely that you'll find quite a few tricks and techniques.

IN THIS PART

CHAPTER 1

Introducing Excel

IN THIS CHAPTER

Understanding what Excel is used for

Looking at what's new in Excel 2013

Learning the parts of an Excel window

Introducing the Ribbon, shortcut menus, dialog boxes, and task panes

Navigating Excel worksheets

Introducing Excel with a step-by-step hands-on session

This chapter is an introductory overview of Excel 2013. If you're already familiar with a previous version of Excel, reading (or at least skimming) this chapter is still a good idea.

Identifying What Excel Is Good For

Excel, as you probably know, is the world's most widely used spreadsheet software and part of the Microsoft Office suite. Other spreadsheet software is available, but Excel is by far the most popular and has been the world standard for many years.

Much of the appeal of Excel is due to the fact that it's so versatile. Excel's forte, of course, is performing numerical calculations, but Excel is also very useful for non-numeric applications. Here are just a few of the uses for Excel:

- **Number crunching:** Create budgets, tabulate expenses, analyze survey results, and perform just about any type of financial analysis you can think of.
- **Creating charts:** Create a wide variety of highly customizable charts.
- **Organizing lists:** Use the row-and-column layout to store lists efficiently.
- **Text manipulation:** Clean up and standardize text-based data.
- **Accessing other data:** Import data from a wide variety of sources.

- **Creating graphical dashboards:** Summarize a large amount of business information in a concise format.
- **Creating graphics and diagrams:** Use Shapes and SmartArt to create professional-looking diagrams.
- **Automating complex tasks:** Perform a tedious task with a single mouse click with Excel's macro capabilities.

Seeing What's New in Excel 2013

When a new version of Microsoft Office is released, sometimes Excel gets lots of new features and other times it gets very few new features. In the case of Office 2013, Excel got quite a few new features.

Here's a quick summary of what's new in Excel 2013, relative to Excel 2010:

- **Cloud storage:** Excel is tightly integrated with Microsoft's SkyDrive web-based storage.
- **Support for other devices:** Excel is available for other devices, including touch-sensitive devices such as Windows RT tablets and Windows phones.
- **New aesthetics:** Excel has a new "flat" look and displays an (optional) graphic in the title bar. The default color scheme is white, but you can choose from two other color schemes (light gray and dark gray) in the General tab of the Excel Options dialog box.
- **Single document interface:** Excel no longer supports the option to display multiple workbooks in a single window. Each workbook has its own top-level Excel window and Ribbon.
- **New types of assistance:** Excel provides recommended pivot tables and recommended charts.
- **Fill Flash:** Fill Flash is a new way to extract (by example) relevant data from text strings. You can also use this feature to combine data in multiple columns.
- **Support for Apps for Office:** You can download or purchase apps that can be embedded in a workbook file.
- **The Data Model:** Create pivot tables from multiple data tables, combined in a relational manner.
- **New Slicer option:** The Slicer feature, introduced in Excel 2010 for use with pivot tables, has been expanded and now works with tables.

- **Timeline filtering:** Similar to the Slicer, the Timeline makes it easy to filter data by dates.
- **Quick Analysis:** Quick Analysis provides single click access to various data analysis tools.
- **Enhanced chart formatting:** Modifying charts is significantly easier.
- **New worksheet functions:** Excel 2013 supports dozens of new worksheet functions.
- **Backstage:** The Backstage screen has been reorganized and is easier to use.
- **New add-ins:** Three new add-ins are included (for Office Professional Plus only): PowerPivot, Power View, and Inquire.

Understanding Workbooks and Worksheets

The work you do in Excel is performed in a workbook file. You can have as many workbooks open as you need, and each one appears in its own window. By default, Excel workbooks use an `.xlsx` file extension.

> **NOTE**
> In previous versions of Excel, users could work with multiple workbooks in a single window. That is no longer an option in Excel 2013. Every workbook that you open has its own window.

Each workbook contains one or more worksheets, and each worksheet is made up of individual cells. Each cell can contain a value, a formula, or text. A worksheet also has an invisible *draw layer,* which holds charts, images, and diagrams. Each worksheet in a workbook is accessible by clicking the tab at the bottom of the workbook window. In addition, a workbook can store chart sheets; a *chart sheet* displays a single chart and is also accessible by clicking a tab.

Newcomers to Excel are often intimidated by all the different elements that appear within Excel's window. After you become familiar with the various parts, it all starts to make sense, and you'll feel right at home.

Figure 1.1 shows you the more important bits and pieces of Excel. As you look at the figure, refer to Table 1.1 for a brief explanation of the items shown in the figure.

FIGURE 1.1

The Excel screen has many useful elements that you will use often.

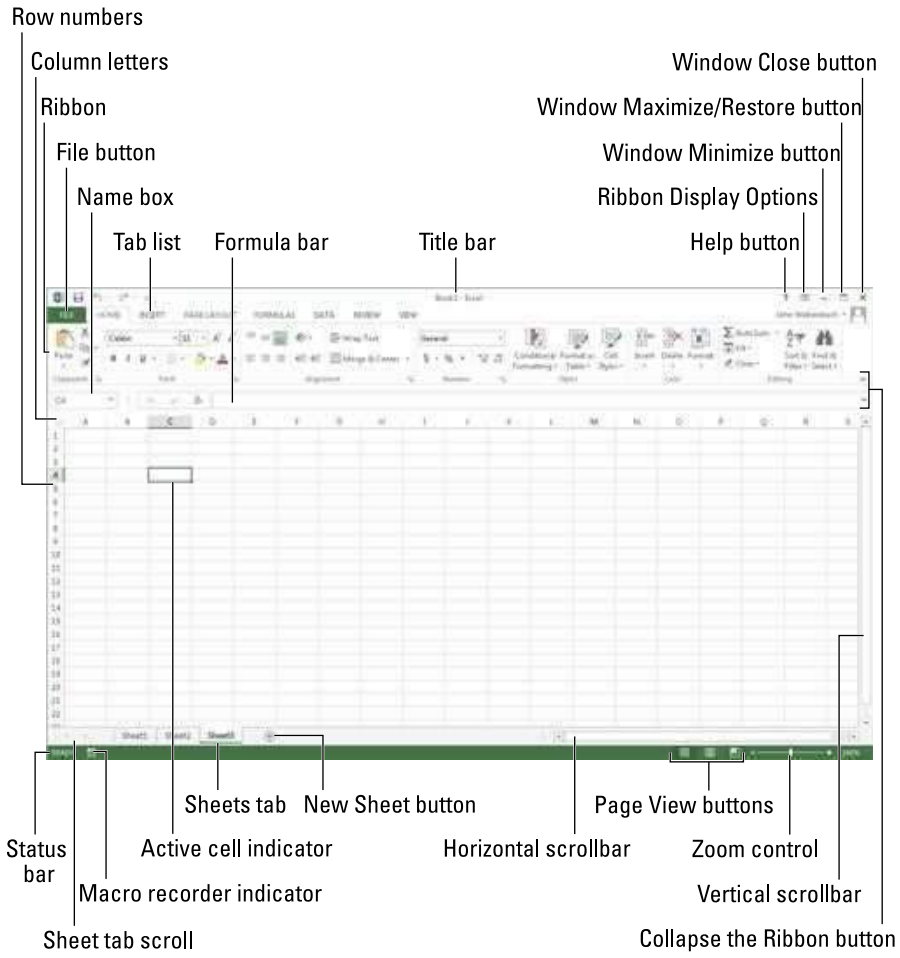


TABLE 1.1 Parts of the Excel Screen That You Need to Know

Name	Description
Active cell indicator	This dark outline indicates the currently active cell (one of the 17,179,869,184 cells on each worksheet).
Collapse the Ribbon button	Click this button to temporarily hide the Ribbon. Click it again to make the Ribbon remain visible.
Column letters	Letters range from A to XFD — one for each of the 16,384 columns in the worksheet. You can click a column heading to select an entire column of cells or drag a column border to change its width.
File button	Click this button to open Backstage view, which contains many options for working with your document (including printing) and setting Excel options.

Name	Description
Formula bar	When you enter information or formulas into a cell, it appears in this bar.
Help button	Click this button to display the Excel Help system window.
Horizontal scrollbar	Use this tool to scroll the sheet horizontally.
Macro recorder indicator	Click to start recording a VBA macro. The icon changes while your actions are being recorded. Click again to stop recording.
Name box	This box displays the active cell address or the name of the selected cell, range, or object.
New Sheet button	Add a new worksheet by clicking the New Sheet button (which is displayed after the last sheet tab).
Page View buttons	Click these buttons to change the way the worksheet is displayed.
Quick Access toolbar	This customizable toolbar holds commonly used commands. The Quick Access toolbar is always visible, regardless of which tab is selected.
Ribbon	This is the main location for Excel commands. Clicking an item in the tab list changes the Ribbon that is displayed.
Ribbon Display Options	A drop-down control that offers three options related to displaying the Ribbon.
Row numbers	Numbers range from 1 to 1,048,576 — one for each row in the worksheet. You can click a row number to select an entire row of cells.
Sheet tabs	Each of these notebook-like tabs represents a different sheet in the workbook. A workbook can have any number of sheets, and each sheet has its name displayed in a sheet tab.
Sheet tab scroll buttons	Use these buttons to scroll the sheet tabs to display tabs that aren't visible. You can also right-click to get a list of sheets.
Status bar	This bar displays various messages, as well as the status of the Num Lock, Caps Lock, and Scroll Lock keys on your keyboard. It also shows summary information about the range of cells selected. Right-click the status bar to change the information displayed.
Tab list	Use these commands to display a different Ribbon, similar to a menu.
Title bar	This displays the name of the program and the name of the current workbook. It also holds the Quick Access toolbar (on the left) and some control buttons that you can use to modify the window (on the right).
Vertical scrollbar	Use this to scroll the sheet vertically.
Window Close button	Click this button to close the active workbook window.
Window Maximize/ Restore button	Click this button to increase the workbook window's size to fill the entire screen. If the window is already maximized, clicking this button "unmaximizes" Excel's window so that it no longer fills the entire screen.
Window Minimize button	Click this button to minimize the workbook window. The window displays as an icon in the Windows taskbar.
Zoom control	Use this to zoom your worksheet in and out.

Moving Around a Worksheet

This section describes various ways to navigate the cells in a worksheet.

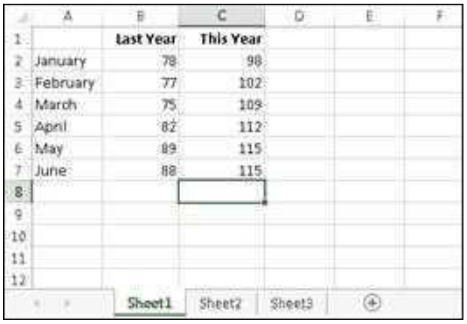
Every worksheet consists of rows (numbered 1 through 1,048,576) and columns (labeled A through XFD). Column labeling works like this: After column Z comes column AA, which is followed by AB, AC, and so on. After column AZ comes BA, BB, and so on. After column ZZ is AAA, AAB, and so on.

The intersection of a row and a column is a single cell, and each cell has a unique address made up of its column letter and row number. For example, the address of the upper-left cell is A1. The address of the cell at the lower right of a worksheet is XFD1048576.

At any given time, one cell is the *active cell.* The active cell is the cell that accepts keyboard input, and its contents can be edited. You can identify the active cell by its darker border, as shown in Figure 1.2. Its address appears in the Name box. Depending on the technique that you use to navigate through a workbook, you may or may not change the active cell when you navigate.

FIGURE 1.2

The active cell is the cell with the dark border — in this case, cell C8.



Notice that the row and column headings of the active cell appear in a different color to make it easier to identify the row and column of the active cell.

NOTE

Excel 2013 is also available for devices such as tablets and phones. These devices use a touch interface. This book assumes the reader has a traditional keyboard and mouse — it doesn't cover the touch-related commands.

Navigating with your keyboard

Not surprisingly, you can use the standard navigational keys on your keyboard to move around a worksheet. These keys work just as you'd expect: The down arrow moves the active cell down one row, the right arrow moves it one column to the right, and so on.

PgUp and PgDn move the active cell up or down one full window. (The actual number of rows moved depends on the number of rows displayed in the window.)

TIP

You can use the keyboard to scroll through the worksheet without changing the active cell by turning on Scroll Lock, which is useful if you need to view another area of your worksheet and then quickly return to your original location. Just press Scroll Lock and use the navigation keys to scroll through the worksheet. When you want to return to the original position (the active cell), press Ctrl+Backspace. Then, press Scroll Lock again to turn it off. When Scroll Lock is turned on, Excel displays `Scroll Lock` in the status bar at the bottom of the window.

The Num Lock key on your keyboard controls how the keys on the numeric keypad behave. When Num Lock is on, the keys on your numeric keypad generate numbers. Many keyboards have a separate set of navigation (arrow) keys located to the left of the numeric keypad. The state of the Num Lock key doesn't affect these keys.

Table 1.2 summarizes all the worksheet movement keys available in Excel.

TABLE 1.2 Excel Worksheet Movement Keys

Key	Action
Up arrow (↑)	Moves the active cell up one row
Down arrow (↓)	Moves the active cell down one row
Left arrow (←) or Shift+Tab	Moves the active cell one column to the left
Right arrow (→) or Tab	Moves the active cell one column to the right
PgUp	Moves the active cell up one screen
PgDn	Moves the active cell down one screen
Alt+PgDn	Moves the active cell right one screen
Alt+PgUp	Moves the active cell left one screen
Ctrl+Backspace	Scrolls the screen so that the active cell is visible
↑*	Scrolls the screen up one row (active cell does not change)
↓*	Scrolls the screen down one row (active cell does not change)
←*	Scrolls the screen left one column (active cell does not change)
→*	Scrolls the screen right one column (active cell does not change)

* With Scroll Lock on

Navigating with your mouse

To change the active cell by using the mouse, just click another cell, and it becomes the active cell. If the cell that you want to activate isn't visible in the workbook window, you can use the scrollbars to scroll the window in any direction. To scroll one cell, click either of the arrows on the scrollbar. To scroll by a complete screen, click either side of the scrollbar's scroll box. You can also drag the scroll box for faster scrolling.

TIP

If your mouse has a wheel, you can use the mouse wheel to scroll vertically. Also, if you click the wheel and move the mouse in any direction, the worksheet scrolls automatically in that direction. The more you move the mouse, the faster the scrolling.

Press Ctrl while you use the mouse wheel to zoom the worksheet. If you prefer to use the mouse wheel to zoom the worksheet without pressing Ctrl, choose File➪Options and select the Advanced section. Place a check mark next to the Zoom on Roll with IntelliMouse check box.

Using the scrollbars or scrolling with your mouse doesn't change the active cell. It simply scrolls the worksheet. To change the active cell, you must click a new cell after scrolling.

Using the Ribbon

In Office 2007, Microsoft made a dramatic change to the user interface. Traditional menus and toolbars were replaced with the Ribbon, a collection of icons at the top of the screen. The words above the icons are known as tabs: the Home tab, the Insert tab, and so on. Most users find that the Ribbon is easier to use than the old menu system; it can also be customized to make it even easier to use (see Chapter 24).

The Ribbon can either be hidden or visible (it's your choice). To toggle the Ribbon's visibility, press Ctrl + F1 (or double-click a tab at the top). If the Ribbon is hidden, it temporarily appears when you click a tab and hides itself when you click in the worksheet. The title bar has a control named Ribbon Display Options (next to the Help button). Click the control and choose one of three Ribbon options: Auto-hide, Show Tabs, or Show Tabs and Commands.

Ribbon tabs

The commands available in the Ribbon vary, depending upon which tab is selected. The Ribbon is arranged into groups of related commands. Here's a quick overview of Excel's tabs:

- **Home:** You'll probably spend most of your time with the Home tab selected. This tab contains the basic Clipboard commands, formatting commands, style commands, commands to insert and delete rows or columns, plus an assortment of worksheet editing commands.
- **Insert:** Select this tab when you need to insert something in a worksheet — a table, a diagram, a chart, a symbol, and so on.
- **Page Layout:** This tab contains commands that affect the overall appearance of your worksheet, including some settings that deal with printing.
- **Formulas:** Use this tab to insert a formula, name a cell or a range, access the formula auditing tools, or control how Excel performs calculations.
- **Data:** Excel's data-related commands are on this tab, including data validation commands.

- **Review:** This tab contains tools to check spelling, translate words, add comments, or protect sheets.
- **View:** The View tab contains commands that control various aspects of how a sheet is viewed. Some commands on this tab are also available in the status bar.
- **Developer:** This tab isn't visible by default. It contains commands that are useful for programmers. To display the Developer tab, choose File➪Options and then select Customize Ribbon. In the Customize the Ribbon section on the right, make sure Main Tabs is selected in the drop-down control, and place a check mark next to Developer.
- **Add-Ins:** This tab is visible only if you loaded an older workbook or add-in that customizes the menu or toolbars. Because menus and toolbars are no longer available in Excel 2013, these user interface customizations appear on the Add-Ins tab.

The preceding list contains the standard Ribbon tabs. Excel may display additional Ribbon tabs, resulting from add-ins or macros.

NOTE

Although the File button shares space with the tabs, it's not actually a tab. Clicking the File button displays a different screen (known as Backstage view), where you perform actions with your documents. This screen has commands along the left side. To exit the Backstage view, click the back arrow button in the upper-left corner.

The appearance of the commands on the Ribbon varies, depending on the width of the Excel window. When the Excel window is too narrow to display everything, the commands adapt; some of them might seem to be missing, but the commands are still available. Figure 1.3 shows the Home tab of the Ribbon with all controls fully visible. Figure 1.4 shows the Ribbon when Excel's window is made more narrow. Notice that some of the descriptive text is gone, but the icons remain. Figure 1.5 shows the extreme case when the window is made very narrow. Some groups display a single icon; however, if you click the icon, all the group commands are available to you.

FIGURE 1.3

The Home tab of the Ribbon.

FIGURE 1.4

The Home tab when Excel's window is made narrower.

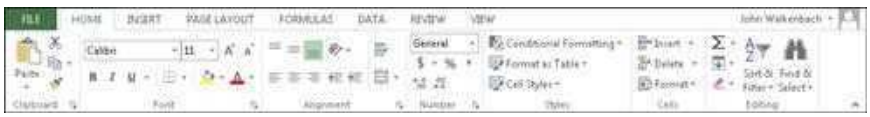


FIGURE 1.5

The Home tab when Excel's window is made very narrow.

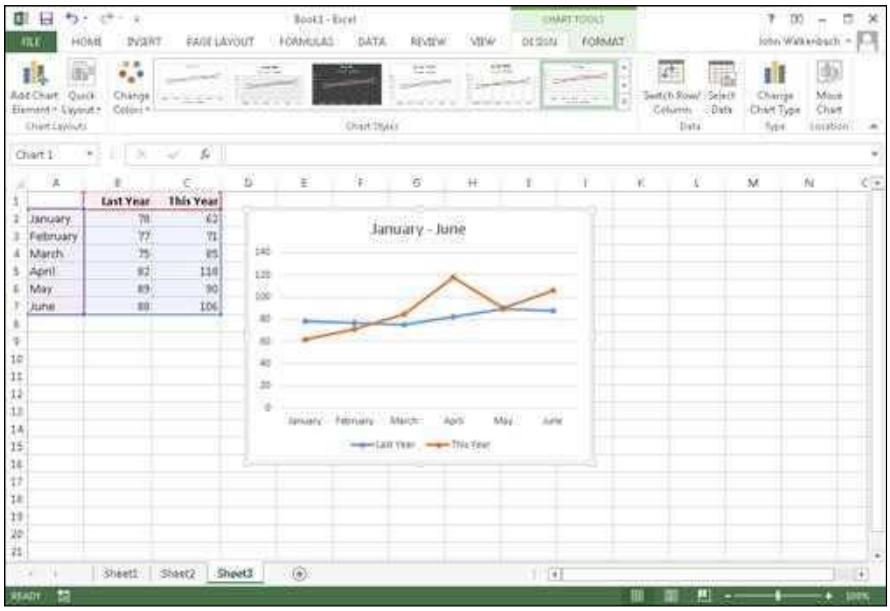
Contextual tabs

In addition to the standard tabs, Excel also includes *contextual tabs.* Whenever an object (such as a chart, a table, or a SmartArt diagram) is selected, specific tools for working with that object are made available in the Ribbon.

Figure 1.6 shows the contextual tabs that appear when a chart is selected. In this case, it has two contextual tabs: Design and Format. Notice that the contextual tabs contain a description (Chart Tools) in Excel's title bar. When contextual tabs appear, you can, of course, continue to use all the other tabs.

FIGURE 1.6

When you select an object, contextual tabs contain tools for working with that object.



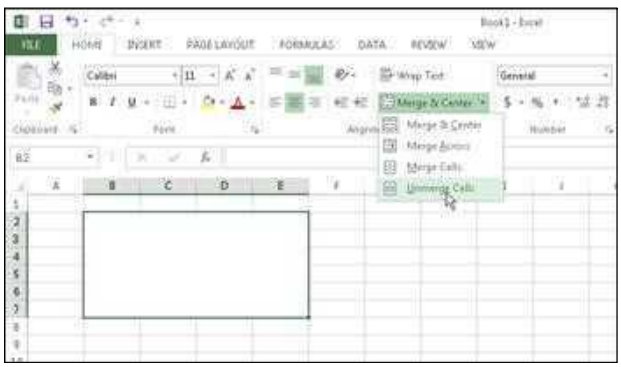
Types of commands on the Ribbon

When you hover your mouse pointer over a Ribbon command, you'll see a pop-up box that contains the command's name, as well as a brief description. For the most part, the commands in the Ribbon work just as you would expect them to. You'll find several different styles of commands on the Ribbon:

- **Simple buttons:** Click the button, and it does its thing. An example of a simple button is the Increase Font Size button in the Font group of the Home tab. Some buttons perform the action immediately; others display a dialog box so that you can enter additional information. Button controls may or may not be accompanied by a descriptive label.
- **Toggle buttons:** A toggle button is clickable and conveys some type of information by displaying two different colors. An example is the Bold button in the Font group of the Home tab. If the active cell isn't bold, the Bold button displays in its normal color. If the active cell is already bold, the Bold button displays a different background color. If you click the Bold button, it toggles the Bold attribute for the selection.
- **Simple drop-downs:** If the Ribbon command has a small down arrow, the command is a drop-down. Click it, and additional commands appear below it. An example of a simple drop-down is the Conditional Formatting command in the Styles group of the Home tab. When you click this control, you see several options related to conditional formatting.
- **Split buttons:** A *split button control* combines a one-click button with a drop-down. If you click the button part, the command is executed. If you click the drop-down part (a down arrow), you choose from a list of related commands. An example of a split button is the Merge & Center command in the Alignment group of the Home tab (see Figure 1.7). Clicking the left part of this control merges and centers text in the selected cells. If you click the arrow part of the control (on the right), you get a list of commands related to merging cells.

FIGURE 1.7

The Merge & Center command is a split button control.



- **Check boxes:** A check box control turns something on or off. An example is the Gridlines control in the Show group of the View tab. When the Gridlines check box is checked, the sheet displays gridlines. When the control isn't checked, the gridlines don't appear.
- **Spinners:** Excel's Ribbon has only one spinner control: the Scale to Fit group of the Page Layout tab. Click the top part of the spinner to increase the value; click the bottom part of the spinner to decrease the value.

Some of the Ribbon groups contain a small icon in the bottom-right corner, known as a *dialog box launcher*. For example, if you examine the groups in the Home tab, you find dialog box launchers for the Clipboard, Font, Alignment, and Number groups — but not the Styles, Cells, and Editing groups. Click the icon, and Excel displays a dialog box. The dialog launchers often provide options that aren't available in the Ribbon.

Accessing the Ribbon by using your keyboard

At first glance, you may think that the Ribbon is completely mouse-centric. After all, the commands don't display the traditional underlined letter to indicate the Alt + keystrokes. But in fact, the Ribbon is *very* keyboard friendly. The trick is to press the Alt key to display the pop-up *keytips*. Each Ribbon control has a letter (or series of letters) that you type to issue the command.

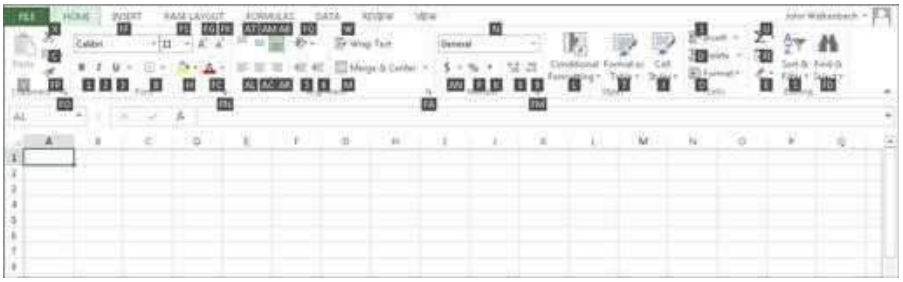
TIP

You don't need to hold down the Alt key while you type keytip letters.

Figure 1.8 shows how the Home tab looks after I press the Alt key to display the keytips, and then the H key to display the keytips for the Home tab. If you press one of the keytips, the screen then displays more keytips. For example, to use the keyboard to align the cell contents to the left, press Alt, followed by H (for Home), and then AL (for Align Left).

FIGURE 1.8

Pressing Alt displays the keytips.



Nobody will memorize *all* these keys, but if you're a keyboard fan (like me), it takes just a few times before you memorize the keystrokes required for commands that you use frequently.

After you press Alt, you can also use the left- and right-arrow keys to scroll through the tabs. When you reach the proper tab, press the down arrow to enter the Ribbon. Then use left and right arrow keys to scroll through the Ribbon commands. When you reach the command you need, press Enter to execute it. This method isn't as efficient as using the keytips, but it's a quick way to take a look at the commands available.

TIP

Often, you'll want to repeat a particular command. Excel provides a way to simplify that. For example, if you applied a particular style to a cell (by choosing Home➪Styles➪Cell Styles), you can activate another cell and press Ctrl+Y (or F4) to repeat the command.

Using Shortcut Menus

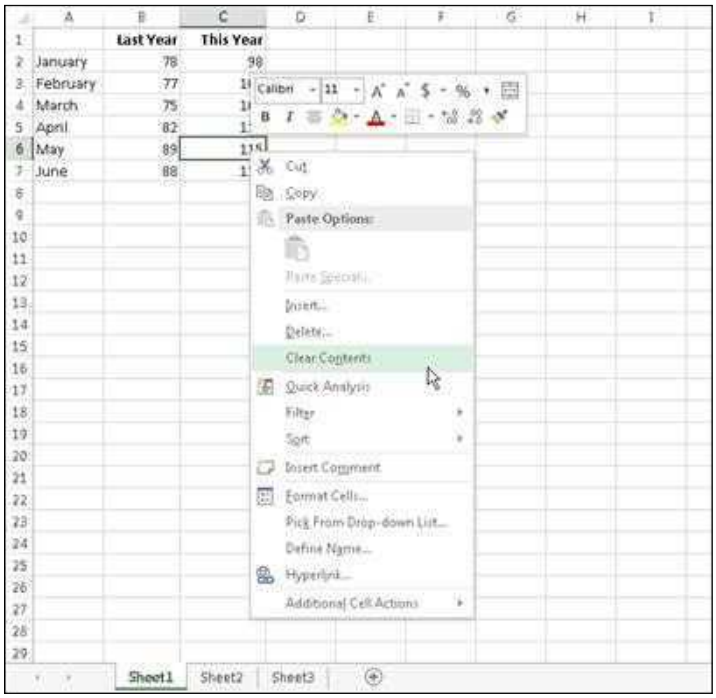
In addition to the Ribbon, Excel features many shortcut menus, which you access by right-clicking just about anything within Excel. Shortcut menus don't contain every relevant command, just those that are most commonly used for whatever is selected.

As an example, Figure 1.9 shows the shortcut menu that appears when you right-click a cell. The shortcut menu appears at the mouse-pointer position, which makes selecting a command fast and efficient. The shortcut menu that appears depends on what you're doing at the time. For example, if you're working with a chart, the shortcut menu contains commands that are pertinent to the selected chart element.

The box above the shortcut menu — the Mini toolbar — contains commonly used tools from the Home tab. The Mini toolbar was designed to reduce the distance your mouse has to travel around the screen. Just right-click, and common formatting tools are within an inch of your mouse pointer. The Mini toolbar is particularly useful when a tab other than Home is displayed. If you use a tool on the Mini toolbar, the toolbar remains displayed in case you want to perform other formatting on the selection.

FIGURE 1.9

Click the right mouse button to display a shortcut menu of commands you're most likely to use.



Customizing Your Quick Access Toolbar

The Ribbon is fairly efficient, but many users prefer to have some commands available at all times, without having to click a tab. The solution is to customize your Quick Access toolbar. Typically, the Quick Access toolbar appears on the left side of the title bar, above the Ribbon. Alternatively, you can display the Quick Access toolbar below the Ribbon; just right-click the Quick Access toolbar and choose Show Quick Access Toolbar below the Ribbon.

Displaying the Quick Access toolbar below the Ribbon provides a bit more room for icons, but it also means that you see one less row of your worksheet.

Changing Your Mind

You can reverse almost every action in Excel by using the Undo command, located on the Quick Access toolbar. Click Undo (or press Ctrl+Z) after issuing a command in error, and it's as if you never issued the command. You can reverse the effects of the past 100 actions that you performed by executing Undo more than once.

If you click the arrow on the right side of the Undo button, you see a list of the actions that you can reverse. Click an item in that list to undo that action and all the subsequent actions you performed.

Caution

You can't reverse every action, however. Generally, anything that you do using the File button can't be undone. For example, if you save a file and realize that you've overwritten a good copy with a bad one, Undo can't save the day. You're just out of luck unless you have a backup of the file. Also, changes made by a macro can't be undone. In fact, executing a macro that changes the workbook clears the Undo list.

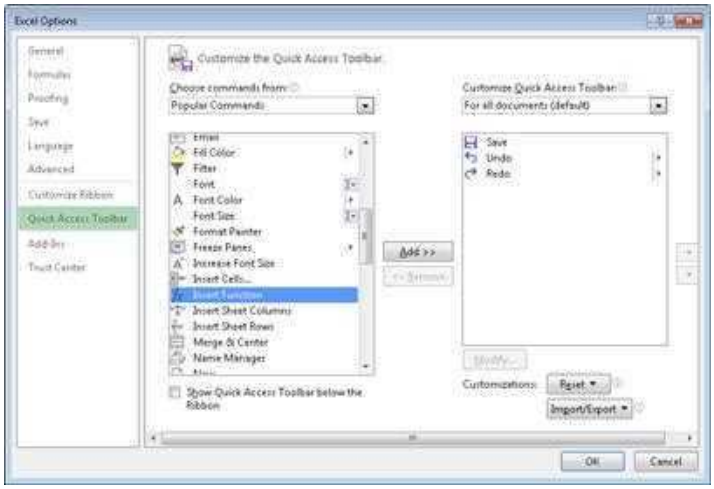
The Redo button, also on the Quick Access toolbar, performs the opposite of the Undo button: Redo reissues commands that have been undone. If nothing has been undone, this command is not available.

By default, the Quick Access toolbar contains three tools: Save, Undo, and Redo. You can customize the Quick Access toolbar by adding other commands that you use often. To add a command from the Ribbon to your Quick Access toolbar, right-click the command and choose Add to Quick Access Toolbar. If you click the down arrow to the right of the Quick Access toolbar, you see a drop-down menu with some additional commands that you might want to place in your Quick Access toolbar.

Excel has quite a few commands (mostly obscure ones) that aren't available on the Ribbon. In most cases, the only way to access these commands is to add them to your Quick Access toolbar. Right-click the Quick Access toolbar and choose Customize the Quick Access Toolbar. You see the Excel Options dialog box, shown in Figure 1.10. This section of the Excel Options dialog box is your one-stop shop for Quick Access toolbar customization.

FIGURE 1.10

Add new icons to your Quick Access toolbar by using the Quick Access Toolbar section of the Excel Options dialog box.



See Chapter 24 for more information about customizing your Quick Access toolbar.

Working with Dialog Boxes

Many Excel commands display a dialog box, which is simply a way of getting more information from you. For example, if you choose Review➪Changes➪Protect Sheet, Excel can't carry out the command until you tell it what parts of the sheet you want to protect. Therefore, it displays the Protect Sheet dialog box, shown in Figure 1.11.

FIGURE 1.11

Excel uses a dialog box to get additional information about a command.

Excel dialog boxes vary in how they work. You'll find two types of dialog boxes:

- **Typical dialog box:** A *modal* dialog box takes the focus away from the spreadsheet. When this type of dialog box is displayed, you can't do anything in the worksheet until you dismiss the dialog box. Clicking OK performs the specified actions, and clicking Cancel (or pressing Esc) closes the dialog box without taking any action. Most Excel dialog boxes are this type.
- **Stay-on-top dialog box:** A *modeless* dialog box works in a manner similar to a toolbar. When a modeless dialog box is displayed, you can continue working in Excel, and the dialog box remains open. Changes made in a modeless dialog box take effect immediately. An example of a modeless dialog box is the Find and Replace dialog box. You can leave this dialog box open while you continue to use your worksheet. A modeless dialog box has a Close button but no OK button.

Most people find working with dialog boxes to be quite straightforward and natural. If you've used other programs, you'll feel right at home. You can manipulate the controls either with your mouse or directly from the keyboard.

Navigating dialog boxes

Navigating dialog boxes is generally very easy — you simply click the control you want to activate.

Although dialog boxes were designed with mouse users in mind, you can also use the keyboard. Every dialog box control has text associated with it, and this text always has one underlined letter (a *hot key* or an *accelerator key*). You can access the control from the keyboard by pressing Alt and then the underlined letter. You can also press Tab to cycle through all the controls on a dialog box. Pressing Shift + Tab cycles through the controls in reverse order.

TIP

When a control is selected, it appears with a dotted outline. You can use the spacebar to activate a selected control.

Using tabbed dialog boxes

Several Excel dialog boxes are "tabbed" dialog boxes: That is, they include notebook-like tabs, each of which is associated with a different panel.

When you select a tab, the dialog box changes to display a new panel containing a new set of controls. The Format Cells dialog box, shown in Figure 1.12, is a good example. It has six tabs, which makes it functionally equivalent to six different dialog boxes.

FIGURE 1.12

Use the dialog box tabs to select different functional areas of the dialog box.

Tabbed dialog boxes are quite convenient because you can make several changes in a single dialog box. After you make all your setting changes, click OK or press Enter.

TIP

To select a tab by using the keyboard, press Ctrl+PgUp or Ctrl+PgDn, or simply press the first letter of the tab that you want to activate.

Using Task Panes

Yet another user interface element is the task pane. Task panes appear automatically in response to several commands. For example, to work with a picture, right-click the image and choose Format Picture. Excel responds by displaying the Format Picture task pane, shown in Figure 1.13. The task pane is similar to a dialog box except that you can keep it visible as long as you like.

NEW FEATURE

The role of task panes has increased dramatically in Excel 2013. For example, when working with a chart, you can access a task pane that has an extensive selection of commands for every element within the chart.

Many of the task panes are very complex. The Format Picture task pane has four icons along the top. Clicking an icon changes the command lists displayed below. Click an item in a command list and it expands to show the options.

There's no OK button in a task pane. When you're finished using a task pane, click the Close button (X) in the upper-right corner. If you prefer to use your keyboard to navigate task panes, make sure the task pane is displayed, and then press F6 to activate the task pane in keyboard mode. Then you can use the tab key, the arrow keys, the spacebar, and other keys that work in dialog boxes.

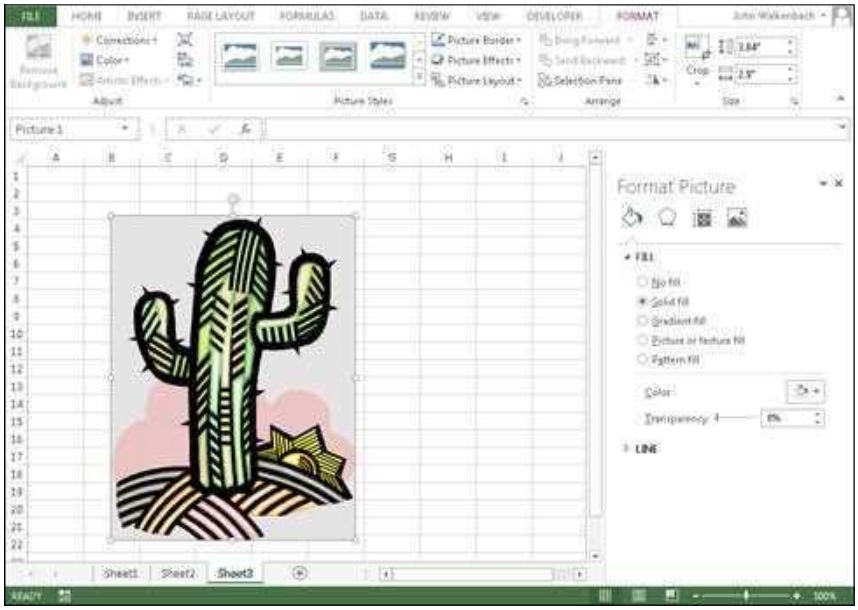
By default, the task pane is docked on the right side of the Excel window, but you can move it anywhere you like by clicking its title bar and dragging. Excel remembers the last position, so the next time you use that task pane, it will be right where you left it.

TIP

If you prefer to use your keyboard to work within a task pane, you may find that common dialog box keys such as Tab, Space, the arrow keys, and Alt key combinations don't seem to work. The trick is to press F6. After doing so, you'll find that the task pane works very well using only a keyboard. For example, use the Tab key to activate a section title, and then press Enter to expand the section.

FIGURE 1.13

The Format Picture task pane, docked on the right side of the window.



Creating Your First Excel Workbook

This section presents an introductory hands-on session with Excel. If you haven't used Excel, you may want to follow along on your computer to get a feel for how this software works.

In this example, you create a simple monthly sales projection table along with a chart.

Getting started on your worksheet

Start Excel and make sure that you have an empty workbook displayed. To create a new, blank workbook, press Ctrl + N (the shortcut key for File➪New➪Blank Workbook).

The sales projection will consist of two columns of information. Column A will contain the month names, and column B will store the projected sales numbers. You start by entering some descriptive titles into the worksheet. Here's how to begin:

1. **Move the cell pointer to cell A1 (the upper-left cell in the worksheet) by using the navigation (arrow) keys.** The Name box displays the cell's address.
2. **Type** Month **into cell A1 and press Enter.** Depending on your setup, either Excel moves the cell pointer to a different cell or the pointer remains in cell A1.
3. **Move the cell pointer to B1, type** Projected Sales**, and press Enter.** The text extends beyond the cell width, but don't worry about that for now.

Filling in the month names

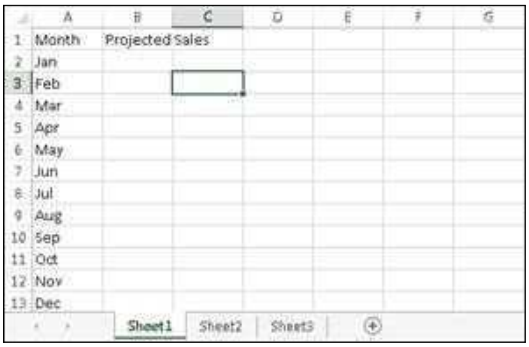
In this step, you enter the month names in column A.

1. **Move the cell pointer to A2 and type** Jan **(an abbreviation for January).** At this point, you can enter the other month name abbreviations manually or you can let Excel do some of the work by taking advantage of the AutoFill feature.
2. **Make sure that cell A2 is selected.** Notice that the active cell is displayed with a heavy outline. At the bottom-right corner of the outline, you'll see a small square known as the *fill handle*. Move your mouse pointer over the fill handle, click, and drag down until you've highlighted from cell A2 down to cell A13.
3. **Release the mouse button, and Excel automatically fills in the month names.**

Your worksheet should resemble the one shown in Figure 1.14.

FIGURE 1.14

Your worksheet, after entering the column headings and month names.



Entering the sales data

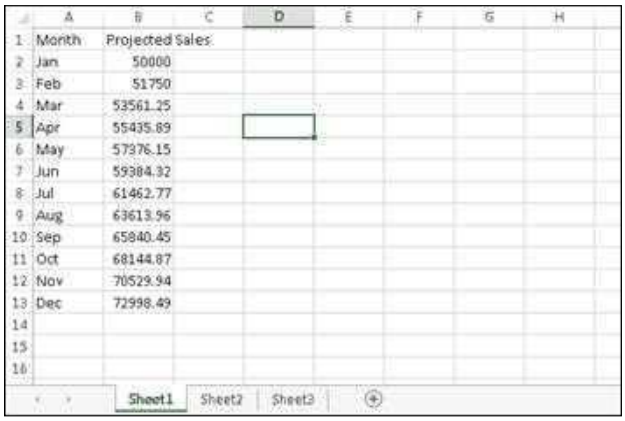
Next, you provide the sales projection numbers in column B. Assume that January's sales are projected to be $50,000, and that sales will increase by 3.5 percent in each subsequent month.

1. **Move the cell pointer to B2 and type** 50000**, the projected sales for January.** You could type a dollar sign and comma to make the number more legible, but you do the number formatting a bit later.
2. **To enter a formula to calculate the projected sales for February, move to cell B3 and type the following:** =B2*103.5%**.** When you press Enter, the cell displays 51750. The formula returns the contents of cell B2, multiplied by 103.5%. In other words, February sales are projected to be 103.5% of the January sales — a 3.5% increase.
3. **The projected sales for subsequent months use a similar formula, but rather than retype the formula for each cell in column B, take advantage of the AutoFill feature.** Make sure that cell B3 is selected. Click the cell's fill handle, drag down to cell B13, and release the mouse button.

At this point, your worksheet should resemble the one shown in Figure 1.15. Keep in mind that, except for cell B2, the values in column B are calculated *with formulas.* To demonstrate, try changing the projected sales value for the initial month, January (in cell B2). You'll find that the formulas recalculate and return different values. These formulas all depend on the initial value in cell B2, though.

FIGURE 1.15

Your worksheet, after creating the formulas.



	A	B	C	D	E	F	G	H
1	Month	Projected Sales						
2	Jan	50000						
3	Feb	51750						
4	Mar	53561.25						
5	Apr	55435.89						
6	May	57376.15						
7	Jun	59384.32						
8	Jul	61462.77						
9	Aug	63613.96						
10	Sep	65840.45						
11	Oct	68144.87						
12	Nov	70529.94						
13	Dec	72998.49						
14								
15								
16								

Sheet1 Sheet2 Sheet3

Formatting the numbers

The values in the worksheet are difficult to read because they aren't formatted. In this step, you apply a number format to make the numbers easier to read and more consistent in appearance:

1. **Select the numbers by clicking cell B2 and dragging down to cell B13.** Don't drag the fill handle this time, though, because you're selecting cells, not filling a range.
2. **Access the Ribbon and choose Home. In the Number group, click the drop-down Number Format control (it initially displays General), and select Currency from the list.** The numbers now display with a currency symbol and two decimal places. Much better, but the decimal places aren't necessary for this type of projection.
3. **Make sure the range B2:B13 is selected, choose Home➪Number, and click the Decrease Decimal button.** One of the decimal places disappears. Click that button a second time, and the values are displayed with no decimal places.

Making your worksheet look a bit fancier

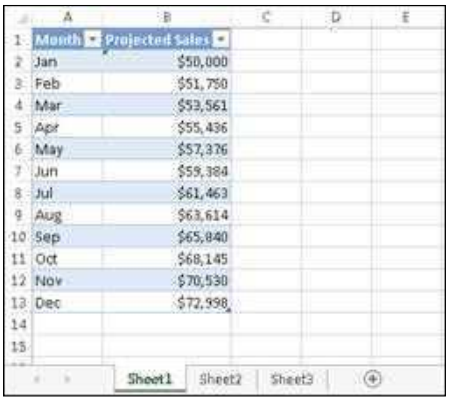
At this point, you have a functional worksheet, but it could use some help in the appearance department. Converting this range to an "official" (and attractive) Excel table is a snap:

1. **Activate any cell within the range A1:B13.**
2. **Choose Insert➪Tables➪Table.** Excel displays the Create Table dialog box to make sure that it guessed the range properly.
3. **Click OK to close the Create Table dialog box.** Excel applies its default table formatting and displays its Table Tools➪Design contextual tab.

Your worksheet should look like Figure 1.16.

FIGURE 1.16

Your worksheet, after converting the range to a table.



If you don't like the default table style, just select another one from the Table Tools➪ Design➪Table Styles group. Notice that you can get a preview of different table styles by moving your mouse over the Ribbon. When you find one you like, click it, and the style will be applied to your table.

Summing the values

The worksheet displays the monthly projected sales, but what about the total projected sales for the year? Because this range is a table, it's simple:

1. **Activate any cell in the table**
2. **Choose Table Tools➪Design➪Table Style Options➪Total Row.** Excel automatically adds a new row to the bottom of your table, including a formula that calculates the total of the Projected Sales column.
3. **If you'd prefer to see a different summary formula (for example, average), click cell B14 and choose a different summary formula from the drop-down list.**

Creating a chart

How about a chart that shows the projected sales for each month?

1. **Activate any cell in the table.**
2. **Choose Insert➪Charts➪Recommended Charts.** Excel displays some suggested chart type options.
3. **In the Insert Chart dialog box, click the second recommended chart (a column chart), and click OK.** Excel inserts the chart in the center of the window. To move the chart to another location, click its border and drag it.
4. **Click the chart and choose a style using the Chart Tools➪Design➪Chart Styles options.**

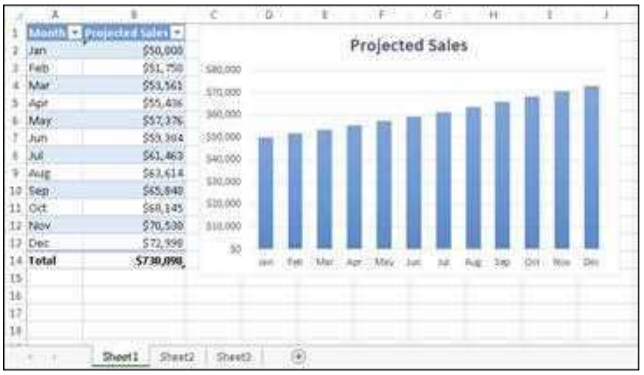
Figure 1.17 shows the worksheet with a column chart. Your chart may look different, depending on the chart style you selected.

On the Web

This workbook is available on this book's website. The filename is `table and chart.xlsx`.

FIGURE 1.17

The table and chart.



Printing your worksheet

Printing your worksheet is very easy (assuming that you have a printer attached and that it works properly).

1. **Make sure that the chart isn't selected.** If a chart is selected, the chart will print on a page by itself. To deselect the chart, just press Esc or click any cell.
2. **To make use of Excel's handy Page Layout view, click the Page Layout button on the right side of the status bar.** Excel displays the worksheet page-by-page so that you can easily see how your printed output will look. Figure 1.18 shows the worksheet zoomed out to show a complete page. In Page Layout view, you can tell immediately whether the chart is too wide to fit on one page. If the chart is too wide, click and drag a corner of the chart to resize it or just move the chart below the table of numbers.
3. **When you're ready to print, choose File➪Print.** At this point, you can change some print settings. For example, you can choose to print in landscape rather than portrait orientation. Make the change, and you see the result in the preview window.
4. **When you're satisfied, click the Print button in the upper-left corner.** The page is printed, and you're returned to your workbook.

Saving your workbook

Until now, everything that you've done has occurred in your computer's memory. If the power should fail, all may be lost — unless Excel's AutoRecover feature happened to kick in. It's time to save your work to a file on your hard drive.

1. **Click the Save button on the Quick Access toolbar.** (This button looks like an old-fashioned floppy disk, popular in the previous century.) Because the workbook hasn't been saved yet and still has its default name, Excel responds with a Backstage screen that lets you choose the location for the workbook file. The Backstage screen lets you save the file to an online location or to your local computer.

FIGURE 1.18

Viewing the worksheet in Page Layout view.

2. **Select Computer, and then click Browse.** Excel displays the Save As dialog box.
3. **In the File Name field, enter a name (such as Monthly Sales Projection), and then click Save or press Enter.** Excel saves the workbook as a file. The workbook remains open so that you can work with it some more.

NOTE

By default, Excel saves a backup copy of your work automatically every ten minutes. To adjust the AutoRecover setting (or turn if off), choose File➪Options, and click the Save tab of the Excel Options dialog box. However, you should never rely on Excel's AutoRecover feature. Saving your work frequently is a good idea.

If you've followed along, you may have realized that creating this workbook was not difficult. But, of course, you've barely scratched the surface of Excel. The remainder of this book covers these tasks (and many, many more) in much greater detail.

CHAPTER 2

Entering and Editing Worksheet Data

IN THIS CHAPTER

Understanding the types of data you can use

Entering text and values into your worksheets

Entering dates and times into your worksheets

Modifying and editing information

Using built-in number formats

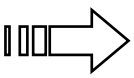
This chapter describes what you need to know about entering and modifying data in your worksheets. As you see, Excel doesn't treat all data equally. Therefore, you need to learn about the various types of data that you can use in an Excel worksheet.

Exploring Data Types

An Excel workbook file can hold any number of worksheets, and each worksheet is made up of more than 17 billion cells. A cell can hold any of three basic types of data:

- A numeric value
- Text
- A formula

A worksheet can also hold charts, diagrams, pictures, buttons, and other objects. These objects aren't contained in cells. Instead, they reside on the worksheet's *draw layer,* which is an invisible layer on top of each worksheet.



Chapter 23 discusses some of the items you can place on the draw layer.

Excel's Numeric Limitations

You may be curious about the types of values that Excel can handle. In other words, how large can a number be? And how accurate are large numbers?

Excel's numbers are precise up to 15 digits. For example, if you enter a large value, such as 123,456,789,123,456,789 (18 digits), Excel actually stores it with only 15 digits of precision. This 18-digit number displays as 123,456,789,123,456,000. This precision may seem quite limiting, but in practice, it rarely causes any problems.

One situation in which the 15-digit accuracy can cause a problem is when entering credit card numbers. Most credit card numbers are 16 digits, but Excel can handle only 15 digits, so it substitutes a zero for the last credit card digit. Even worse, you may not even realize that Excel made the card number invalid. The solution? Enter the credit card numbers as text. The easiest way is to preformat the cell as Text (choose Home➪Number and choose Text from the Number Format drop-down list). Or you can precede the credit card number with an apostrophe. Either method prevents Excel from interpreting the entry as a number.

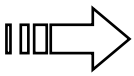
Here are some of Excel's other numeric limits:

- **Largest positive number:** 9.9E+307
- **Smallest negative number:** –9.9E+307
- **Smallest positive number:** 1E–307
- **Largest negative number:** –1E–307

These numbers are expressed in scientific notation. For example, the largest positive number is "9.9 times 10 to the 307th power" — in other words, 99 followed by 306 zeros. Keep in mind, though, that this number has only 15 digits of accuracy.

Numeric values

Numeric values represent a quantity of some type: sales amounts, number of employees, atomic weights, test scores, and so on. Values also can be dates (such as Feb-26-2013) or times (such as 3:24 a.m.).



Excel can display values in many different formats. In the "Applying Number Formatting" section, later in this chapter, you see how different format options can affect the display of numeric values.

Text entries

Most worksheets also include text in some of the cells. Text can serve as data (for example, a list of employee names), labels for values, headings for columns, or instructions about the worksheet. Text is often used to clarify what the values in a worksheet mean or where the numbers came from.

Text that begins with a number is still considered text. For example, if you type **12 Employees** into a cell, Excel considers the entry to be text rather than a numeric value. Consequently, you can't use this cell for numeric calculations. If you need to indicate that the number 12 refers to employees, enter **12** into a cell and then type **Employees** into the cell to the right.

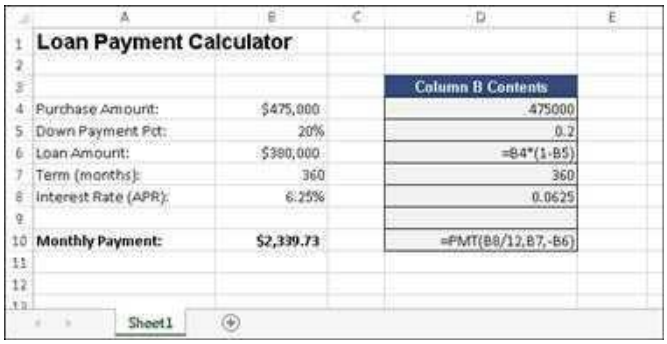
Formulas

Formulas are what make a spreadsheet a spreadsheet. Excel enables you to enter flexible formulas that use the values (or even text) in cells to calculate a result. When you enter a formula into a cell, the formula's result appears in the cell. If you change any of the cells used by a formula, the formula recalculates and shows the new result.

Formulas can be simple mathematical expressions, or they can use some of the powerful functions that are built into Excel. Figure 2.1 shows an Excel worksheet set up to calculate a monthly loan payment. The worksheet contains values, text, and formulas. The cells in column A contain text. Column B contains four values and two formulas. The formulas are in cells B6 and B10. Column D, for reference, shows the actual contents of the cells in column B.

FIGURE 2.1

You can use values, text, and formulas to create useful Excel worksheets.



On the Web

This workbook, named `loan payment calculator.xlsx`, is available on this book's website.

You can find out much more about formulas in Part II.

Entering Text and Values into Your Worksheets

To enter a numeric value into a cell, move the cell pointer to the appropriate cell, type the value, and then press Enter or one of the navigation keys. The value is displayed in the cell and also appears in the Formula bar when the cell is selected. You can include decimal points and currency symbols when entering values, along with plus signs, minus signs, and commas (to separate thousands). If you precede a value with a minus sign or enclose it in parentheses, Excel considers it to be a negative number.

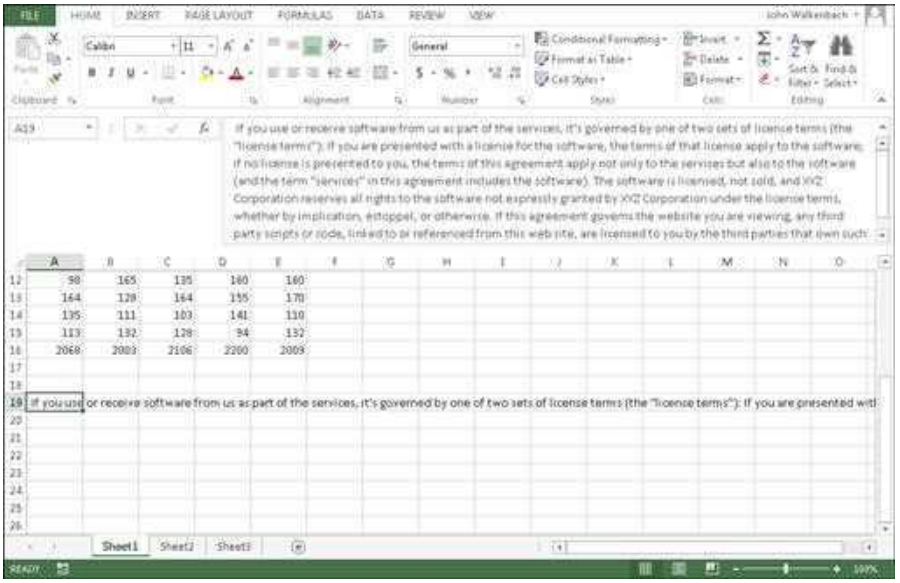
Entering text into a cell is just as easy as entering a value: Activate the cell, type the text, and then press Enter or a navigation key. A cell can contain a maximum of about 32,000 characters — more than enough to hold a typical chapter in this book. Even though a cell can hold a huge number of characters, you'll find that it's not possible to actually display all these characters.

Tip

If you type an exceptionally long text entry into a cell, the Formula bar may not show all the text. To display more of the text in the Formula bar, click the bottom of the Formula bar and drag down to increase the height (see Figure 2.2). Also useful is the Ctrl+Shift+U keyboard shortcut. Pressing this key combination toggles the height of the formula bar to show either one row, or the previous size.

FIGURE 2.2

The Formula bar, expanded in height to show more information in the cell.



What happens when you enter text that's longer than its column's current width? If the cells to the immediate right are blank, Excel displays the text in its entirety, appearing to spill the entry into adjacent cells. If an adjacent cell isn't blank, Excel displays as much of the text as possible. (The full text is contained in the cell; it's just not displayed.) If you need to display a long text string in a cell that's adjacent to a nonblank cell, you have a few choices:

- Edit your text to make it shorter.
- Increase the width of the column (drag the border in the column letter display).
- Use a smaller font.
- Wrap the text within the cell so that it occupies more than one line. Choose Home➪Alignment➪Wrap Text to toggle wrapping on and off for the selected cell or range.

Entering Dates and Times into Your Worksheets

Excel treats dates and times as special types of numeric values. Dates and times are values that are formatted so that they *appear* as dates or times. If you work with dates and times, you need to understand Excel's date and time system.

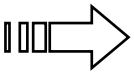
Entering date values

Excel handles dates by using a serial number system. The earliest date that Excel understands is January 1, 1900. This date has a serial number of 1. January 2, 1900, has a serial number of 2, and so on. This system makes it easy to deal with dates in formulas. For example, you can enter a formula to calculate the number of days between two dates.

Most of the time, you don't have to be concerned with Excel's serial number date system. You can simply enter a date in a common date format, and Excel takes care of the details behind the scenes. For example, if you need to enter June 1, 2013, you can enter the date by typing **June 1, 2013** (or use any of several different date formats). Excel interprets your entry and stores the value 41426, which is the serial number for that date.

NOTE

The date examples in this book use the U.S. English system. Your Windows regional settings will affect how Excel interprets a date you've entered. For example, depending on your regional date settings, June 1, 2013 may be interpreted as text rather than a date. In such a case, you need to enter the date in a format that corresponds to your regional date settings — for example, 1 June, 2013.

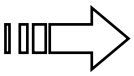


For more information about working with dates, see Chapter 12.

Entering time values

When you work with times, you extend Excel's date serial number system to include decimals. In other words, Excel works with times by using fractional days. For example, the date serial number for June 1, 2013, is 41426. Noon on June 1, 2013 (halfway through the day), is represented internally as 41426.5 because the time fraction is added to the date serial number to get the full date/time serial number.

Again, you normally don't have to be concerned with these serial numbers or fractional serial numbers for times. Just enter the time into a cell in a recognized format. In this case, type **June 1, 2013 12:00**.



See Chapter 12 for more information about working with time values.

Modifying Cell Contents

After you enter a value or text into a cell, you can modify it in several ways:

- Delete the cell's contents.
- Replace the cell's contents with something else.
- Edit the cell's contents.

> **NOTE**
> You can also modify a cell by changing its formatting. However, formatting a cell affects only a cell's appearance. Formatting doesn't affect the cell's contents. Later sections in this chapter cover formatting.

Deleting the contents of a cell

To delete the contents of a cell, just click the cell and press the Delete key. To delete more than one cell, select all the cells that you want to delete and then press Delete. Pressing Delete removes the cell's contents but doesn't remove any formatting (such as bold, italic, or a different number format) that you may have applied to the cell.

For more control over what gets deleted, you can choose Home➪Editing➪Clear. This command's drop-down list has five choices:

- **Clear All:** Clears everything from the cell — its contents, its formatting, and its cell comment (if it has one).
- **Clear Formats:** Clears only the formatting and leaves the value, text, or formula.
- **Clear Contents:** Clears only the cell's contents and leaves the formatting.
- **Clear Comments:** Clears the comment (if one exists) attached to the cell.
- **Clear Hyperlinks:** Removes hyperlinks contained in the selected cells. The text remains, but the cell no longer functions as a clickable hyperlink.

NOTE
Clearing formats doesn't clear the background colors in a range that has been designated as a table unless you've replaced the table style background colors manually.

Replacing the contents of a cell

To replace the contents of a cell with something else, just activate the cell and type your new entry, which replaces the previous contents. Any formatting applied to the cell remains in place and is applied to the new content.

You can also replace cell contents by dragging and dropping or by pasting data from the Clipboard. In both cases, the cell formatting will be replaced by the format of the new data. To avoid pasting formatting, choose Home➪Clipboard➪Paste➪Values (V), or Hom e➪Clipboard➪Paste➪Formulas (F).

Editing the contents of a cell

If the cell contains only a few characters, replacing its contents by typing new data usually is easiest. However, if the cell contains lengthy text or a complex formula and you need to make only a slight modification, you probably want to edit the cell rather than re-enter information.

When you want to edit the contents of a cell, you can use one of the following ways to enter cell-edit mode:

- **Double-click the cell** to edit the cell contents directly in the cell.
- **Select the cell and press F2** to edit the cell contents directly in the cell.
- **Select the cell that you want to edit and then click inside the Formula bar** to edit the cell contents in the Formula bar.

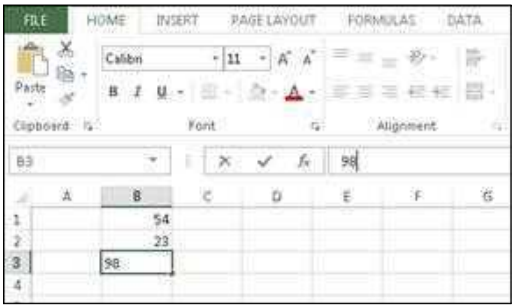
You can use whichever method you prefer. Some people find editing directly in the cell easier; others prefer to use the Formula bar to edit a cell.

NOTE
The Advanced tab of the Excel Options dialog box contains a section called Editing Options. These settings affect how editing works. (To access this dialog box, choose File➪Options.) If the Allow Editing Directly in Cells option isn't enabled, you can't edit a cell by double-clicking. In addition, pressing F2 allows you to edit the cell in the Formula bar (not directly in the cell).

All these methods cause Excel to go into *edit mode.* (The word *Edit* appears at the left side of the status bar at the bottom of the screen.) When Excel is in edit mode, the Formula bar enables two icons: Cancel (the X) and Enter (the check mark). Figure 2.3 shows these two icons. Clicking the Cancel icon cancels editing without changing the cell's contents. (Pressing Esc has the same effect.) Clicking the Enter icon completes the editing and enters the modified contents into the cell. (Pressing Enter has the same effect.)

FIGURE 2.3

While editing a cell, the Formula bar enables two new icons: Cancel (X) and Enter (check mark).



When you begin editing a cell, the insertion point appears as a vertical bar, and you can perform the following tasks:

- **Add new characters at the location of the insertion point.** Move the insertion point by
  - Using the navigation keys to move within the cell
  - Pressing Home to move the insertion point to the beginning of the cell
  - Pressing End to move the insertion point to the end of the cell
- **Select multiple characters.** Press Shift while you use the navigation keys.
- **Select characters while you're editing a cell.** Use the mouse. Just click and drag the mouse pointer over the characters that you want to select.

Learning some handy data-entry techniques

You can simplify the process of entering information into your Excel worksheets and make your work go quite a bit faster by using a number of useful tricks, described in the following sections.

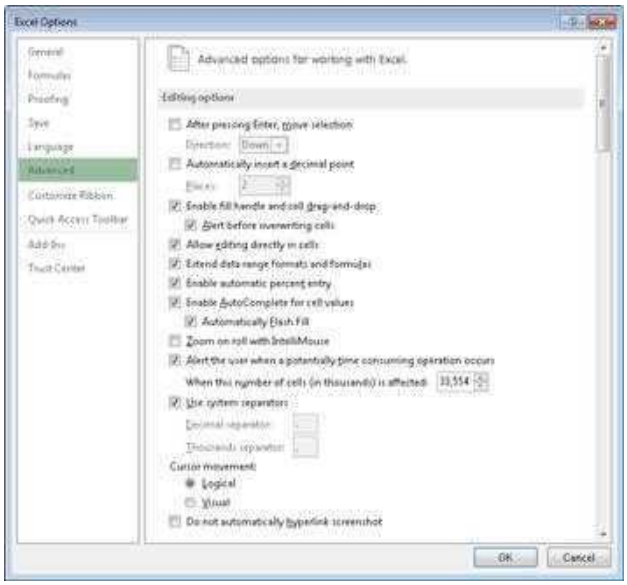
Automatically moving the cell pointer after entering data

By default, Excel automatically moves the cell pointer to the next cell down when you press the Enter key after entering data into a cell. To change this setting, choose File➪Options and click the Advanced tab (see Figure 2.4). The check box that controls this behavior is labeled After Pressing Enter, Move Selection. If you enable this option, you can choose the direction in which the cell pointer moves (down, left, up, or right).

Your choice is completely a matter of personal preference. I prefer to keep this option turned off. When entering data, I use the navigation keys rather than the Enter key (see the next section).

FIGURE 2.4

You can use the Advanced tab in Excel Options to select a number of helpful input option settings.



Using navigation keys instead of pressing Enter

Instead of pressing the Enter key when you're finished making a cell entry, you also can use any of the navigation keys to complete the entry. Not surprisingly, these navigation keys send you in the direction that you indicate. For example, if you're entering data in a row, press the right-arrow (→) key rather than Enter. The other arrow keys work as expected, and you can even use PgUp and PgDn.

Selecting a range of input cells before entering data

When a range of cells is selected, Excel automatically moves the cell pointer to the next cell in the range when you press Enter. If the selection consists of multiple rows, Excel moves down the column; when it reaches the end of the selection in the column, it moves to the first selected cell in the next column.

To skip a cell, just press Enter without entering anything. To go backward, press Shift + Enter. If you prefer to enter the data by rows rather than by columns, press Tab rather than Enter. Excel continues to cycle through the selected range until you select a cell outside of the range.

Using Ctrl+Enter to place information into multiple cells simultaneously

If you need to enter the same data into multiple cells, Excel offers a handy shortcut. Select all the cells that you want to contain the data, enter the value, text, or formula, and then press Ctrl + Enter. The same information is inserted into each cell in the selection.

Entering decimal points automatically

If you need to enter lots of numbers with a fixed number of decimal places, Excel has a useful tool that works like some old adding machines. Access the Excel Options dialog box and click the Advanced tab. Select the Automatically Insert a Decimal Point check box and make sure that the Places box is set for the correct number of decimal places for the data you need to enter.

When this option is set, Excel supplies the decimal points for you automatically. For example, if you specify two decimal places, entering **12345** into a cell is interpreted as 123.45. To restore things to normal, just clear the Automatically Insert a Decimal Point check box in the Excel Options dialog box. Changing this setting doesn't affect any values that you already entered.

CAUTION

The fixed decimal places option is a global setting and applies to all workbooks (not just the active workbook). If you forget that this option is turned on, you can easily end up entering incorrect values — or cause some major confusion if someone else uses your computer.

Using AutoFill to enter a series of values

The Excel AutoFill feature makes inserting a series of values or text items in a range of cells easy. It uses the AutoFill handle (the small box at the lower right of the active cell). You can drag the AutoFill handle to copy the cell or automatically complete a series.

Figure 2.5 shows an example. I entered **1** into cell A1 and **3** into cell A2. Then I selected both cells and dragged down the fill handle to create a linear series of odd numbers. The figure also shows an icon that, when clicked, displays some additional AutoFill options.

TIP

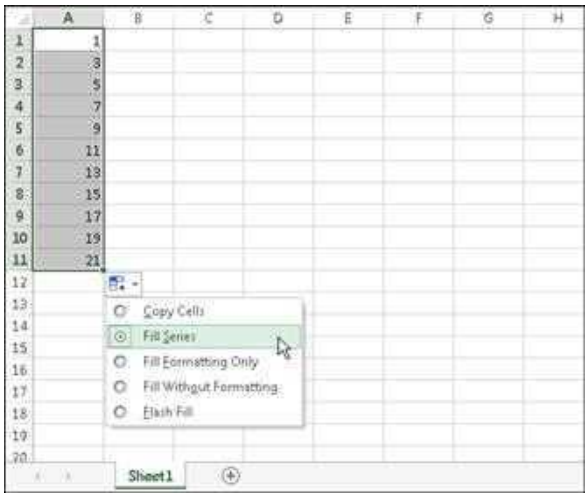
If you drag the AutoFill handle while you press and hold the right mouse button, Excel displays a shortcut menu with additional fill options.

Using AutoComplete to automate data entry

The Excel AutoComplete feature makes entering the same text into multiple cells easy. With AutoComplete, you type the first few letters of a text entry into a cell, and Excel automatically completes the entry based on other entries that you already made in the column. Besides reducing typing, this feature also ensures that your entries are spelled correctly and are consistent.

FIGURE 2.5

This series was created by using AutoFill.



Here's how it works: Suppose that you're entering product information in a column. One of your products is named Widgets. The first time that you enter **Widgets** into a cell, Excel remembers it. Later, when you start typing **Widgets** in that same column, Excel recognizes it by the first few letters and finishes typing it for you. Just press Enter, and you're done. To override the suggestion, just keep typing.

AutoComplete also changes the case of letters for you automatically. If you start entering **widgets** (with a lowercase *w*) in the second entry, Excel makes the *w* uppercase to be consistent with the previous entry in the column.

TIP

You also can access a mouse-oriented version of AutoComplete by right-clicking the cell and choosing Pick from Drop-Down List from the shortcut menu. Excel then displays a drop-down box that has all the text entries in the current column, and you just click the one that you want.

Keep in mind that AutoComplete works only within a contiguous column of cells. If you have a blank row, for example, AutoComplete identifies only the cell contents below the blank row.

If you find the AutoComplete feature distracting, you can turn it off by using the Advanced tab of the Excel Options dialog box. Remove the check mark from the check box labeled Enable AutoComplete for Cell Values.

Forcing text to appear on a new line within a cell

If you have lengthy text in a cell, you can force Excel to display it in multiple lines within the cell: Press Alt + Enter to start a new line in a cell.

When you add a line break, Excel automatically changes the cell's format to Wrap Text. But unlike normal text wrap, your manual line break forces Excel to break the text at a specific place within the text, which gives you more precise control over the appearance of the text than if you rely on automatic text wrapping.

TIP

To remove a manual line break, edit the cell and press Delete when the insertion point is located at the end of the line that contains the manual line break. You won't see any symbol to indicate the position of the manual line break, but the text that follows it will move up when the line break is deleted.

Using AutoCorrect for shorthand data entry

You can use the AutoCorrect feature to create shortcuts for commonly used words or phrases. For example, if you work for a company named Consolidated Data Processing Corporation, you can create an AutoCorrect entry for an abbreviation, such as *cdp*. Then, whenever you type **cdp**, Excel automatically changes it to Consolidated Data Processing Corporation.

Excel includes quite a few built-in AutoCorrect terms (mostly to correct common misspellings), and you can add your own. To set up your custom AutoCorrect entries, access the Excel Options dialog box (choose File➪Options) and click the Proofing tab. Then click the AutoCorrect Options button to display the AutoCorrect dialog box. In the dialog box, click the AutoCorrect tab, check the option labeled Replace Text as You Type, and then enter your custom entries. (Figure 2.6 shows an example.) You can set up as many custom entries as you like. Just be careful not to use an abbreviation that might appear normally in your text.

TIP

Excel shares your AutoCorrect list with other Microsoft Office applications. For example, any AutoCorrect entries you created in Word also work in Excel.

Entering numbers with fractions

To enter a fractional value into a cell, leave a space between the whole number and the fraction. For example, to enter 6⅞, enter **6 7/8** and then press Enter. When you select the cell, 6.875 appears in the Formula bar, and the cell entry appears as a fraction. If you have a fraction only (for example, ⅛), you must enter a zero first, like this — **0 1/8** — or Excel will likely assume that you're entering a date. When you select the cell and look at the Formula bar, you see 0.125. In the cell, you see ⅛.

FIGURE 2.6

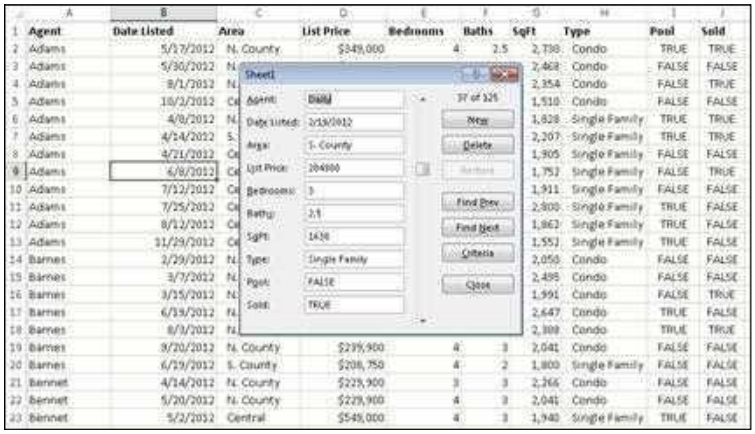
AutoCorrect allows you to create shorthand abbreviations for text you enter often.

Using a form for data entry

Many people use Excel to manage lists in which the information is arranged in rows. Excel offers a simple way to work with this type of data through the use of a data entry form that Excel can create automatically. This data form works with either a normal range of data, or with a range that has been designated as a table (choose Insert➪Tables➪Table). Figure 2.7 shows an example.

FIGURE 2.7

Excel's built-in data form can simplify many data-entry tasks.



Unfortunately, the command to access the data form is not on the Ribbon. To use the data form, you must add it to your Quick Access toolbar or add it to the Ribbon. The following instructions describe how to add this command to your Quick Access toolbar:

1. **Right-click the Quick Access toolbar and choose Customize Quick Access Toolbar.** The Quick Access Toolbar panel of the Excel Options dialog box appears.
2. **In the Choose Commands From drop-down list, choose Commands Not in the Ribbon.**
3. **In the list box on the left, select Form.**
4. **Click the Add button to add the selected command to your Quick Access toolbar.**
5. **Click OK to close the Excel Options dialog box.**

After performing these steps, a new icon appears on your Quick Access toolbar.

To use a data entry form, follow these steps:

1. **Arrange your data so that Excel can recognize it as a table by entering headings for the columns in the first row of your data entry range.**
2. **Select any cell in the table and click the Form button on your Quick Access toolbar.** Excel displays a dialog box customized to your data (refer to Figure 2.7).
3. **Fill in the information.** Press Tab to move between the text boxes. If a cell contains a formula, the formula result appears as text (not as an edit box). In other words, you can't modify formulas using the data entry form.
4. **When you complete the data form, click the New button.** Excel enters the data into a row in the worksheet and clears the dialog box for the next row of data.

You can also use the form to edit existing data.

Entering the current date or time into a cell

If you need to date-stamp or time-stamp your worksheet, Excel provides two shortcut keys that do this task for you:

- **Current date:** Ctrl + ; (semicolon)
- **Current time:** Ctrl + Shift + ; (semicolon)

The date and time are from the system time in your computer. If the date or time isn't correct in Excel, use the Windows Control Panel to make the adjustment.

Note

When you use either of these shortcuts to enter a date or time into your worksheet, Excel enters a static value into the worksheet. In other words, the date or time entered doesn't change when the worksheet is recalculated. In most cases, this setup is probably what you want, but you should be aware of this limitation. If you want the date or time display to update, use one of these formulas:

```
=TODAY()
=NOW()
```


Applying Number Formatting

Number formatting refers to the process of changing the appearance of values contained in cells. Excel provides a wide variety of number formatting options. In the following sections, you see how to use many of Excel's formatting options to quickly improve the appearance of your worksheets.

Tip

The formatting that you apply works with the selected cell or cells. Therefore, you need to select the cell (or range of cells) before applying the formatting. Also remember that changing the number format does not affect the underlying value. Number formatting affects only the appearance.

Values that you enter into cells normally are unformatted. In other words, they simply consist of a string of numerals. Typically, you want to format the numbers so that they're easier to read or are more consistent in terms of the number of decimal places shown.

Figure 2.8 shows a worksheet that has two columns of values. The first column consists of unformatted values. The cells in the second column are formatted to make the values easier to read. The third column describes the type of formatting applied.

On the Web

This workbook is available on this book's website. The file is named `number formatting.xlsx`.

Tip

If you move the cell pointer to a cell that has a formatted value, the Formula bar displays the value in its unformatted state because the formatting affects only how the value appears in the cell — not the actual value contained in the cell. There are a few exceptions, however. When you enter a date or a time, Excel always displays the value as a date or a time, even though it's stored internally as a value. Also, values that use the Percentage format display with a percent sign in the Formula bar.

FIGURE 2.8

Use numeric formatting to make it easier to understand what the values in the worksheet represent.

	A	B	C	D
1				
2	Unformatted	Formatted	Type	
3	1200	$1,200.00	Currency	
4	0.231	23.1%	Percentage	
5	40942	2/9/2012	Short Date	
6	40942	Friday, February 03, 2012	Long Date	
7	123439832	123,439,832.00	Accounting	
8	5559832	555-9832	Phone Number	
9	434988723	434-98-8723	Social Security Number	
10	0.552	1:14:53 PM	Time	
11	0.25	1/4	Fraction	
12	12332354090	1.23E+10	Scientific	
13				
14				
15				

Sheet1

Using automatic number formatting

Excel is smart enough to perform some formatting for you automatically. For example, if you enter **12.2%** into a cell, Excel knows that you want to use a percentage format and applies it for you automatically. If you use commas to separate thousands (such as 123,456), Excel applies comma formatting for you. And if you precede your value with a dollar sign, the cell is formatted for currency (assuming that the dollar sign is your system currency symbol).

TIP

A handy default feature in Excel makes entering percentage values into cells easier. If a cell is formatted to display as a percent, you can simply enter a normal value (for example, 12.5 for 12.5%). To enter values less than 1%, precede the value with a zero (for example, 0.52 for 0.52%). If this automatic percent entry feature isn't working (or if you prefer to enter the actual value for percents), access the Excel Options dialog box and click the Advanced tab. In the Editing Options section, locate the Enable Automatic Percent Entry check box and add or remove the check mark.

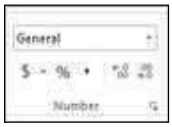
Formatting numbers by using the Ribbon

The Home➪Number group in the Ribbon contains controls that let you quickly apply common number formats (see Figure 2.9).

The Number Format drop-down list contains 11 common number formats. Additional options include an Accounting Number Format drop-down list (to select a currency format), a Percent Style button, and a Comma Style button. The group also contains a button to increase the number of decimal places, and another to decrease the number of decimal places.

FIGURE 2.9

You can find number formatting commands in the Number group of the Home tab.



When you select one of these controls, the active cell takes on the specified number format. You also can select a range of cells (or even an entire row or column) before clicking these buttons. If you select more than one cell, Excel applies the number format to all the selected cells.

Using shortcut keys to format numbers

Another way to apply number formatting is to use shortcut keys. Table 2.1 summarizes the shortcut-key combinations that you can use to apply common number formatting to the selected cells or range. Notice that these Ctrl + Shift characters are all located together, in the upper left of your keyboard.

TABLE 2.1 Number Formatting Keyboard Shortcuts

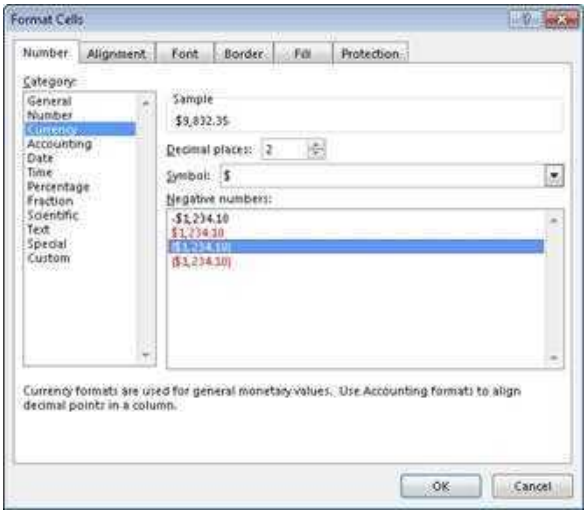
Key Combination	Formatting Applied
Ctrl+Shift+~	General number format (that is, unformatted values)
Ctrl+Shift+$	Currency format with two decimal places (negative numbers appear in parentheses)
Ctrl+Shift+%	Percentage format, with no decimal places
Ctrl+Shift+^	Scientific notation number format, with two decimal places
Ctrl+Shift+#	Date format with the day, month, and year
Ctrl+Shift+@	Time format with the hour, minute, and AM or PM
Ctrl+Shift+!	Two decimal places, thousands separator, and a hyphen for negative values

Formatting numbers using the Format Cells dialog box

In most cases, the number formats that are accessible from the Number group on the Home tab are just fine. Sometimes, however, you want more control over how your values appear. Excel offers a great deal of control over number formats through the use of the Format Cells dialog box, shown in Figure 2.10. For formatting numbers, you need to use the Number tab.

FIGURE 2.10

When you need more control over number formats, use the Number tab of the Format Cells dialog box.



You can bring up the Format Cells dialog box in several ways. Start by selecting the cell or cells that you want to format and then do one of the following:

- Choose Home➪Number and click the small dialog box launcher icon (in the lower-right corner of the Number group).
- Choose Home➪Number, click the Number Format drop-down list, and choose More Number Formats from the drop-down list.
- Right-click the cell and choose Format Cells from the shortcut menu.
- Press Ctrl + 1.

The Number tab of the Format Cells dialog box displays 12 categories of number formats. When you select a category from the list box, the right side of the tab changes to display options appropriate to that category.

The Number category has three options that you can control: the number of decimal places displayed, whether to use a thousands separator, and how you want negative numbers displayed. Notice that the Negative Numbers list box has four choices (two of which display negative values in red), and the choices change depending on the number of decimal places and whether you choose to separate thousands.

The top of the tab displays a sample of how the active cell will appear with the selected number format (visible only if a cell with a value is selected). After you make your choices, click OK to apply the number format to all the selected cells.

When Numbers Appear to Add Incorrectly

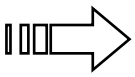
Applying a number format to a cell doesn't change the value — it only changes how the value appears in the worksheet. For example, if a cell contains 0.874543, you may format it to appear as 87%. If that cell is used in a formula, the formula uses the full value (0.874543), not the displayed value (87%).

In some situations, formatting may cause Excel to display calculation results that appear incorrect, such as when totaling numbers with decimal places. For example, if values are formatted to display two decimal places, you may not see the actual numbers used in the calculations. But because Excel uses the full precision of the values in its formula, the sum of the two values may appear to be incorrect.

Several solutions to this problem are available. You can format the cells to display more decimal places. You can use the ROUND function on individual numbers and specify the number of decimal places Excel should round to. Or you can instruct Excel to change the worksheet values to match their displayed format. To do so, access the Excel Options dialog box and click the Advanced tab. Check the Set Precision as Displayed check box (located in the When Calculating This Workbook section).

CAUTION

Selecting the Precision as Displayed option changes the numbers in your worksheets to permanently match their appearance onscreen. This setting applies to all sheets in the active workbook. Most of the time, this option is not what you want. Make sure that you understand the consequences of using the Set Precision as Displayed option.



Chapter 10 discusses ROUND and other built-in functions.

The following are the number format categories, along with some general comments:

- **General:** The default format; it displays numbers as integers, as decimals, or in scientific notation if the value is too wide to fit in the cell.
- **Number:** Enables you to specify the number of decimal places, whether to use a comma to separate thousands, and how to display negative numbers (with a minus sign, in red, in parentheses, or in red and in parentheses).
- **Currency:** Enables you to specify the number of decimal places, choose a currency symbol, and how to display negative numbers (with a minus sign, in red, in parentheses, or in red and in parentheses). This format always uses a comma to separate thousands.
- **Accounting:** Differs from the Currency format in that the currency symbols always align vertically.
- **Date:** Enables you to choose from several different date formats.
- **Time:** Enables you to choose from several different time formats.
- **Percentage:** Enables you to choose the number of decimal places and always displays a percent sign.
- **Fraction:** Enables you to choose from among nine fraction formats.

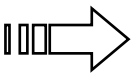
- **Scientific:** Displays numbers in exponential notation (with an E): 2.00E+05 = 200,000; 2.05E+05 = 205,000. You can choose the number of decimal places to display to the left of E. The second example can be read as "2.05 times 10 to the fifth."
- **Text:** When applied to a value, causes Excel to treat the value as text (even if it looks like a number). This feature is useful for such items as part numbers and credit card numbers.
- **Special:** Contains additional number formats. In the U.S. version of Excel, the additional number formats are Zip Code, Zip Code +4, Phone Number, and Social Security Number.
- **Custom:** Enables you to define custom number formats that aren't included in any other category.

TIP

If a cell displays a series of hash marks (such as ##########), it usually means that the column isn't wide enough to display the value in the number format that you selected. Either make the column wider or change the number format.

Adding your own custom number formats

Sometimes you may want to display numerical values in a format that isn't included in any of the other categories. If so, the answer is to create your own custom format.



Excel provides you with a great deal of flexibility in creating number formats — so much so that I've devoted an entire chapter (Chapter 25) to this topic.