

FastCourse
Microsoft[®]
Excel 2013
Level 1

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Berkeley, CA

FastCourse Microsoft Excel 2013: Level 1

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ITEM: 1-59136-503-1
ISBN-13: 978-1-59136-503-7

Manufactured in the United States of America.

GLOBUS 10 9 8 7 6 5 4 3 2 1

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Exploring Excel 2013

In this lesson, you will develop fundamental Excel skills. This lesson will provide you with a solid understanding of Excel so you are prepared to master advanced features later. You will learn how to navigate around a worksheet, enter various types of data, select cells, and save your work.

LEARNING OBJECTIVES

After studying this lesson, you will be able to:

- Explain how Excel can help your productivity
- Navigate the Excel window and issue commands
- Enter text and numbers in cells
- Distinguish between a text and a number entry in a cell
- Save, “save as,” and close workbooks

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 30 min
- Concepts Review: 15 min
- Total: 1 hr 45 min

CASE STUDY: BUILDING A BASIC WORKSHEET

Welcome to Green Clean, a janitorial product supplier and cleaning service contractor to small businesses, shopping plazas, and office buildings. Green Clean uses environmentally friendly cleaning products and incorporates sustainability practices wherever possible. In addition to providing green cleaning services, the company also sells its eco-friendly products directly to customers.

You need to create a list of hours that cleaning service employees worked during the weekend (Friday through Sunday). Your manager has asked you to compile the data from employee time sheets and report hours on a daily basis.

Presenting Excel 2013

Microsoft Office Excel is an electronic worksheet program that allows you to work with numbers and data much more efficiently than the pen-and-paper method. Excel is used in virtually all industries and many households for a variety of tasks such as:

- Creating and maintaining detailed budgets
- Performing “what-if” scenarios and break-even analyses
- Producing detailed charts to graphically display information
- Creating invoices or purchase orders
- Working with reports exported from small business accounting software programs such as Intuit’s QuickBooks®

As you can see, Excel is a powerful program that is used not only to work with numbers but also to maintain databases. In fact, if you have started a database in Excel, you can even import it into Microsoft Access (the Microsoft Office Suite database program). Many people use Excel to track their databases rather than Access because of its ease of use and because Access is not included in all of the Microsoft Office editions.

Starting Excel

The method you use to start Excel and other Office 2013 applications depends on whether you are using the Windows 7 or Windows 8 operating system.

Windows 7

- Click the Start  button, choose Microsoft Office 2013 from the All Programs menu, and then choose Excel 2013 or another Office 2013 application.

Windows 8



- Locate the tile labeled Excel 2013 on the Windows Start screen, and then click the tile to start Excel.




Start Excel

1. If necessary, start your computer.

Windows 7

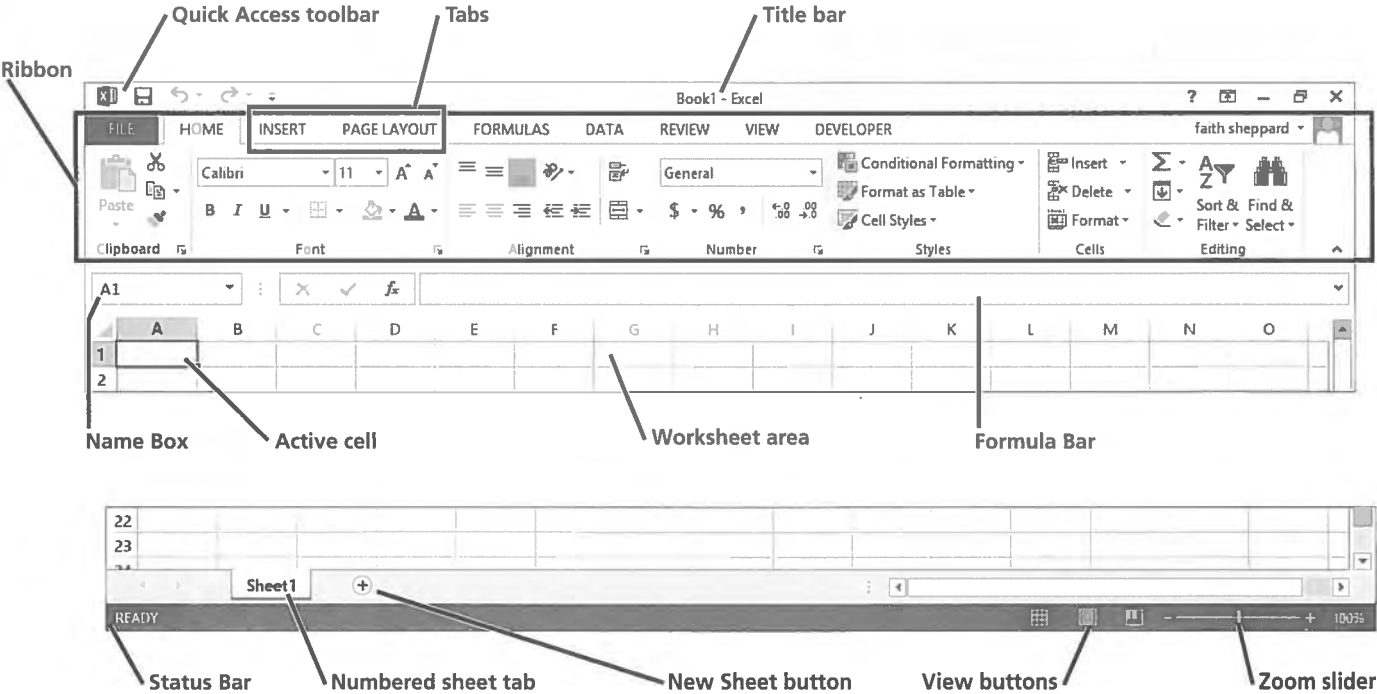
2. Click the Start  button at the left edge of the taskbar and choose **All Programs**.
3. Choose **Microsoft Office 2013**, and then choose **Excel 2013** from the menu.
4. Make sure the Excel window is **maximized** .
5. Click the **Blank Workbook** template to open the Excel window.

Windows 8

2. Locate, and then click the **Excel 2013** tile.
3. Make sure the Excel window is **maximized** .
4. Click the **Blank Workbook** template to open the Excel window.

Exploring the Excel Program Window

When you start Excel, you will see a blank workbook displayed.



Using Worksheets and Workbooks

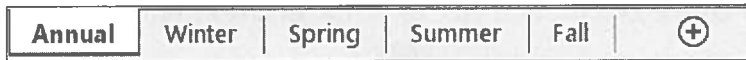
A workbook is a file containing one or more worksheets. Excel displays a blank workbook with a single worksheet when you start the program. Worksheets are represented by tabs at the bottom of the screen. One tab will be shown for each worksheet within the workbook. New sheets can be added by clicking the New Sheet button. You can enter text, numbers, formulas, charts, and other objects within these worksheets.

FROM THE RIBBON

File→New→Blank Workbook

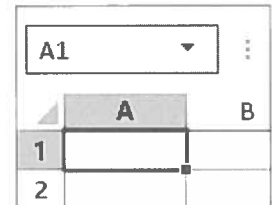
FROM THE KEYBOARD

Ctrl+N to open a new workbook



Here, worksheet tabs organize annual and seasonal data.








A worksheet has a grid structure with 1,048,576 horizontal rows and 16,384 vertical columns, though only a small number of rows and columns are visible at one time. The intersection of each row and column is referred to as a cell. A cell reference is composed of a column letter and row number. For example, A1 is the reference for the cell in the top-left corner of the worksheet, at the intersection of column A and row 1.



The cell reference A1 is displayed in the Name Box.

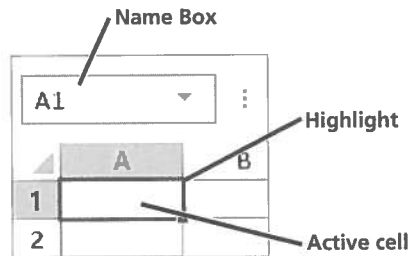
Mousing Around in Excel

The shape of the mouse pointer will change as you move it around the Excel window. The pointer shape determines what happens when you click or drag on a cell or object.

MOUSE POINTER SHAPE	FUNCTION
	Click to select a cell; drag to select multiple cells.
	Drag the fill handle (bottom-right corner of a cell) to fill adjacent cells with a series of numbers, dates, etc.
	Click to perform many tasks including issuing a command from the Ribbon or selecting a new tab.
	Drag selected cell contents to another location.
	Drag the resize pointers to change the height and/or width of objects such as pictures, shapes, or charts.
	Select a row or column.
	Click the I-beam pointer to enter text in locations such as the Formula Bar.

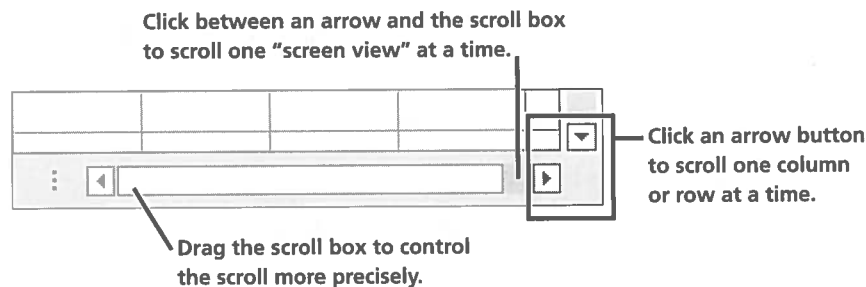
The Active Cell and the Highlight

When you click in a cell a thick border known as the *highlight* appears within that cell. The cell containing the highlight is known as the *active cell* and we often refer to that cell as being selected. The active cell is important because data or objects you enter are inserted in or near the active cell.



Scrolling Along in a Worksheet

The Excel window contains both vertical and horizontal scroll bars. They allow you to view other areas of the worksheet without changing the active cell. There are three ways to use the scroll bars to view other areas of your worksheet.



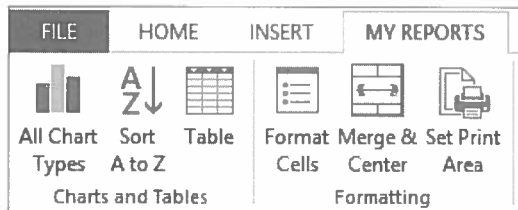
Navigating in a Worksheet

You can change the active cell by clicking in another cell, using the keyboard, or entering a cell reference in the Name Box. The vertical and horizontal scroll bars let you scroll through a worksheet; however, scrolling does not change the active cell. After scrolling, you need to change the active cell before you can enter data into that cell. The following table lists keystrokes that can be used to change the active cell.

KEYSTROKE(S)	HOW THE ACTIVE CELL CHANGES
→ ← ↑ ↓	One cell right, left, up, or down
[Home]	Beginning (column A) of current row
[Ctrl]+[Home]	Home cell, usually cell A1
[Ctrl]+[End]	Last cell in active part of worksheet
[Page Down]	Down one visible screen
[Page Up]	Up one visible screen
[Alt]+[Page Down]	One visible screen right
[Alt]+[Page Up]	One visible screen left
[Ctrl]+[G]	Displays Go To dialog box; enter cell reference and click OK

Customizing the Ribbon









The Customize Ribbon category in Excel Options allows you to rearrange the tab order, create a new tab, add a new group to an existing tab, add or remove commands, and export all customizations for use on other computers. The built-in tabs cannot be removed, but they may be hidden. An individual tab or all tabs and the Quick Access toolbar may be reset to their original default items.



A custom tab named My Reports added to the Ribbon with commands grouped according to the user's preference and workflow.

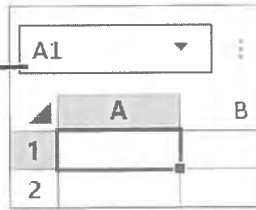
DEVELOP YOUR SKILLS EX01-D02

Navigate and Explore the Excel Window

1. Slide the mouse pointer and notice the thick **cross shape**  when it is in the worksheet area.
2. Click any cell and notice that the highlight appears around that cell.
3. Change the active cell five times by clicking in various cells.
4. Use the , , , and  keys to position the highlight in **cell F10**.
5. Tap **Home** and see that the highlight moves to **cell A10**.
6. Press **Ctrl** + **Home** to move the highlight to **cell A1**.
7. Tap **Page Down** three times.
8. Press and hold  until **cell A1** is the active cell.
9. Click the **Scroll Right**  button on the horizontal scroll bar until columns AA and AB are visible.
10. Click the **Scroll Down**  button on the vertical scroll bar until row 100 is visible.
11. Press **Ctrl** + **G** to display the Go To dialog box, type **g250** in the Reference box, and click **OK**.
12. Use the **Go To** command to move to three different cells.
13. Press **Ctrl** + **Home** to return to **cell A1**.

14. Follow these steps to navigate with the Name Box:

A Click in the **Name Box** at the left end of the Formula Bar.

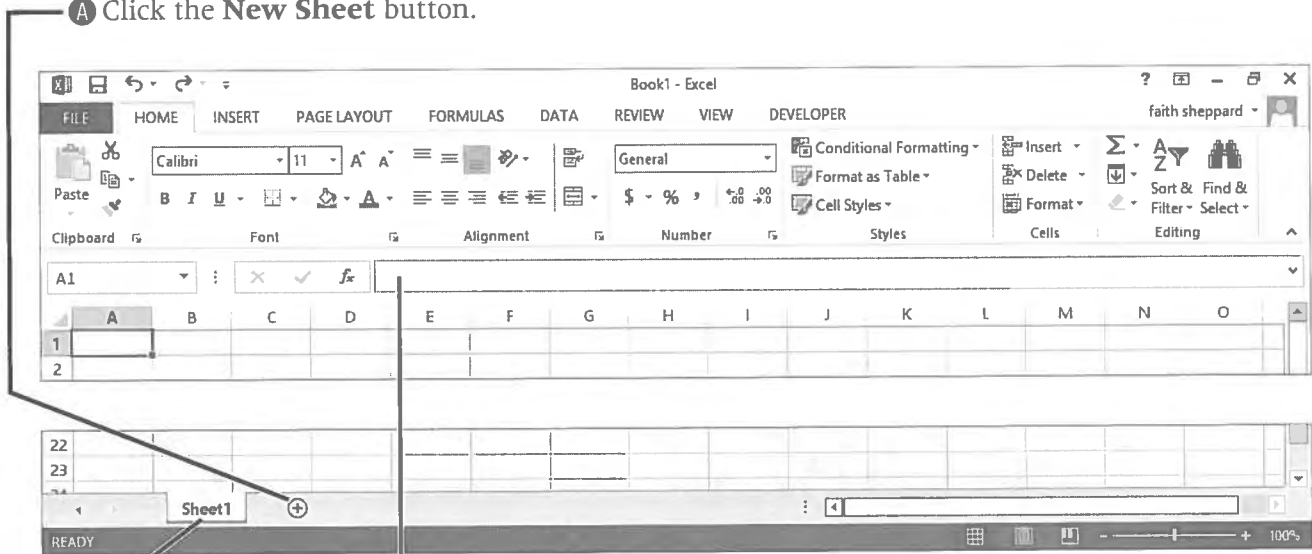


B Type **ab9** and tap **[Enter]**.

15. Press **[Ctrl] + [Home]** to return to **cell A1**.

16. Follow these steps to explore the Excel window:

A Click the **New Sheet** button.



B Click the **Sheet1** tab to make that sheet active.

C Place your mouse pointer over the **Formula Bar** and notice it changes to an I-beam shape.

D Click in the Formula Bar to position the flashing insertion point in the Formula Bar.

E Select any cell other than A1, the currently active cell, to exit the Formula Bar.

17. Select **cell A1**.

Entering Data in Excel

Within Excel, data is entered into the active cell. Text is used for descriptive headings, and entries that require alphabetic characters. Numbers can be entered directly or can be calculated using formulas. Excel recognizes the data you enter and decides whether the entry is text, a number, or a formula that performs a calculation.

Data Types

Entries are defined as one of two main classifications: constant values or formulas. Constant values can be text, numeric, or a combination of both, and they do not change when other worksheet information changes. Conversely, formula entries display the results of calculations, and a result can change when a value in another cell changes.

fx	1263	A constant value	fx	=SUM(C5:C8)	A formula
------	------	------------------	------	-------------	-----------

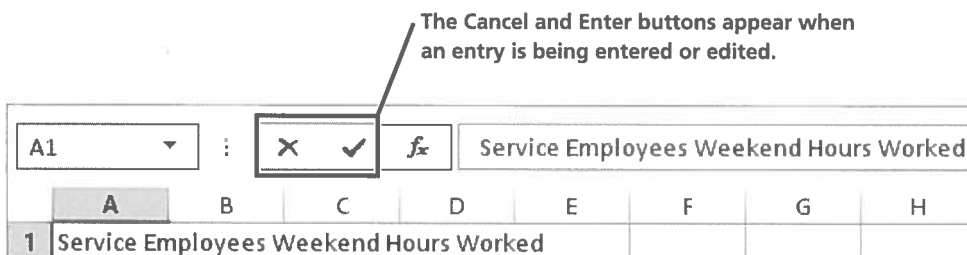
Completing Cell Entries

Text and numbers are entered by positioning the highlight in the desired cell, typing the desired text or number, and completing the entry. You can use **Enter**, **Tab**, or any of the arrow keys (**→**, **←**, **↑**, **↓**) to complete an entry. The method you use to complete the entry will determine where the active cell moves.

ENTRY COMPLETION METHOD	WHERE THE ACTIVE CELL WILL APPEAR
Enter	It will move down to the next cell.
Tab	It will move to the next cell to the right.
→ , ↑ , ↓ , ←	It will move to the next cell in the direction of the arrow key.
Esc	The entry will be deleted and the current cell will remain active.

The Enter and Cancel Buttons

The Enter and Cancel buttons appear on the Formula Bar whenever you enter or edit an entry. The Enter button completes the entry and keeps the highlight in the current cell. The Cancel button cancels the entry, as does the **Esc** key.



Deleting and Replacing Entries

You can delete an entire entry after it has been completed by clicking in the cell and tapping **Delete**. Likewise, you can replace an entry by clicking in the cell and typing a new entry.

Long Text Entries


Text entries often do not fit in a cell. These entries are known as long entries. Excel will either display the long entry over the adjacent cell (if the cell to the right of the long entry is empty), or Excel will shorten, or truncate, the display of the long entry (if the cell to the right of the long entry is in use.) In this latter instance, the entire long entry remains within the cell, but it is not fully visible. You can widen a column to accommodate a long entry.

	A	B	C	D	E
1	Service Employees Weekend Hours Worked				
2					





This is a long entry. The entire phrase is entered in cell A1, although it displays over the range A1:E1.

DEVELOP YOUR SKILLS EX01-D03

Enter Text

1. Make **cell A1** active by clicking the **mouse pointer**  in it.
2. Type **Service Employees Weekend Hours Worked**, and then tap **Enter**.
3. Click **cell A1** and note the appearance of the Formula Bar.



4. Tap  to make cell B1 active.
5. Look at the **Formula Bar** and notice that cell B1 is empty.
6. Click in **cell C3**.
7. Type **Friday** and tap  once.
8. Type **Wednesday** in **cell D3** and tap .
9. Type **Sunday** in **cell E3** and tap .
10. Type **Saturday** in **cell D3** and tap **Enter**.

Friday	Wednesday	Sunday
--------	-----------	--------

11. Enter the remaining text entries shown here.

	A	B	C	D	E
1	Service Employees Weekend Hours Worked				
2					
3	Alton Mall		Friday	Saturday	Sunday
4		Barnes			
5		Chau			
6		Lee			
7		Olsen			
8		Total Hrs			
9	Century Bank				
10		Garcia			
11		Kimura			
12		Tan			
13		Total Hrs			
14	Newport Medical				
15		Kowalski			
16		Silva			
17		Wilson			
18		Total Hrs			

Working with Numbers

Number entries can contain only the digits 0–9 and a few other characters. Excel initially right-aligns numbers in cells, although you can change this alignment. The following table lists characters that Excel accepts as part of a number entry.

VALID CHARACTERS IN NUMBER ENTRIES
The digits 0-9
The following characters: + - () , / \$ % . *

Number Formats

It isn't necessary to type commas, dollar signs, and other number formats when entering numbers. Instead, you can use Excel's formatting commands to add the desired number formats.

Decimals and Negative Numbers

You should always type a decimal point if the number you are entering requires one. Likewise, you should precede a negative number entry with a minus (–) sign or enclose it in parentheses ().

DEVELOP YOUR SKILLS EX01-D04

Enter Numbers

1. Position the highlight in **cell C4** and type **6**, but don't complete the entry.
2. Look at the Formula Bar and notice the **Cancel** and **Enter** buttons.
3. Click **Enter** to complete the entry.

	A	B	C	D	E
1	Service Employees Weekend Hours Worked				
2					
3	Alton Mall		Friday	Saturday	Sunday
4		Barnes	6	6	6
5		Chau	8	8	8
6		Lee	4	0	4
7		Olsen	4	3	0
8		Total Hrs			
9	Century Bank				
10		Garcia	3	5	0
11		Kimura	3	4	0
12		Tan	3	5	0
13		Total Hrs			
14	Newport Medical				
15		Kowalski	8	6	8
16		Silva	6	6	0
17		Wilson	5	2	5
18		Total Hrs			

4. Position the highlight in **cell C5** and type **8**, but don't complete the entry.
5. Click **Cancel** on the Formula Bar.
6. Type **8** again, and this time tap **[Esc]**.
7. Type **8** once again, and this time tap **[↓]**.
8. Enter the remaining numbers shown in the figure under **step 3**.

Understanding Save Concepts

One important lesson to learn is to save your workbooks every 10–15 minutes, in order to avoid losing data as a result of power outages and careless accidents. Workbooks are saved to file storage locations such as a USB drive, the Documents folder, a shared network drive, and websites on the Internet. When a worksheet is first saved, the Save As dialog box appears so that you can assign a name, and location on the computer, to your file. If the worksheet has already been saved and you choose the Save command, Excel replaces the previous version with the new edited version.

Issuing Commands from the Keyboard

While commands are always available on the ribbon, it can be more efficient to issue them from the keyboard. Try to use both the keyboard shortcuts that are highlighted throughout this text and the key tips that display when the **[Alt]** key is tapped.

FROM THE RIBBON

File→Save

FROM THE KEYBOARD

[Ctrl]+[S] to save

FROM THE RIBBON

File→Save As


FROM THE KEYBOARD

[Alt], [F], [A] or **[F12]** to save as

DEVELOP YOUR SKILLS EX01-D05

Save the Workbook

Before You Begin: Navigate to the student resource center to download the student exercise files for this book.

1. Click the **Save**  button on the Quick Access toolbar, choose **Computer**, and choose **Browse**.
2. Navigate to your file storage location.
3. Type **EX01-D05-WeekendHours- [FirstInitialLastName]** to replace the proposed name.
4. Click **Save** or tap **[Enter]**.
5. Tap **[Alt]**.
6. Tap **[F]**.
7. Tap **[A]**.
8. Tap **[B]**.
9. Tap **[Esc]** to cancel the dialog box without saving.
10. Tap **[ESC]** again to return to the active worksheet.

Closing Workbooks

The Close command is used to close an open workbook. When you close a workbook that has not been saved, Excel prompts you to save the changes. If you choose to save at the prompt and the workbook has previously been saved, Excel simply saves the changes and closes the workbook. If the workbook is new, Excel displays the Save As dialog box, allowing you to assign a name and file storage location to the workbook. Any other workbooks that are being used will remain open until you close them or exit Excel.

DEVELOP YOUR SKILLS EX01-D06

Close the Workbook

1. Choose **File**→**Close**.
2. Click the **Save** or **Yes** button if Excel asks you if you want to save the changes.
3. Click **Close** .

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.



2 Editing Worksheets

In this lesson, you will expand your basic skills in Excel. You will learn various methods of editing worksheets, including replacing entries, deleting entries, and using Undo and Redo. You will also work with AutoComplete and AutoFill. When you have finished this lesson, you will have developed the skills necessary to produce carefully edited and proofed worksheets.

CASE STUDY: CREATING A BASIC LIST IN EXCEL

As Green Clean grows, you find that organization is becoming more and more important. You decide to use Excel to create, manage, and maintain a list of employees.

LEARNING OBJECTIVES

After studying this lesson, you will be able to:

- Select, move, and copy cells and ranges
- Use Undo and Redo
- Clear cell contents, including formatting
- Complete cell entries automatically

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 15 min
- Concepts Review: 15 min
- Total: 1 hr 30 min

Opening Workbooks

The Open menu lets you navigate to any file storage location and open previously saved workbooks. Once a workbook is open, you can browse it, print it, and make editing changes. The organization and layout of the Open menu are similar to those of the Save As menu.

DEVELOP YOUR SKILLS EX02-D01

Open the Workbook

1. Start **Excel** and choose **Open Other Workbooks** to display the Open menu.
2. Click **Computer**, and then click the **Browse** button to display the Open dialog box.
3. Navigate to your file storage location (such as a USB flash drive) and double-click the **EX2013 Lesson 02** folder to open it.
4. Select **EX02-D01-Roster** and click **Open**.

Editing Entries

You can edit the active cell by clicking in the Formula Bar and making the desired changes. You can also double-click a cell and edit the contents right there. This technique is known as in-cell editing.

Replacing Entries

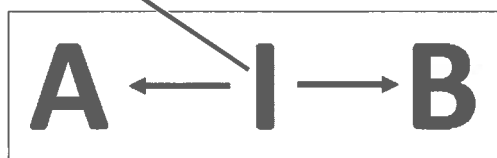
Editing an entry is efficient both for long entries and for complex formulas. If the entry requires little typing, however, it is usually easier to simply retype it. If you retype an entry, the new entry will replace the previous entry.

Deleting Characters

Use the **Delete** and **Backspace** keys to edit entries in the Formula Bar and within a cell. The **Delete** key removes the character to the right of the insertion point, while the **Backspace** key removes the character to the left of the insertion point.

This is the flashing insertion point.

Tapping **Backspace** will remove the "A."



Tapping **Delete** will remove the "B."


DEVELOP YOUR SKILLS EX02-D02

Edit Entries

1. Save your file as **EX02-D02-Roster- [FirstInitialLastName]**.
2. Click **cell A2** to select it.
3. Follow these steps to edit cell A2 using the Formula Bar:

A Click in the **Formula Bar** just to the right of the word *List*.



4. Click **cell D4**.
5. Type **Employment Date** and tap **[Enter]**.
6. Double-click **cell A8** (the cell with the name Isabella Riso).
7. Use the mouse or right arrow key **[→]** to position the flashing insertion point to the right of the last name, *Riso*.
8. Type **-Neff** and tap **[Enter]** to complete the change.
9. Click the **Save**  button to update the changes. Keep the file open.

Selecting Cells and Ranges

To edit a worksheet (move, copy, delete, or format) you must first select the cell(s). The most efficient way to select cells is with the mouse, although you can also use the keyboard. A group of adjacent cells is called a range.

Entire columns or rows may be selected by clicking or dragging the column headings (such as A, B, C) or row headings (such as 1, 2, 3).

FROM THE KEYBOARD

[Ctrl]+[A] to select all

[Ctrl]+[Spacebar] to select a column

[Shift]+[Spacebar] to select a row

Excel Ranges


Each cell has a reference. For example, A1 refers to the first cell in a worksheet, which is at the intersection of column A and row 1. Likewise, a range reference specifies the cells included within a range. The range reference includes the first and last cells in the range, separated by a colon (:). For example, the range A4:E4 includes cells A4, B4, C4, D4 and E4.

	A	B	C	D	E
1	Green Clean				
2	Management and Support Roster				
3					
4	Name	Phone	Position	Employment Date	On Call
5	Tommy Choi	619-555-3224	President		
6	Mary Wright	858-555-3098	VP, Sales and Marketing	5/22/2007	
7	Derek Navarro	619-555-3309	VP, Operations	3/30/2009	
8	Isabella Riso-Neff	858-555-0211	Risk Management Director	4/13/2009	
9	Kenneth Hazell	619-555-3224	Human Resources Director	7/17/2006	
10	D'Andre Adams	760-555-3876	Facilities Services Manager	12/7/2005	
11	Talos Bouras	858-555-1002	Sales Manager	5/10/2004	
12	Michael Chowdery	858-555-0021	Purchasing Manager	10/26/2009	
13	Ahn Tran	760-555-0728	Office Manager	6/26/2006	
14	Jenna Mann	951-555-0826	Administrative Assistant	3/15/2010	

The selected ranges are shaded. Cell A6 is the active cell, as it is not shaded, has an outline around it, and is displayed in both the Name Box and Formula Bar.

DEVELOP YOUR SKILLS EX02-D03

Make Selections

1. Save your file as **EX02-D03-Roster-[FirstInitialLastName]**.
2. Position the **mouse pointer**  over cell **A4**.
3. Press and hold down the left mouse button while dragging the mouse to the right until the **range A4:E4** is selected; release the mouse button.
4. Click once anywhere in the worksheet to deselect the cells.
5. Follow these steps to select two ranges:

A Select the **range A4:E4**.

B Hold down **[Ctrl]** while dragging to select the **range A6:D10**.

C Release **[Ctrl]** after the second range is selected.

6. Hold down **[Ctrl]** while you select any other range, and then release **[Ctrl]**.
7. Make sure you have released **[Ctrl]**, and then click once anywhere on the worksheet to deselect the ranges.
8. Follow these steps to select various rows and columns:

A Click the **column A** heading to select the entire column.

B Position the mouse pointer on the **column C** heading and drag right until **columns C–E** are selected.

	A	B	C	D	E
1	Green Clean				
2	Management and Support Roster				
3					
4	<u>Name</u>	<u>Phone</u>	<u>Position</u>	<u>Employment Date</u>	<u>On Call</u>
5	Tommy Choi	619-555-3224	President		
6	Mary Wright	858-555-3098	VP, Sales and Marketing	5/22/2007	
7	Derek Navarro	619-555-3309	VP, Operations	3/30/2009	
8	Isabella Riso-Neff	858-555-0211	Risk Management Director	4/13/2009	

C Click the **Select All** button to select the entire worksheet.

D Click the **row 1** heading to select the entire row.

E Drag the mouse pointer down over the **row 6–10** headings.

	A	B	C
1	Green Clean		
2	Management and Support Roster		
3			
4	<u>Name</u>	<u>Phone</u>	<u>Position</u>
5	Tommy Choi	619-555-3224	President
6	Mary Wright	858-555-3098	VP, Sales and Marketing
7	Derek Navarro	619-555-3309	VP, Operations
8	Isabella Riso-Neff	858-555-0211	Risk Management Director
9	Kenneth Hazell	619-555-3574	Human Resources Director
10	D'Andre Adams	760-555-3876	Facilities Services Manager

9. Follow these steps to select cells using keystrokes:

A Click cell **A4**.

B Hold down **[Shift]** and click cell **E16** to select the range **A4:E16**.

	A	B	C	D	E
4	Name	Phone	Position	Employment Date	On Call
5	Tommy Choi	619-555-3224	President		
6	Mary Wright	858-555-3098	VP, Sales and Marketing	5/22/2007	
7	Derek Navarro	619-555-3309	VP, Operations	3/30/2009	
8	Isabella Riso-Neff	858-555-0211	Risk Management Director	4/13/2009	
9	Kenneth Hazell	619-555-3224	Human Resources Director	7/17/2006	
10	D'Andre Adams	760-555-3876	Facilities Services Manager	12/7/2005	
11	Talos Bouras	858-555-1002	Sales Manager	5/10/2004	
12	Michael Chowdery	858-555-0021	Purchasing Manager	10/26/2009	
13	Ahn Tran	760-555-0728	Office Manager	6/26/2006	
14	Jenna Mann	951-555-0826	Administrative Assistant	3/15/2010	
15	Nicole Romero	858-555-4987	Payroll Assistant	5/25/2009	
16	Amy Wyatt	619-555-4016	Customer Service Rep	8/17/2009	

	A	B	C	D
12	Michael Chowdery	858-555-0021	Purchasing Manager	10/26/2009
13	Ahn Tran	760-555-0728	Office Manager	6/26/2006
14	Jenna Mann	951-555-0826	Administrative Assistant	3/15/2010
15	Nicole Romero	858-555-4987	Payroll Assistant	5/25/2009
16	Amy Wyatt	619-555-4016	Customer Service Rep	8/17/2009

C Click cell **A12**.

D Hold down **[Shift]** then tap **[→]** three times and **[↓]** four times.


10. Take a few moments to practice different selection techniques; then, **Save**  the file.

Using Cut, Copy, and Paste

You use the Cut, Copy, and Paste commands to move and copy cells. For example, use the Copy command to copy a range and the Paste command to paste it somewhere else on the same worksheet, another worksheet, or even another program. Similarly, use Cut to remove (delete) a range from one area and move it to another.

When an item is copied or cut, it is placed on the Office Clipboard. These items can then be pasted from the Clipboard, which can be opened by clicking the dialog box launcher on the Clipboard group of the Home tab.

FROM THE RIBBON

Home → Clipboard 
→ Copy

Home → Clipboard 
→ Cut

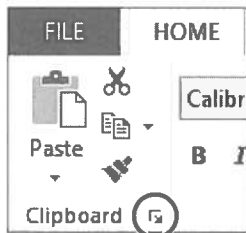
Home → Clipboard 
→ Paste

FROM THE KEYBOARD

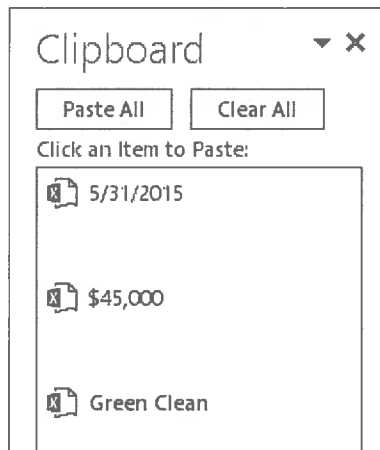
[Ctrl]+[C] to copy

[Ctrl]+[X] to cut

[Ctrl]+[V] to paste



A dialog box launcher

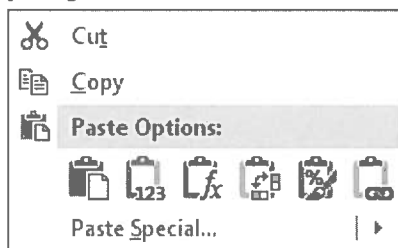


The Office Clipboard with several items available to paste.

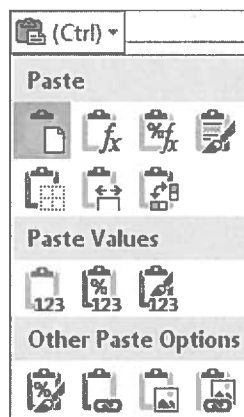
Paste Options

The Paste Options button displays at the lower-right corner of the destination cell(s) after a paste action. Its drop-down list provides options that let you modify the effect of the Paste command. The button disappears upon the next action you take.

The Shortcut menu that appears when you right-click a cell.



The Paste Options menu.

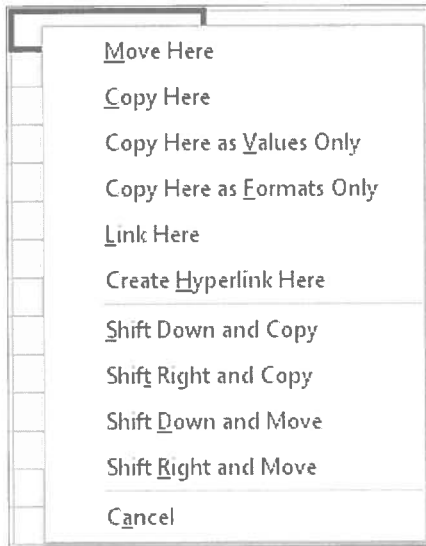


Moving and Copying Cells via Drag and Drop

Drag and drop produces the same results as Cut, Copy, and Paste. However, Drag and drop is preferable if the original location and new destination are both visible onscreen. When using drag and drop, the mouse pointer changes to a four-headed arrow as you point at the highlighted box surrounding the selected cell or range.



Moving and Copying Cells via Right-Dragging



Right-dragging is a variation of the drag-and-drop technique. With the right-drag method, the right mouse button is used to drag the selected cell or range. When the right mouse button is released, you can choose to move, copy, or link from the resulting menu (as shown here). This approach provides more control because there is no need to use **Ctrl** when copying. In addition, it's easy to cancel the command if you change your mind.

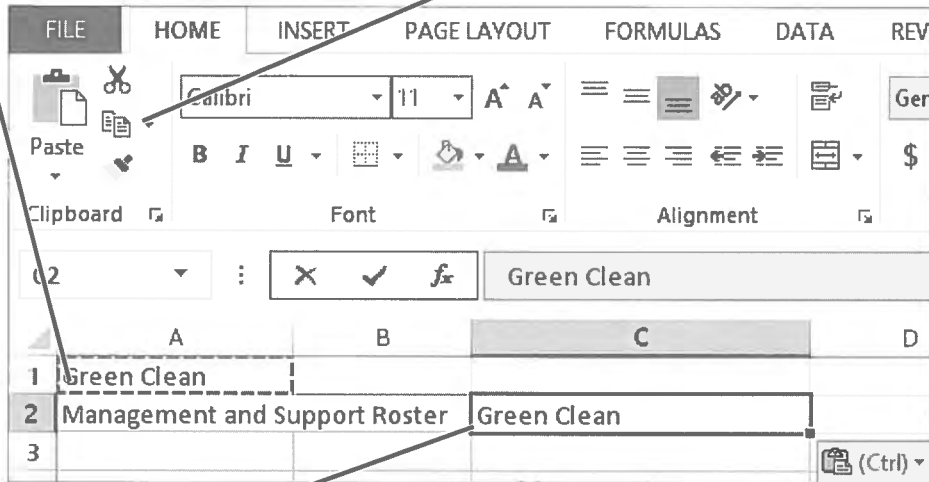
DEVELOP YOUR SKILLS EX02-D04

Move and Copy Selections

1. Save your file as **EX02-D04-Roster- [FirstInitialLastName]**.
2. Follow these steps to copy and paste a cell's contents:

A Click **cell A1**, which is the cell you wish to copy.

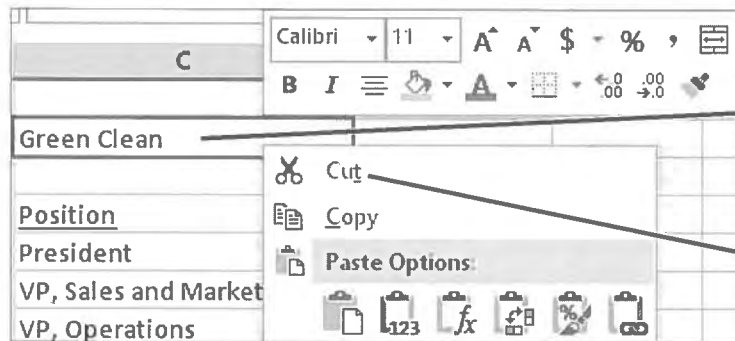
B Choose **Home**→**Clipboard**→**Copy**. Notice the flashing marquee that appears.



C Click **cell C2**, which should be empty at this point.

D Choose **Home**→**Clipboard**→**Paste**.

3. Follow these steps to cut and paste a cell's contents:



A Right-click **cell C2**.


B Choose **Cut** from the shortcut menu.

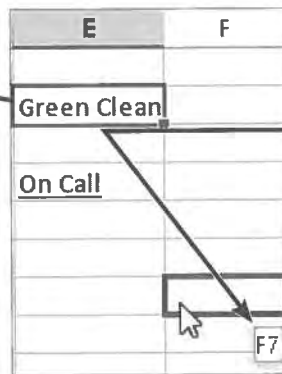


C Right-click **cell E2** and choose **Paste** from the shortcut menu.

4. Follow these steps to move the contents of cell E2 via the drag-and-drop method:


A Ensure that **cell E2** is selected.

B Place your mouse pointer over the border of the selected cell until you see the **move pointer** .



C While holding down the mouse button, drag to **cell F7**; release the mouse button.

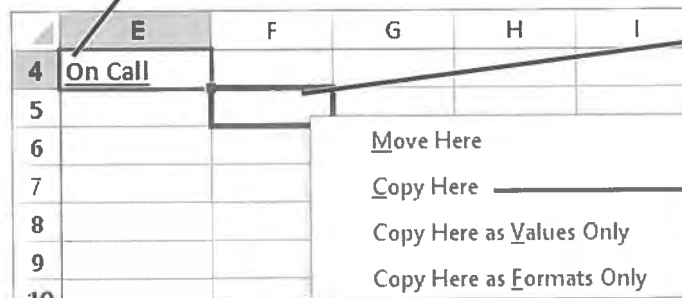
5. Follow these steps to copy a cell using the right-drag method:

A Click **cell E4** and place your mouse pointer over the border of the **cell E4** until you see the **move pointer** .

B Start dragging with the *right* mouse button. Keep the right mouse button held down.

C Drag down to **cell F5** and release the right mouse button.

D Choose **Copy Here** from the menu.



6. Save  the workbook.

Using Undo and Redo

The Undo button lets you reverse actions taken within a worksheet. Most actions can be undone, but those that cannot include printing and saving workbooks.

The Redo button reverses an Undo command. The Redo button will be visible on the Quick Access toolbar only after you have undone an action.

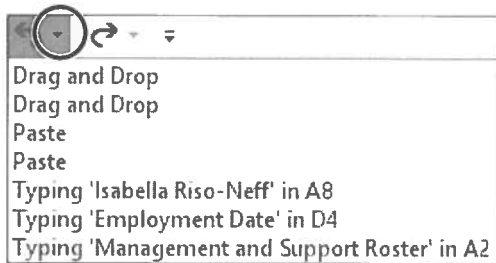
Undoing Multiple Actions

Clicking the arrow on the Undo button displays a list of actions that can be undone. You can undo multiple actions by dragging the mouse over the desired actions. You must undo actions in the order in which they appear on the drop-down list.

FROM THE KEYBOARD

Ctrl+**Z** to undo

Ctrl+**Y** to redo



When you click the arrow on the Undo button, you will see a list of previous actions, with the most recent at the top.


Limitations to Undoing

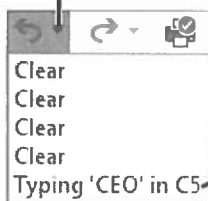
In Excel, there are times when the Undo command will not work, such as when you select any command from the File tab. When an action cannot be undone, Excel will change the Undo ScreenTip to “Can’t Undo.”

DEVELOP YOUR SKILLS EX02-D05

Undo Actions

1. Save your file as **EX02-D05-Roster-[FirstInitialLastName]**.
2. Replace the contents of cell **C5** with **CEO**.
3. Click the **row 4** heading to select the entire row.
4. Tap **Delete**.
5. Repeat **steps 3–4** for **rows 8, 12, and 14**.
6. Follow these steps to undo the last five commands:

A Click the **Undo menu**  button to display a list of recent actions.

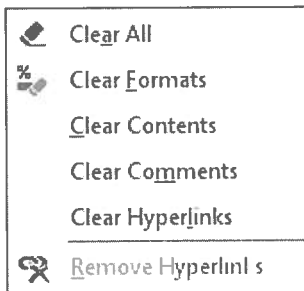


B Slide the mouse pointer down and choose this item.

7. Click **Redo**  once to restore the *CEO* title in cell C5, and then click **Undo**  to revert back to *President*.
8. Save the workbook.

Clearing Cell Contents and Formats

In Excel, you can format cells by changing font style, size, and/or color. You can also add enhancements such as bold, italics, and underline. In this lesson, you will learn how to clear existing formatting. Clicking the Clear button displays a menu (shown here) that lets you clear content, formats, and comments from cells.



FROM THE RIBBON




Home→Editing→
Clear→Clear All

FROM THE KEYBOARD

Delete to clear cell contents

DEVELOP YOUR SKILLS EX02-D06

Clear Cell Contents and Formatting

1. Save your file as **EX02-D06-Roster-[FirstInitialLastName]**.
2. Click **cell F5**.
3. Choose **Home→Editing→Clear**  and then choose **Clear Formats** from the menu.
4. Click **Undo**  on the Quick Access toolbar.
5. Ensure that **cell F5** is selected; then click **Clear**  and choose **Clear All**.
6. Type your name and tap **Enter**.
7. Use **Ctrl+Z** to undo the typing of your name.
8. Click **cell F7** and tap **Delete**.
9. Save the workbook.

Using Auto Features

Excel offers “auto” features that help you work more efficiently. AutoFill allows you to quickly fill a range of cells. AutoComplete makes it easy to enter long entries by typing an acronym or a series of characters, which are converted to the desired entry.

Working with AutoFill

AutoFill allows you to quickly extend a series, copy data, or copy a formula into adjacent cells by selecting cells and dragging the fill handle, which is the small black square that appears at the bottom-right corner of a selected cell or range. If the selected cell does not contain data that

AutoFill recognizes as a series, the data will be copied into the adjacent cells. A black cross appears when you position the mouse pointer on the fill handle. You can drag the fill handle to fill adjacent cells to accomplish the following tasks.

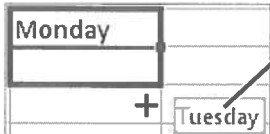
- **Copy an entry:** If the entry in the active cell is a number, formula, or text entry, the fill handle copies the entry to adjacent cells.
- **Expand a repeating series of numbers:** If you select two or more cells containing numbers, Excel assumes you want to expand a repeating series. For example, if you select two cells containing the numbers 5 and 10 and drag the fill handle, Excel will fill the adjacent cells with the pattern that you have established: 15, 20, 25, etc.
- **AutoFill of date entries:** If the active cell contains any type of date entry, Excel will determine the increment of the date value and fill in the adjacent cells. For example, if the current cell contains the entry May and you drag the fill handle, AutoFill will insert the entries June, July, August, etc. in the adjacent cells.

The following table and illustrations provide examples of series that AutoFill can extend.

SELECTED CELLS	EXTENDED SERIES
Mon	Tue, Wed, Thu
Monday	Tuesday, Wednesday, Thursday
Jan	Feb, Mar, Apr
January	February, March, April
Jan, Apr	Jul, Oct, Jan
1, 2	3, 4, 5, 6
100, 125	150, 175, 200
1/10/11	1/11/11, 1/12/11, 1/13/11
1/15/11, 2/15/11	3/15/11, 4/15/11, 5/15/11
1st Qtr	2nd Qtr, 3rd Qtr, 4th Qtr



The fill handle appears at the bottom-right corner of the active cell.



If the active cell contains a date entry such as Monday, AutoFill automatically fills the adjacent cell with the next item in the series (Tuesday).



The completed series with the AutoFill Options button displayed.

AutoComplete vs. AutoFill

AutoComplete is useful when you want the same entry repeated more than once in a column. AutoFill allows you to select a cell and fill in entries by completing a series or copying the source cell, whereas AutoComplete works within a cell as you type. If the first few characters you type

match another entry in the column, AutoComplete will offer to complete the entry for you. You accept the offer by tapping **Tab** or **Enter**; reject it by typing the remainder of the entry yourself.

16	Amy Wyatt	619-555-4016	Customer Service Rep
17	Brian Simpson	858-555-3718	customer Service Rep

Here, a "c" was typed and AutoComplete suggested completing the entry as *Customer Service Rep*. To accept this entry and move to the next cell, tap **Tab**.

DEVELOP YOUR SKILLS EX02-D07

Use AutoComplete and AutoFill

1. Save your file as **EX02-D07-Roster- [FirstInitialLastName]**.
2. Click cell **A17**, type **Brian Simpson**, and tap **Tab** to move to the next cell.
3. Type **858-555-3718** and tap **Tab**.
4. Type **c** and notice that Excel suggests *Customer Service Rep* as the entry. Tap **Tab** to accept the suggestion and move one cell to the right.
5. Type today's date and tap **Enter**.
6. Type **Leisa Malimali** and tap **Tab**.
7. Type **619-555-4017** and tap **Tab**.
8. Type **S** in cell **C18**.
9. Continue typing **ales Assistant** and tap **Tab**.
10. Hold **Ctrl** and tap **F**, and then tap **Enter** to display today's date.
11. Click cell **E6**.
12. Type **Monday** and click the **Enter** button.
13. Follow these steps to fill the adjacent cells:

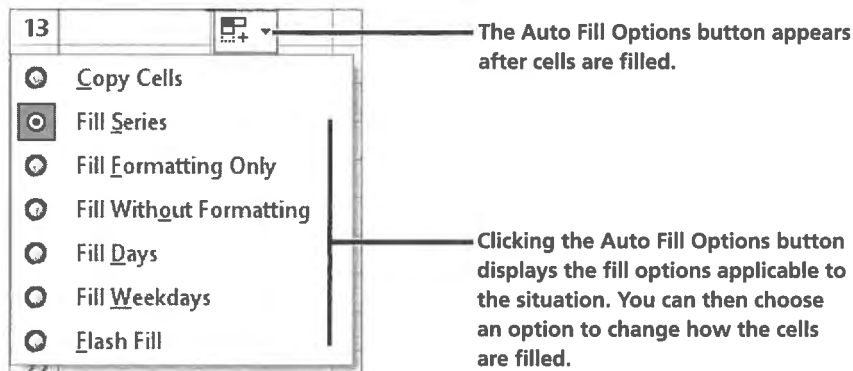
The screenshot shows a portion of an Excel spreadsheet. Column E contains the text 'On Call' in row 4, 'Monday' in row 6, and 'Sunday' in row 13. Column F is empty. A mouse cursor is positioned at the bottom-right corner of cell E6, with a black cross (fill handle) visible. A vertical arrow points from the fill handle down to cell E13, indicating the direction of the fill operation. A small '+' sign is visible at the bottom of the column header E.

- A Position the mouse pointer on the bottom-right corner of the active cell so the fill handle (black cross) appears.
- B Drag down over the next six cells. Notice the outlined rectangle and the ScreenTip.
- C Release the mouse button to fill the adjacent cells.

14. Select cell **A1** and then save your changes.

The Auto Fill Options Button

The Auto Fill Options button appears after you fill cells in a worksheet. A menu of fill options appears when you click the Auto Fill Options button.

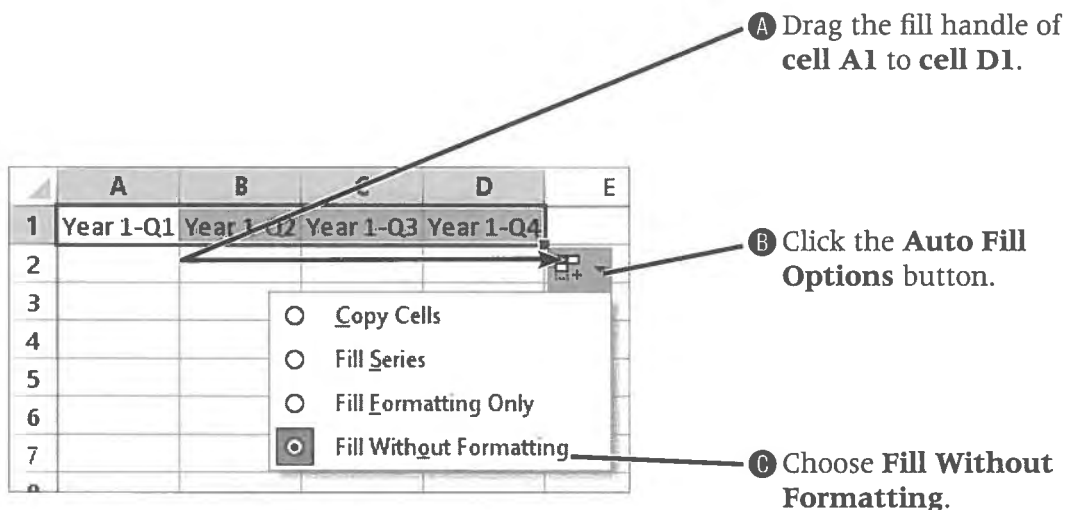


If you choose Fill Without Formatting, you can fill cells without copying the formatting from the original cell. Fill Formatting Only copies the formatting but not the contents from the source cells.

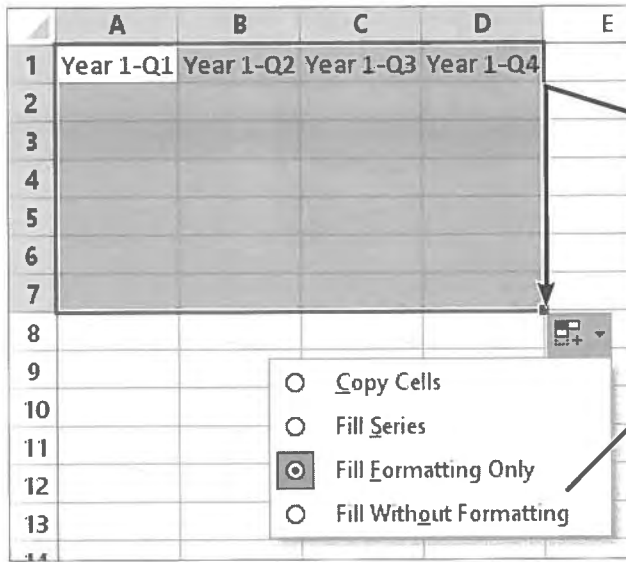
DEVELOP YOUR SKILLS EX02-D08

Use the Auto Fill Options Button

1. Save your file as **EX02-D08-Roster- [FirstInitialLastName]**.
2. Choose the **Sheet2** tab at the bottom of the window, and select **cell A1**.
3. Follow these steps to AutoFill cell contents:



4. Follow these steps to AutoFill formatting:



A Select the range A1:D1.

B Drag the fill handle in cell D1 down to cell D7.

C Click the Auto Fill Options button and choose Fill Formatting Only.

5. Enter numbers shown here in the range A2:D2.

6. Select the **Sheet1** tab of the workbook; save and close the file.

	A	B	C	D
1	Year 1-Q1	Year 1-Q2	Year 1-Q3	Year 1-Q4
2	222	333	444	555

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.

3 Changing the Appearance of Worksheets

Proper organization within an Excel workbook is, in many ways, as important as the content itself. Workbooks to be shared must be organized in a manner that allows users to quickly identify and understand the data. In this lesson, you will organize worksheet data by adjusting tab order, rows, columns, and cell alignment. You will also print worksheets. These topics will improve your ability to organize worksheets effectively.

LEARNING OBJECTIVES

After this lesson, you will be able to:

- Print worksheets
- Insert, delete, move, copy, and rename worksheets
- Modify column width and row height
- Insert, delete, hide, and unhide columns and rows
- Set the vertical alignment and rotate text

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 00 min
- Concepts Review: 15 min
- Total: 1 hr 15 min

CASE STUDY: CHANGING WORKBOOK TABS, COLUMNS, AND ROWS

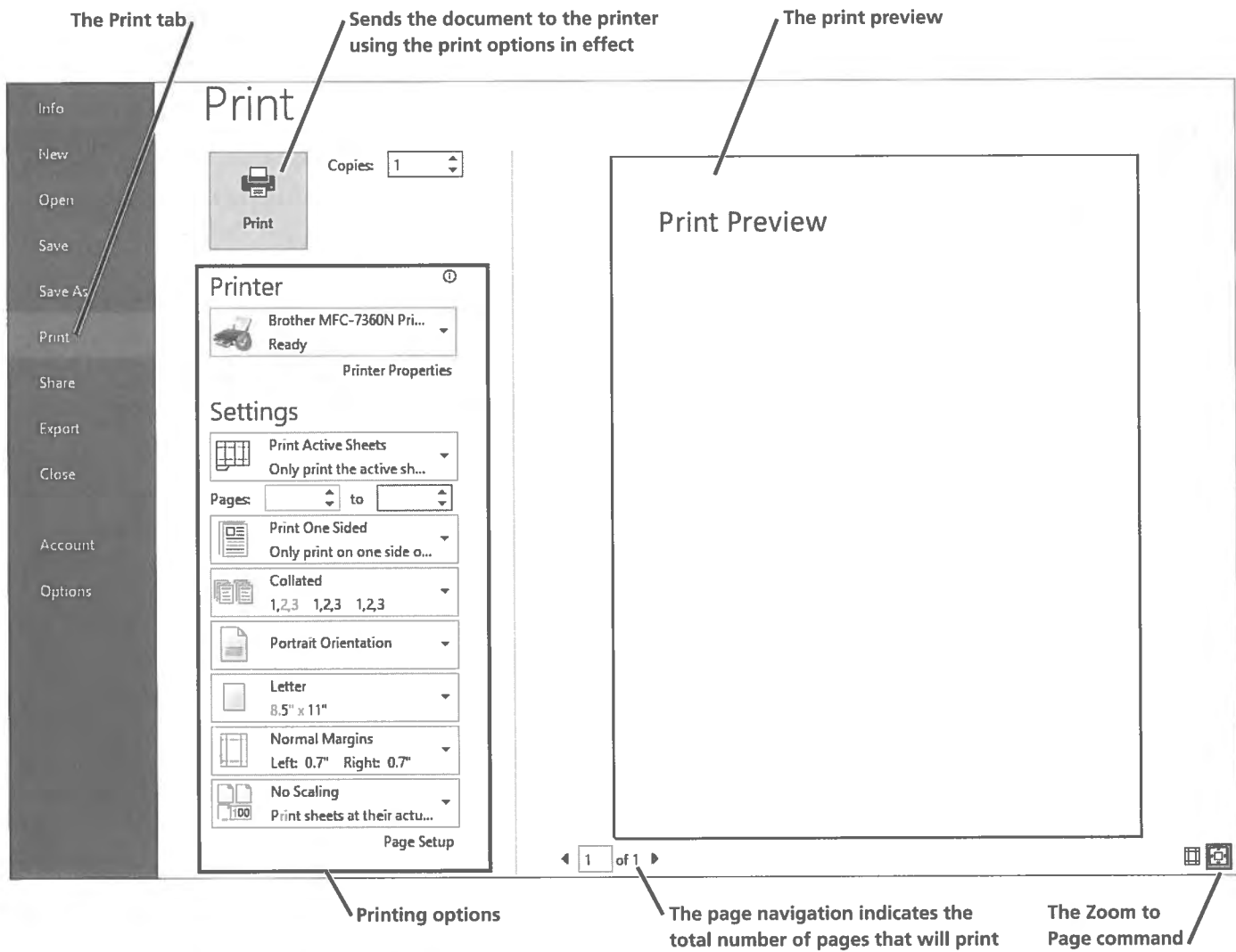
Safety is a chief concern at Green Clean. You will organize the structure of a workbook containing multiple worksheets. A worksheet will contain a list of learning objectives for the training topic. Test questions will be created for each objective to assess an employee's knowledge and performance regarding the objective. The worksheet will show the number of test questions in each category as well as the total and percentage score. You will work with entire rows and columns to organize the worksheet, vertically align and rotate headings, and print worksheets.

Printing Worksheets

Excel gives you several ways to print your work. These different options provide flexibility so that printing can be adapted to accommodate all workbooks.

Print Preview

Print Preview shows how a worksheet will look when printed. It's always wise to preview a large or complex worksheet before sending it to the printer. The Print tab in Backstage view displays a preview along with print options. You cannot edit worksheets in Backstage view.



Print the Worksheet

You can customize the Quick Access toolbar to include the Quick Print button, which sends the entire worksheet to the current printer using those print options currently in effect. You must use the Print tab in Backstage view to change printers, adjust the number of copies to be printed, print only selected cells, and more.



FROM THE RIBBON

File→Print

FROM THE KEYBOARD



Ctrl+P to print

Printing Selections

You may want to print only a single range of cells or multiple nonadjacent ranges within a worksheet. To print a selection, you must first select the desired cells. You then choose the Print Selection option in Backstage view before executing the Print command. Nonadjacent selections print on separate pages.

DEVELOP YOUR SKILLS EX03-D01

Preview and Print a Worksheet

1. Open **EX03-D01-SafetyTraining** from the **EX2013 Lesson 03** folder and save it as **EX03-D01-SafetyTraining- [FirstInitialLastName]**.
2. Click the **Sheet2** tab to make that sheet active.
3. Choose **File**→**Print**.
4. Click the **Zoom to Page**  button at the lower-right corner of the preview.
5. Use the scroll bar to view the zoomed-in view.
6. Click the **Zoom to Page**  button again to zoom out.
7. Review the options available at the left of the Print tab of Backstage view, and then click **Print** at the top-left corner.
8. Save the file.

Managing Worksheets

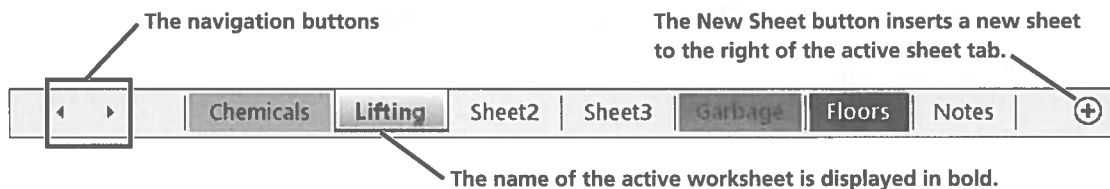
As you work with more complex workbooks, you will need to be comfortable with workbook management and worksheet navigation. You can organize a workbook by inserting, deleting, and rearranging worksheets. You also can rename worksheet tabs and apply colors to them. These options can be accessed via the Ribbon, by right-clicking, and by using keyboard controls.

FROM THE RIBBON

Home→Cells→Insert
menu ▼→Insert Sheet

FROM THE KEYBOARD

[Shift]+[F11] to insert a
worksheet



DEVELOP YOUR SKILLS EX03-D02

Modify Workbook Sheet Order

1. Save your file as **EX03-D02-SafetyTraining-[FirstInitialLastName]**.
2. Follow these steps to rename Sheet1:

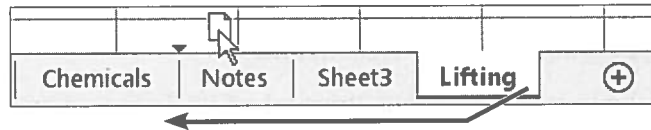
A Double-click the **Sheet1** tab at the bottom of the worksheet to select its name.



B Type **Chemicals** and tap **[Enter]**.

C Click the **New Sheet** button twice.

3. Rename **Sheet2** as **Lifting** and rename **Sheet1** as **Notes**.
4. Drag the **Lifting** sheet to the left of **Notes**.



5. Right-click **Sheet3** and choose **Delete**.
6. Click the **Lifting** sheet tab to select the sheet.
7. Hold down **[Shift]** and select the **Notes** tab.
8. Choose **Home**→**Cells**→**Insert menu** ▼→**Insert Sheet**.



9. Drag the **Lifting** sheet to the left of **Sheet5**.
10. Select the **Sheet4** tab, hold down **[Ctrl]** and select the **Sheet5** tab.
11. Choose **Home**→**Cells**→**Delete menu** ▼→**Delete Sheet**.
12. Save the file.

Copying and Hiding Worksheets

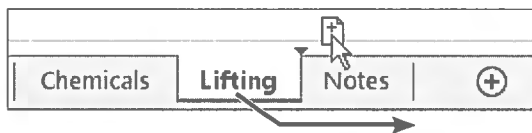
At times it can be useful to copy a worksheet. You may want to save original data while updating the worksheet copy, or you may create a worksheet structure that can be utilized repeatedly.

Hiding and unhiding worksheets can also be useful, particularly when the end user will review only some of the worksheets. In this instance there is no benefit to showing all worksheets, and therefore hiding the unnecessary ones can create a more user-friendly workbook.

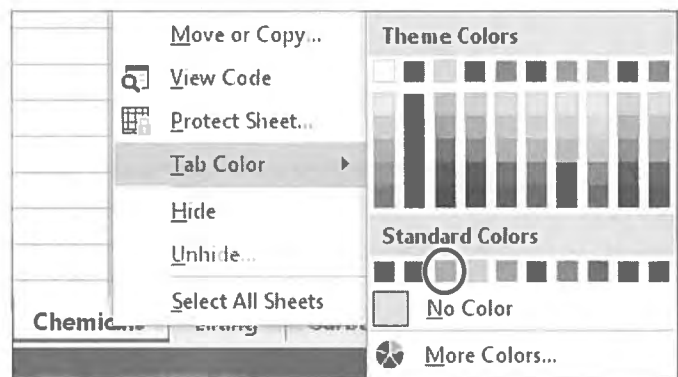
DEVELOP YOUR SKILLS EX03-D03

Modify Workbook Sheet Tabs

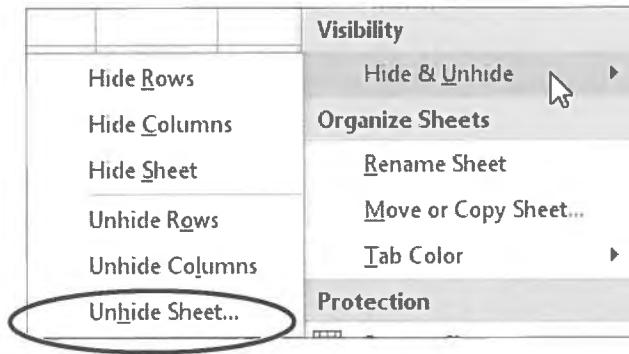
1. Save your file as **EX03-D03-SafetyTraining-[FirstInitialLastName]**.
2. Click the **Lifting** sheet tab to select the sheet.
3. Hold down **Ctrl**, drag the **Lifting** tab to the right to position it between Lifting and Notes, release the mouse button, and release **Ctrl**.



4. Rename **Lifting (2)** to **Garbage**.
5. Repeat **steps 2–4** to copy the **Garbage** sheet and rename it as **Floors**.
6. In **cell A2** of the Floors sheet, edit *Lifting and Motion* to read **Floors**.
7. Select the **Garbage** sheet.
8. In **cell A2**, edit *Lifting and Motion* to read **Garbage**.
9. Right-click the Chemicals sheet, point to **Tab Color** in the context menu, and choose the orange color from the palette, as shown.
10. Repeat the above step to apply a blue theme shade to the **Lifting** sheet tab, a green theme shade to the **Garbage** sheet tab, and a purple theme shade to the **Floors** sheet tab.
11. Select the **Chemicals** tab.
12. Right-click the **Notes** sheet tab and choose **Hide**.
13. Choose **Home→Cells→Format**.



14. Trace down to **Visibility**, point to **Hide & Unhide**, and choose **Unhide Sheet**.



15. Click **OK**.
16. Save the file.

Modifying Columns and Rows

The default column width is 8.43 characters and the default row height is 15 points. Column width and row height can be modified as desired. Strive to make data fully visible while ensuring that no unnecessary space is displayed.

There are a variety of methods for changing column width and row height. They can be performed on either one or multiple columns or rows. One efficient way to adjust widths and heights is to simply drag the column or row headings. Another method employs the AutoFit command, which adjusts to fit the widest (column) or tallest (row) entry.

	A	B
1	Safety Training	- Chemicals
2	Performance Objectives	
3		

When you point to the border between columns or rows, a double-pointed arrow appears.

DEVELOP YOUR SKILLS EX03-D04

Change Column Width and Row Height

1. Save your file as **EX03-D04-SafetyTraining- [FirstInitialLastName]**.
2. Display the **Chemicals** worksheet in **Normal** view.

3. Follow these steps to resize column A:

	A	B
1	Safety Training - Chemical	
2	Performance Objectives	

A Place the mouse pointer here until the double-arrow mouse pointer appears, and then double-click.

	A	B	C
1	Safety Training - Chemicals		
2	Performance Objectives		

Width: 4.00 (33 pixels)

B Point to the border between **columns A and B** until the double-arrow appears.

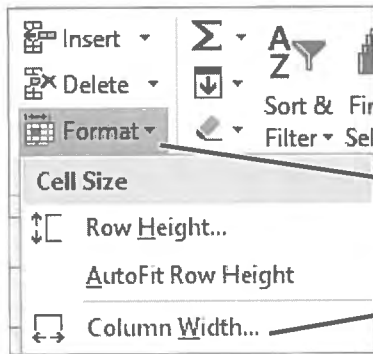
C Click and drag with the mouse to the left.

D Release the mouse button when the width displayed is **4.00**.

4. Click the **column B heading** to select the entire column.

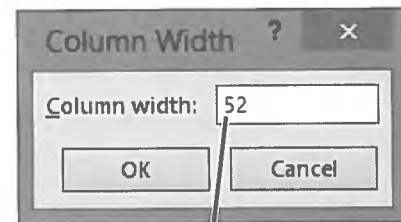
B
y Training - Chemical
rmance Objectives

5. Follow these steps to precisely set the column width:



A Choose **Home** → **Cells** → **Format**.

B Choose **Column Width**.



C Type **52** and tap **Enter**.

6. Click the **heading** for **row 4** and drag down through **row 24**.

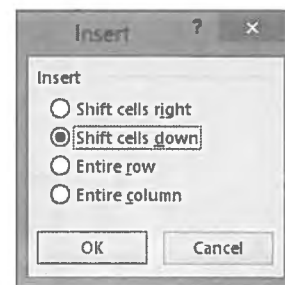
7. Point between two of the selected rows to display the double-arrow pointer and double-click.

23	b
24	c

8. Save the file.


Inserting and Deleting Columns, Rows, and Cells

You can insert and delete columns, rows, and cells in your worksheets. If you want to insert or delete only cells, not entire rows or columns, you will issue a command that will prompt you to tell Excel how to shift the surrounding cells to either make room for the addition or fill the space. Depending on the format of your worksheet, this command could alter the overall structure, and should therefore be used cautiously.



DEVELOP YOUR SKILLS EX03-D05

Add and Remove Rows, Columns, and Cells

1. Save your file as **EX03-D05-SafetyTraining-[FirstInitialLastName]**.
2. On the **Chemicals** worksheet, use the **[Ctrl]** key to select **rows 15 and 24**.
3. With both rows still selected, right-click **row 24** and choose **Delete**.
4. Select **row 6**.
5. Click the **Insert**  button (not the menu **▼** button) and enter the text shown in the appropriate cells.

	A	B	C	D	E	F
6	b.	Identify hazardous materials.		2	2	1



6. Select the **range C1:F1**.
7. Follow these steps to insert the cells and shift your existing data down:






A Choose **Home**→**Cells**→**Insert** menu **▼**.

B Choose **Insert Cells**.

C Notice that **Shift Cells Down** is the default option.

D Click **OK**.

8. Select the **range A3:B3** and choose **Home**→**Cells**→**Insert** .
9. Select **row 1** and choose **Home**→**Cells**→**Insert**  again.

10. Follow these steps to merge and center a range:
 - Select the range **A1:F1**.
 - Choose **Home**→**Alignment**→**Merge & Center** .
 - While the merged range is still selected, choose **Home**→**Font**→**Font Size**→**16**.
 - Type **Green Clean** in the merged cell.
11. **Merge & Center**  the range **A2:F2** and change the font size to **14**.
12. **Merge & Center**  the range **A3:B5** and change the font size to **14**.
13. **Merge & Center**  the range **C3:F3** and choose **Home**→**Font**→**Bottom Border**.
14. **Merge & Center**  the range **C5:F5**.
15. Save the file.

Formatting and Hiding Columns and Rows

You can format, hide, and unhide columns and rows by first selecting the desired columns or rows. You can make your selection in several ways: clicking a single column or row heading, dragging to select adjacent headings, or holding **[Ctrl]** while you click each nonadjacent heading. Once you have selected the desired rows or columns, apply formatting just as you would to a single cell or range. The formatting is applied to every cell across the row or down the column to the end of the worksheet.

Hiding and Unhiding Columns and Rows

There may be times when you wish to hide certain rows or columns from view (such as when you distribute a worksheet to a user who is not interested in certain worksheet details). The hidden rows and columns will not be visible, nor will they print, but they will remain part of the worksheet. After rows or columns have been hidden, you can use **Unhide** to make them visible again.

	A	B	C	E
2	Safety Training - Chemicals			

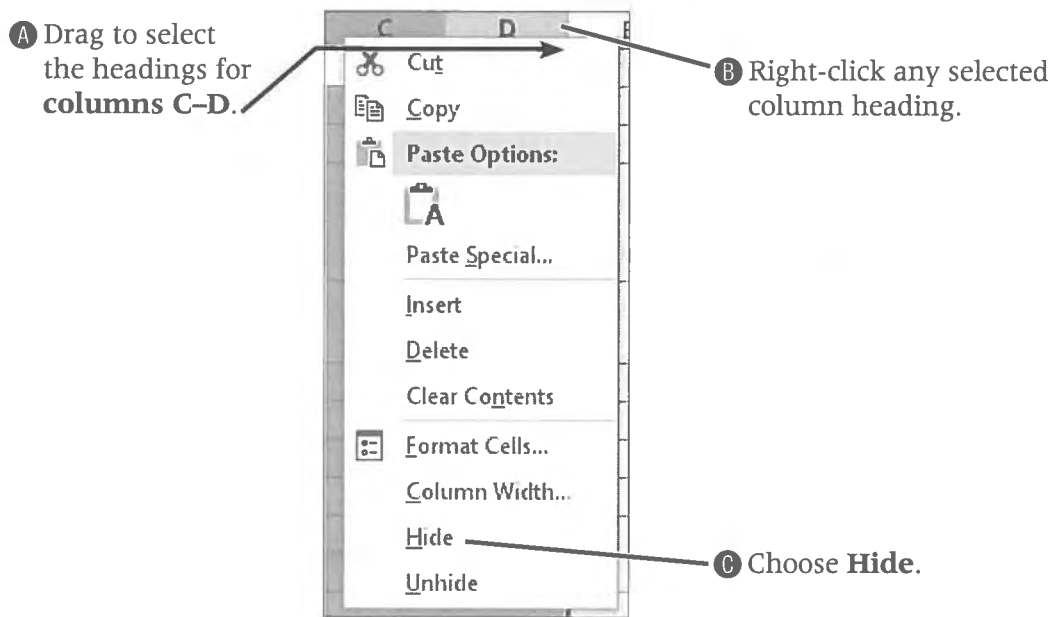
Notice that column D and row 1 are not visible once the **Hide** command is issued.

DEVELOP YOUR SKILLS EX03-D06

Hide and Unhide Columns and Rows

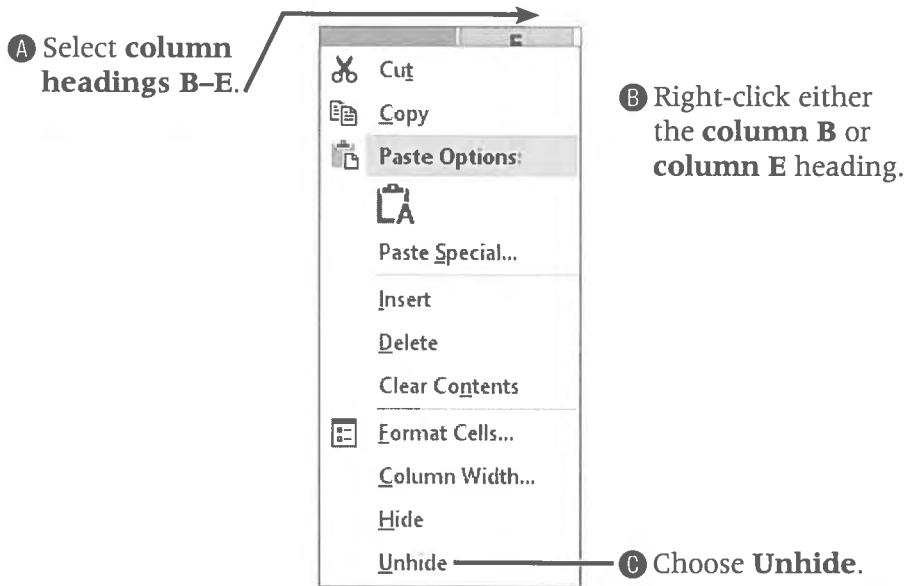
1. Save your file as **EX03-D06-SafetyTraining- [FirstInitialLastName]**.
2. If necessary, select the **Chemicals** worksheet.

3. Follow these steps to hide columns C–D:



4. Right-click the row 1 heading and choose **Hide**.

5. Follow these steps to unhide columns C–D:



6. Follow these steps to unhide row 1:



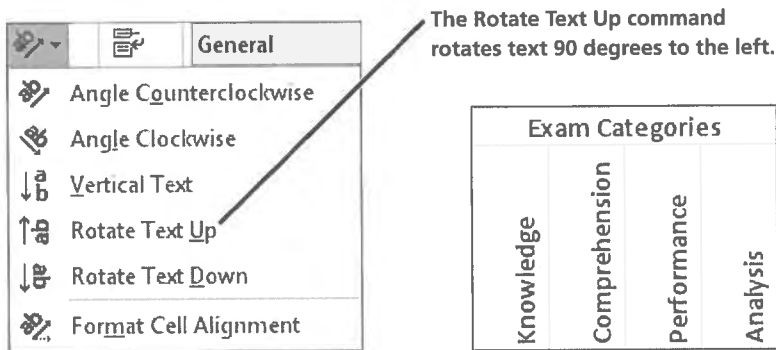
7. Save the file.

Changing Vertical Alignment and Rotating Text

Vertical alignment positions cell contents between the top and bottom of the cell. Options include top, bottom, center, and justify; the default alignment is bottom. Justified alignment evenly distributes unused space between lines in a multiple-line entry so text fills the cell from the top edge to the bottom edge. Justify can only be selected via the Alignment dialog box launcher button.

Rotating Text


The Orientation option has several rotation options that you can apply to text in a cell. Excel increases the row height to accommodate the rotated text. While rotating text can make titles more aesthetically pleasing, be certain that the rotation does not increase row height such that worksheet data becomes difficult to view.

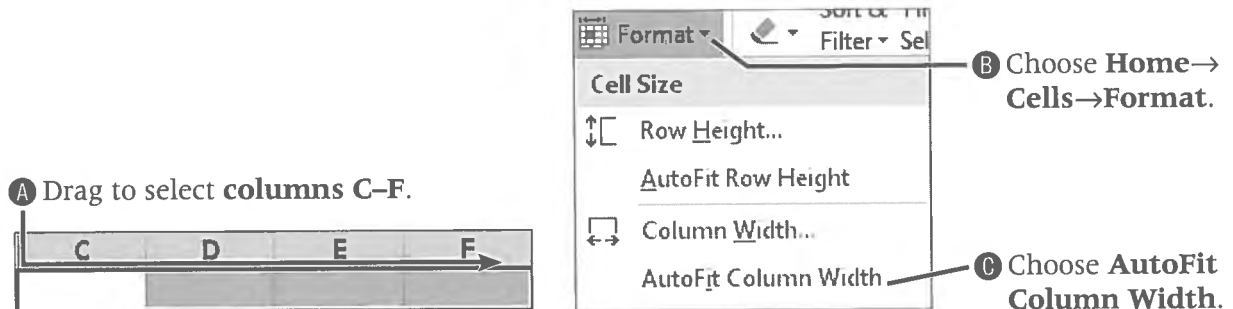





Orienting the column headings vertically makes the column widths narrower.

DEVELOP YOUR SKILLS EX03-D07

Rotate Text and Change Its Vertical Alignment

1. Save your file as **EX03-D07-SafetyTraining-[FirstInitialLastName]**.
2. Select the range **C4:F4** and choose **Home**→**Alignment**→**Orientation** →**Rotate Text Up**.
3. Point at the bottom of the **row 4 header** until the double-arrow pointer displays, and then double-click.
4. Follow these steps to AutoFit columns C–F:



5. Select **cell A3** and choose **Home**→**Alignment**→**Middle Align** .
6. Select the **range A6:F25** and choose **Home**→**Alignment**→**Top Align** .
7. Select the **range A7:A10**, and choose **Home**→**Alignment**→**Align Right** .
8. Choose **Home**→**Clipboard**→**Format Painter**, and select the range **A12:A14** to copy the formatting from the range **A7:A10**. Repeat this process for the ranges **A16:A17**, **A19:A22**, and **A24:A25**.
9. Save and then close the file.

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.

4 Working with Formulas and Functions

In this lesson, you will create and modify basic formulas and functions in Excel. Formulas are one of Excel's most powerful features, as they can save you time and increase the accuracy of your spreadsheets. You will reference cells in formulas and use AutoSum. Lastly, you will use IF functions, which can flag a cell with a text label, display a value, or perform a calculation when specific criteria are satisfied.

LEARNING OBJECTIVES

After studying this lesson, you will be able to:

- Create formulas to calculate values
- Use functions such as sum, average, maximum, minimum, and IF
- Use relative, absolute, and mixed cell references in formulas
- Modify and copy formulas

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 00 min
- Concepts Review: 15 min
- Total: 1 hr 15 min

CASE STUDY: CREATING A SPREADSHEET WITH FORMULAS

Green Clean earns revenue by selling janitorial products and contracts for cleaning services. You want to set up a workbook with two worksheets, one to track commissions and the other to report how the projected profit would change based on costs and an increase or decrease in sales.

Working with Formulas and Functions

A formula is a math problem done in Excel. You can add, subtract, multiply, divide, and group cell contents to make your data work for you. A function is a prewritten formula that can simplify complex procedures for numbers and text. For instance, a function can be used to sum a group of numbers, to determine the payment amount on a loan, and to convert a number to text.

Using AutoSum to Create a SUM Formula

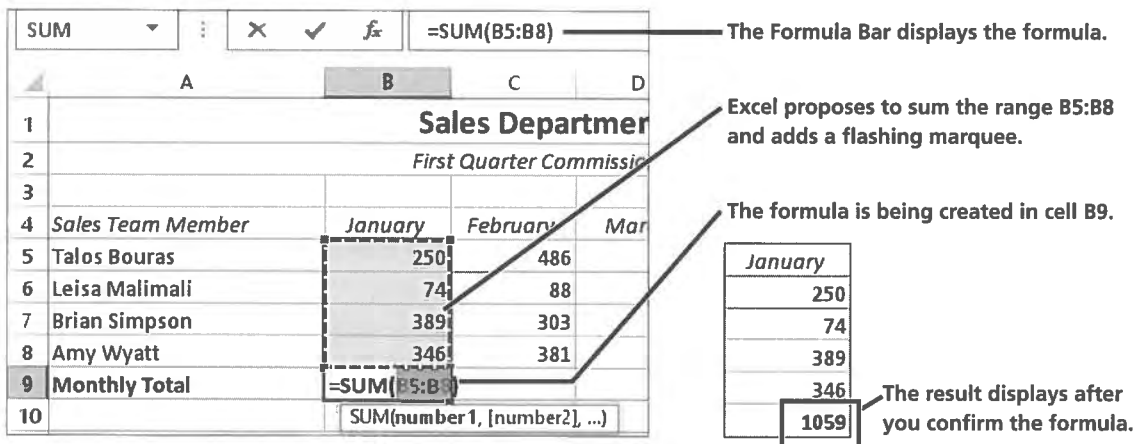
The AutoSum button automatically sums a column or row of numbers. When you click AutoSum, Excel starts the formula for you by entering =SUM() and proposes a range of adjacent cells within the parentheses. Excel first looks upward for a range to sum. If a range is not found there, it next looks left. You can accept the proposed range, which can be viewed in the Formula Bar, or drag in the worksheet to select a different range.

FROM THE RIBBON

Home → Editing → AutoSum 

FROM THE KEYBOARD

Alt + **=**



The Formula Bar displays the formula.

Excel proposes to sum the range B5:B8 and adds a flashing marquee.

The formula is being created in cell B9.

The result displays after you confirm the formula.

Sales Team Member	January	February	March
Talos Bouras	250	486	
Leisa Malimali	74	88	
Brian Simpson	389	303	
Amy Wyatt	346	381	
Monthly Total	1059		

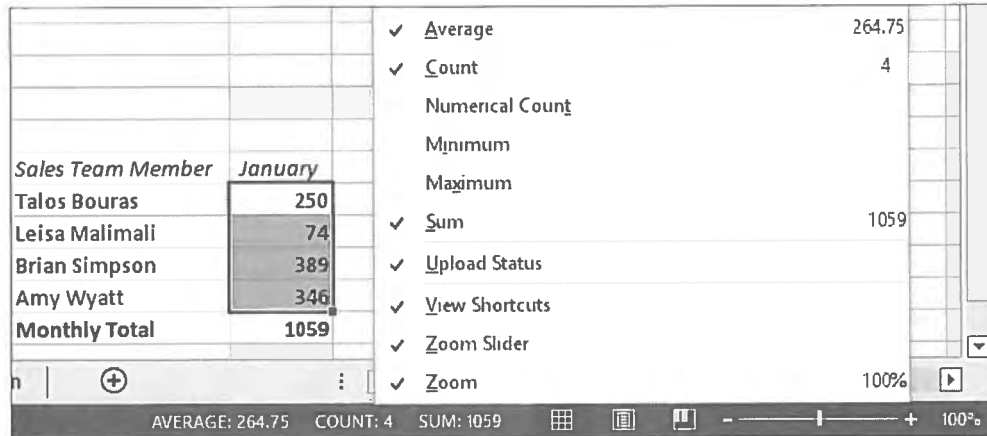
Average, Count, CountA, Max, and Min Functions

In addition to summing a group of numbers, the AutoSum button can perform a number of other calculations.

AUTOSUM AND/OR STATUS BAR FUNCTION	HOW FUNCTION APPEARS IN FORMULA	DESCRIPTION
Sum	SUM	Adds the values in the cells
Average	AVERAGE	Averages the values in the cells
Count Numbers or Numerical Count	COUNT	Counts the number of values in the cells; cells containing text and blank cells are ignored
Count	COUNTA	Counts the number of nonblank cells
Max or Maximum	MAX	Returns the highest value in the cells
Min or Minimum	MIN	Returns the lowest value in the cells

Status Bar Functions


The Status Bar, which is displayed at the bottom of the Excel window, can be customized to display a variety of functions including Average, Count, Numerical Count, Minimum, Maximum, and Sum. To customize the Status Bar, right-click anywhere on it and click to add or remove features. You can also customize additional features of the Status Bar, such as Zoom, Signatures, Overtyping Mode, and Macro Recording.

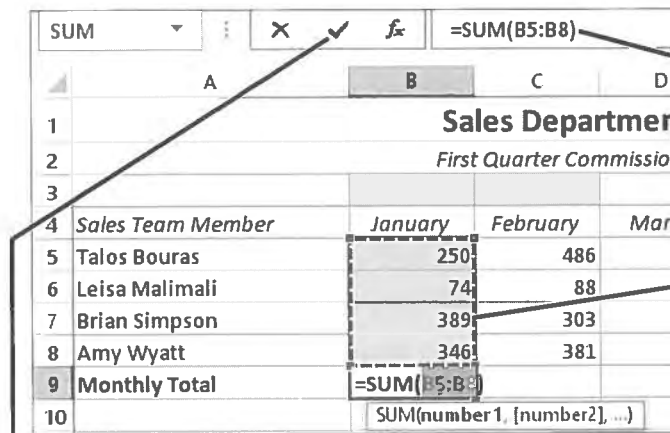


By default, Excel displays in the Status Bar the average, count of values, and sum of the selected range.

DEVELOP YOUR SKILLS EX04-D01

Use AutoSum and Status Bar Functions

1. Open **EX04-D01-Commissions** from the **Excel 2013 Lesson 04** folder, and save it as **EX04-D01-Commissions-FirstInitialLastName**.
2. With the **Qtr 1 Commissions** worksheet displayed, select cell **B9**.
3. Choose **Home**→**Editing**→**AutoSum** .
4. Follow these steps to complete the Sum formula:



A Note the proposed **formula**, a sum of numbers in the range B5:B8.

B Notice that AutoSum adds a **flashing marquee** around the range B5:B8, the most likely range for the formula.

C Click Enter to complete the entry. The total should be 1059.

5. Select cell **E7** and choose **Home**→**Editing**→**AutoSum** .

6. Follow these steps to override the proposed range:

A Select the **range B7:C7**.

B Notice that the new range, B7:C7, appears in the formula.

389	303	422	=SUM(B7:C7)
346	381	502	SUM(number1, [number2], ...)

C Tap **Enter** to complete the formula.

7. **Undo**  the formula.

8. Follow these steps to AutoFill the formula in cell B9 into the cells to its right:

	A	B	C	D	E
1	Sales Department				
2	<i>First Quarter Commissions</i>				
3					
4	<i>Sales Team Member</i>	<i>January</i>	<i>February</i>	<i>March</i>	<i>Qtr 1 Total</i>
5	Talos Bouras	250	486	415	
6	Leisa Malimali	74	88	101	
7	Brian Simpson	389	303	422	
8	Amy Wyatt	346	381	502	
9	Monthly Total	1059			

C Release the mouse button to fill the formula into the cells.

A Select **cell B9**.

B Position the mouse pointer over the **fill handle** at the bottom-right corner of the cell and drag to **cell E9**.

9. Select the **range E5:E8**.

10. Choose **Home**→**Editing**→**AutoSum**  to calculate the quarterly totals.

11. Delete the formulas in **range B9:E9** and **range E5:E8**.

12. Select the **range B5:E9** and click **AutoSum** .

13. Select **cell B11**.

14. Choose **Home**→**Editing**→**AutoSum**  **menu button**.

15. Choose **Average** from the drop-down menu.

16. Select the correct **range B5:B8** and tap **Enter** to complete the entry.

17. With **cell B12** selected, choose **Home**→**Editing**→**AutoSum**  **menu button**→**Max**.

18. Select the correct **range B5:B8** and tap **Enter** to display the highest value in the range.

19. Select **cell B13** and choose **Home**→**Editing**→**AutoSum**  **menu button**→**Min**.


20. Correct the range to **B5:B8** and then click **Enter**  on the Formula Bar to display the lowest value in the range.

21. Select **cell B14** and choose **Home**→**Editing**→**AutoSum**  **menu button**.

22. Choose **Count Numbers**, correct the range to **B5:B8**, and click **Enter** .

23. Select **cell B6** and delete the contents.

<i>Qtr 1 Total</i>
1151
263
1114
1229
3757

24. Undo  the deletion.
25. Select the range B5:B8.
26. Look at the Status Bar in the lower-right corner of the window to see that the sum value displayed equals the result in cell B9. Save the workbook and leave it open.

AVERAGE: 264.75

COUNT: 4

SUM: 1059

Creating Formulas

As you saw with AutoSum, functions begin with an equals (=) sign. Formulas begin with an equals sign as well, although Excel will automatically insert the equals sign if you first type a plus (+) or a minus (-) sign.

Cell and Range References

Formulas derive their power from the use of cell and range references. Using references in formulas ensures that formulas can be copied to other cells and that results are automatically recalculated when the data is changed in the referenced cell(s).

The Language of Excel Formulas

Formulas can include the standard arithmetic operators shown in the following table. Keep in mind that each formula you create will be entered into the same cell that displays the resulting calculation.

ARITHMETIC OPERATORS IN FORMULAS		
Operator	Example	Comments
+ (addition)	= B7+B11	Adds the values in B7 and B11
- (subtraction)	= B7-B11	Subtracts the value in B11 from the value in B7
* (multiplication)	= B7*B11	Multiplies the values in B7 and B11
/ (division)	= B7/B11	Divides the value in B7 by the value in B11
^ (exponentiation)	=B7^3	Raises the value in B7 to the third power (B7*B7*B7)
% (percent)	=B7*10%	Multiplies the value in B7 by 10% (0.10)
() (grouping)	=B7/(C4-C2)	Subtracts the value in C2 from the value in C4 and then divides B7 by the subtraction result

“Please Excuse My Dear Aunt Sally”

Excel formulas follow the standard algebraic hierarchy. This means that the formula completes operations in the following order: parentheses, exponents, multiplication, division, addition, subtraction. The first letter of each of these is used in the mnemonic “Please Excuse My Dear Aunt Sally,” which can be used to memorize this order.

To control the order of operations, you can use parentheses to cause Excel to add or subtract before multiplying or dividing. Review these examples to see how the order of operations works with and without parentheses.

$=53 + 7 * 5 = 53 + 35 = 88$ Multiplication and then addition

$=(53 + 7) * 5 = (60) * 5 = 300$ Parentheses and then multiplication

Excel includes two additional items in the order of operations between parentheses and exponents. At the beginning of a formula, a minus (-) sign is interpreted as a negative. A percent sign is also considered as an operator.

DEVELOP YOUR SKILLS EX04-D02

Use the Keyboard to Create Formulas

1. Save your file as **EX04-D02-Commissions-FirstInitialLastName**.
2. Click the **Profit Projection** sheet tab at the bottom of the Excel window.
3. Select **cell B5** and view its formula in the Formula Bar.
4. Select **cell B6** and use **AutoSum** to sum the sales in the **range B4:B5**.
5. In **cell B11**, sum the costs in the **range B8:B10**.
6. Select **cell B13**, the Gross Profit for the Base column.
7. Type **=B6 - B11** in the cell, and then tap **[Enter]** to complete the formula.
8. Select **cell B15**, which is within the Gross Profit vs. Revenue row.
9. Type **=b13/b6** in the cell, tap **[Enter]**, and **save** the workbook.



Using Cell References in Formulas

A cell reference can be used to represent a cell or range of cells containing the values used in a formula. Cell references are one of three types: relative, absolute, or mixed.

Relative Cell References

A relative cell reference is one where the location is *relative* to the cell that contains the formula. For example, when you enter the formula **=A3-B3** in cell C3, Excel notes that cell A3 is two cells to the left of the formula and that cell B3 is one cell to the left of the formula. When you copy the formula, the cell references update automatically. So, if the formula were copied to cell C4, the new formula would be **=A4-B4**. Excel updates the cell references so they are the same distance from cell C4 as were the cell references in the original formula in cell C3.

	C
3	=A3-B3
4	=A4-B4
5	

Absolute Cell References

In some situations, you may not want references updated when a formula is moved or copied. You must use either absolute or mixed references in these situations. Absolute references within a formula always refer to the same cell, even when the formula is copied to another location. You create absolute references by placing dollar signs in front of the column and row components of the reference. For example, if the formula = \$A\$3-\$B\$3 were entered in cell C3, and then copied to cell C4, the formula within cell C4 would still read = \$A\$3-\$B\$3.

	C
3	= \$A\$3-\$B\$3
4	= \$A\$3-\$B\$3
5	

Mixed References

You can mix relative and absolute references. For example, the reference \$C1 is a combination of an absolute reference to column C and a relative reference to row 1. This can be useful when copying a formula both across a row and down a column.

Using the **[F4]** Function Key

The **[F4]** function key can be used to insert the dollar signs within a cell reference. When **[F4]** is first tapped, dollar signs are placed in front of the column and row components of the cell reference. A second tap of **[F4]** places a dollar sign in front of only the row component, a third tap places one sign in front of only the column component, and a fourth tap removes all dollar signs.

The following table indicates what happens to different types of cell references when their formulas are copied to other locations.

CELL REFERENCE	TYPE	COPY AND PASTE ACTION	RESULT WHEN PASTED
B6	Relative	One column to the right	C6
B6	Relative	One row down	B7
\$B\$6	Absolute	One column to the right	\$B\$6
\$B\$6	Absolute	One row down	\$B\$6
\$B6	Mixed	One column to the right	\$B6
\$B6	Mixed	One row down	\$B7
B\$6	Mixed	One column to the right	C\$6
B\$6	Mixed	One row down	B\$6

DEVELOP YOUR SKILLS EX04-D03

Create Formulas Using Cell References

1. Save your file as **EX04-D03-Commissions-FirstInitialLastName**.
2. Select cell **B9** and type = to begin a formula.
3. Select cell **D18** and tap **[F4]**.
4. Tap **[Enter]** to complete the formula.
5. Select cell **B10** and type = to begin a formula.
6. Select cell **B4** and type *.

7. Select **cell B19** and tap **[F4]**.
8. Type **+** to continue the formula.
9. Select **cell B5** and type *****.
10. Select **cell B20** and tap **[F4]**.
11. Click **Enter** .
12. Select **cell B14** and type **=**.
13. Select **cell B13** and type ***** (**1-** to continue the formula).
14. Select **cell D20** and tap **[F4]**.
15. Type **)** and tap **[Enter]**.
16. Select **cell C4** and type an equals sign (**=**).
17. Select **cell B4** and tap **[F4]**.
18. Type ***** (**1+** to continue the formula).
19. Select **cell C3** and tap **[F4]** two times to create the C\$3 mixed cell reference.
20. Type **)** and tap **[Enter]**.
21. With **cell C5** selected, repeat **steps 16–20** (but using different cell references) to project a **2 percent increase** for base contract sales.
22. Save the workbook.

Modifying and Copying Formulas

You can modify and copy formulas just like you edit and copy cells.

Modifying Formulas

You can edit a formula either in the Formula Bar or by double-clicking the formula cell. If you click or select a cell and enter a new formula, it replaces the previous contents.

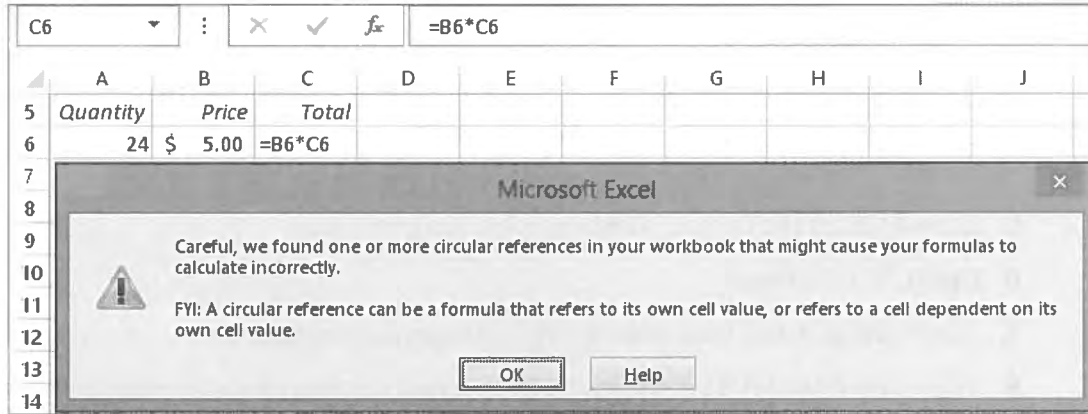
When you select a formula to edit it, you will see colored lines around all cells referenced by the formula. This feature can help you track the formula elements.

	A	B	C	D
13	Gross Profit	\$ 149,976		
14	Net Profit	=B13*(1-\$D\$20)		
15	Gross Profit vs. Revenue	51.0%		
16				
17	Contracts	482		
18	Average Contract	\$ 500	Marketing	\$ 15,000
19	Product Commission Rate	7%	Fixed Cost	\$ 101,400
20	Contract Commission Rate	10%	Tax Rate	7.75%

Excel graphically displays the cells referenced by the formula, B13 and D20.

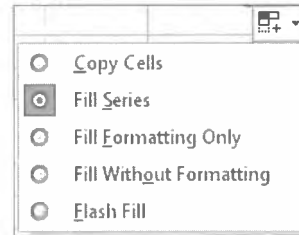
Circular References

A circular reference occurs when the formula refers to its own cell or to another formula that refers to that cell. For example, the formula in cell C6 is =B6*C6. Excel cannot complete the calculation because cell C6 is the formula cell, not a reference to a value. Excel displays an error message if you create a circular reference.



Copying Formulas

You can use either the Copy and Paste commands or AutoFill with formulas to copy them to new cells. If you use Auto Fill, the Auto Fill Options button will appear after you release the mouse button. Clicking this button allows you to customize your fill. The Fill Series option appears within the resulting list when you AutoFill values, but not when you AutoFill formulas.

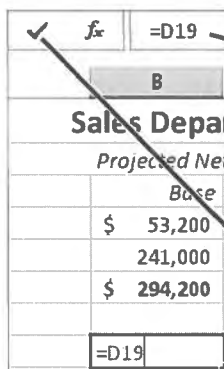


You can change what was copied in the cells through AutoFill with the Auto Fill Options button.

DEVELOP YOUR SKILLS EX04-D04

Modify and Copy Formulas

1. Save your file as **EX04-D04-Commissions-FirstInitialLastName**.
2. Select cell **B8**, and then follow these steps to edit the formula in the Formula Bar:



- A Click the **D19** cell reference in the Formula Bar.
- B Tap **[F4]** to change it to an absolute reference.
- C Click the **Enter** button.

3. Double-click cell **C6** to begin an in-cell edit.

4. Follow these steps to complete an in-cell edit:

fx		=SUM(C4:C5	
B		C	
Sales Department			
Projected Net Profit			
	Base	2%	
\$	53,200	54,264	
	241,000	245,820	
\$	294,200	=SUM(C4:C5	
		SUM(number1	

A Use \leftarrow or \rightarrow to position the insertion point before 5 in the formula.

B Tap **Delete**, type 6, and tap **Enter**.

5. Choose **OK** in the Circular Reference Warning message.

6. **Undo** \curvearrowright the change.

7. Select cell **B14** and then use **Ctrl** + **C** to **copy** the formula.

8. Select cell **C14** and then use **Ctrl** + **V** to **paste** the formula in the new cell.

9. Select the **range D14:E14** and then use **Ctrl** + **V**.

10. Tap **Esc** to cancel the marquee around cell B14.

11. Select cell **D14** and look at the formula in the Formula Bar.

12. Follow these steps to use AutoFill to copy the formula:

	A	B	C	D	E
4	Product Sales	\$ 53,200	54,264		

A Select cell **C4**.

B Drag the fill handle to cell **E4**.

C Release the mouse button.

13. Use **AutoFill** to copy the formula from cell **C5** to the **range D5:E5**.

14. Select the **range B8:B15**.

15. Place your mouse pointer over the **fill handle** at the bottom right of the selected range.

16. When you see the thin cross **+**, **drag right** until the highlight includes the cells in **column E** and then release the mouse.

	A	B	C	D	E
8	Fixed Operating Cost	101,400	101,400	101,400	101,400
9	Marketing Expense	15,000	15,000	15,000	15,000
10	Commissions	27,824	28,380	29,215	26,433
11	Total Costs	\$ 144,224	\$ 144,780	\$ 145,615	\$ 142,833
12					
13	Gross Profit	\$ 149,976	\$ 155,304	\$ 163,295	\$ 136,657
14	Net Profit	\$ 138,353	\$ 143,267	\$ 150,639	\$ 126,066
15	Gross Profit vs. Revenue	51.0%	51.8%	52.9%	48.9%
16					

17. Deselect the filled range, and **save** the workbook.

Using Formula AutoComplete

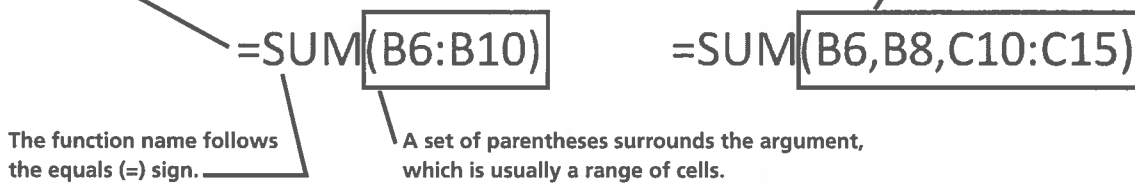
Formula AutoComplete assists you in creating and editing formulas. Once you type an equals (=) sign and any letter(s), Excel will display a list of functions beginning with the typed letter(s) below the active cell.

Functions Defined

A function is a predefined formula that performs calculations or returns a desired result. Most functions are constructed using similar basic rules, or syntax. This syntax also applies to the Min, Max, Average, Count, and CountA functions.

Begin formulas containing functions with an equals (=) sign.

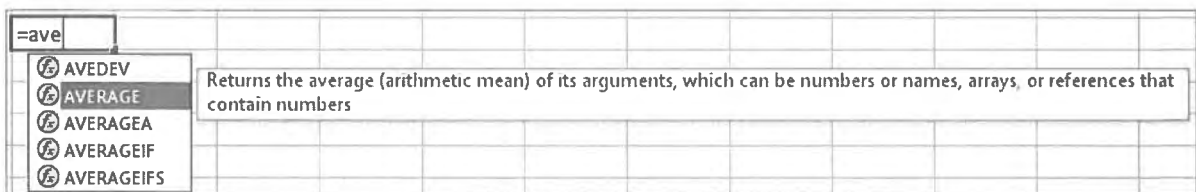
Here, cells B6 and B8 are added to the range C10:C15.



DEVELOP YOUR SKILLS EX04-D05


Use Formula AutoComplete

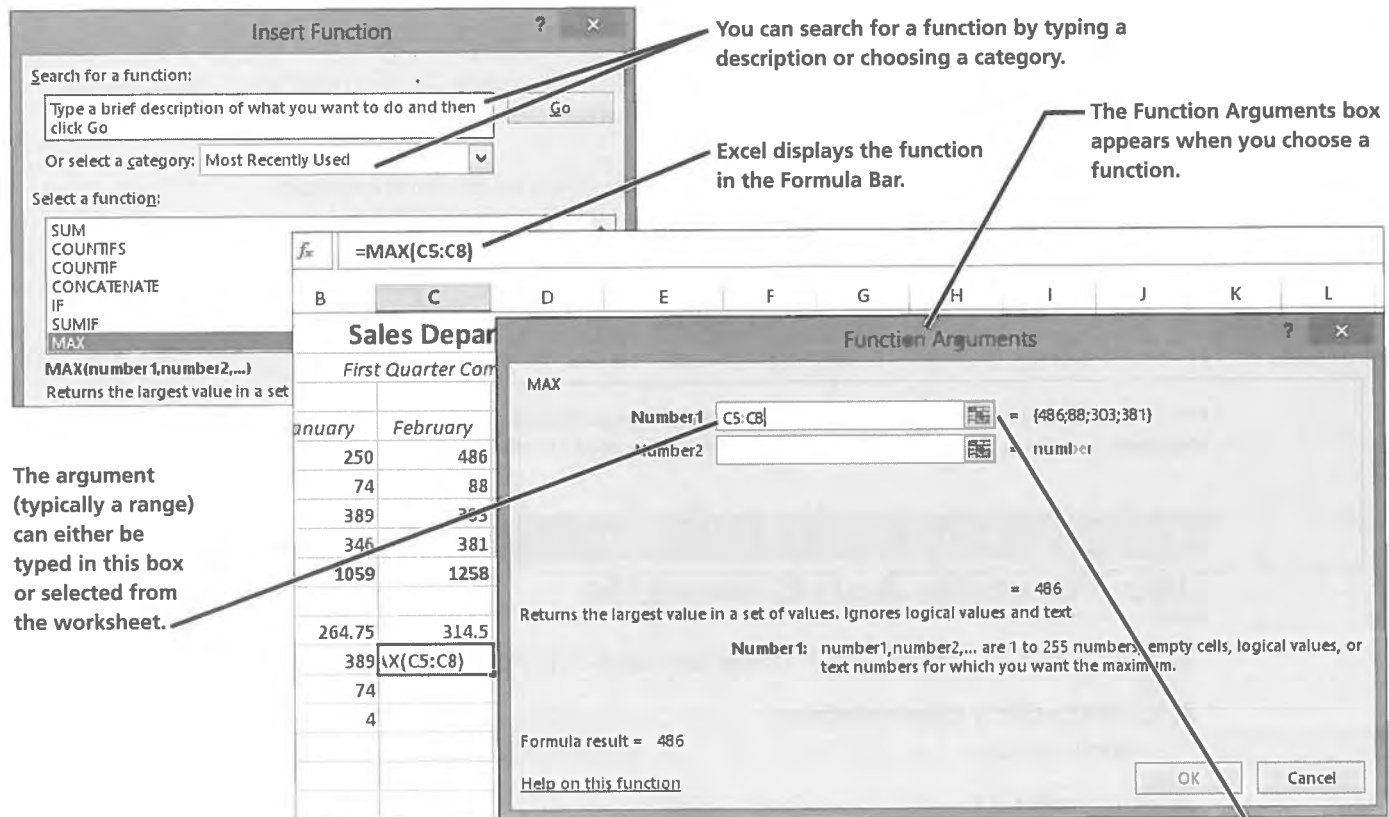
1. Save your file as **EX04-D05-Commissions-FirstInitialLastName**.
2. Click the **Qtr 1 Commissions** worksheet tab.
3. Select cell **C11**.
4. Type **=ave** and observe the list that results.
5. Double-click **AVERAGE**.



6. Drag to select cells **C5:C8** as the formula range.
7. Tap **[Enter]** to complete the function.
8. Select cell **C11**, use the fill handle to **copy** the function to the range **D11:E11**, and **save** the workbook.

Using Insert Function

The Insert Function  button displays the Insert Function dialog box. It allows you to locate a function by typing a description or searching by category. When you locate the desired function and click OK, Excel displays the Function Arguments box, which helps you enter function arguments.



Insert Function

Search for a function:

Type a brief description of what you want to do and then click Go

Or select a category: Most Recently Used

Select a function:

- SUM
- COUNTIFS
- COUNTIF
- CONCATENATE
- IF
- SUMIF
- MAX

MAX(number1,number2,...)
Returns the largest value in a set

Function Arguments

MAX

Number1: C5:C8 = {486;88;303;381}

Number2: = number

= 486

Returns the largest value in a set of values. Ignores logical values and text

Number 1: number1,number2,... are 1 to 255 numbers, empty cells, logical values, or text numbers for which you want the maximum.

Formula result = 486

Help on this function

OK Cancel

Worksheet Data:

January	February
250	486
74	88
389	303
346	381
1059	1258
264.75	314.5
389	MAX(C5:C8)
74	
4	

Formula Bar: =MAX(C5:C8)

The Collapse button hides the Function Arguments box while you select the desired range.

DEVELOP YOUR SKILLS EX04-D06

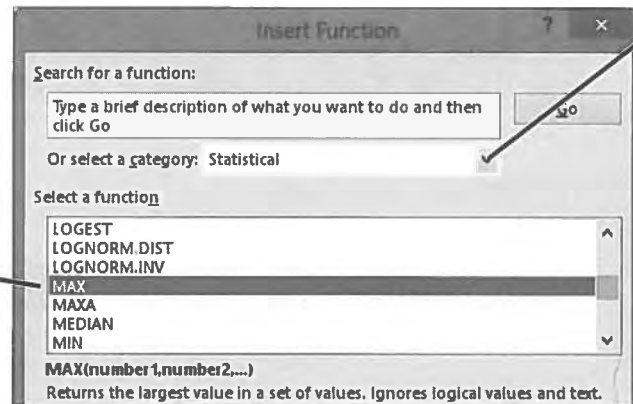
Use Insert Function

1. Save your file as **EX04-D06-Commissions-FirstInitialLastName**.
2. Select **cell C12**.
3. Follow these steps to create the Maximum function:

A Click the **Insert Function** button.

C12	:		
	A	B	C
11	Average	264.75	314.5
12	Maximum	389	
13	Minimum	74	
14	Count	4	

B Click the **drop-down arrow** and select **Statistical**.



C Scroll down, click **MAX**, and click **OK**.

D Click the **Collapse** button.

Number1	C11	=	314.5
Number2		=	number

E Select the **range C5:C8**.

Function Arguments			
C5:C8			
February	March	Qtr 1 Total	
486	415	1151	
88	101	263	
303	422	1114	
381	502	1229	
1258	1440	3757	

F Click the **Expand** button to redisplay the dialog box, and click **OK**.

4. Using the procedure from **step 3**, create the **Minimum** function in **cell C13**.
5. Create the **Count** function in **cell C14**.
6. Select the **range C12:C14**, copy the formulas to the **range D12:E14**, and save the workbook.

	A	B	C	D	E
11	Average	264.75	314.5	360	939.25
12	Maximum	389	486	502	1229
13	Minimum	74	88	101	263
14	Count	4	4	4	4

Creating Formulas with the IF Function

Excel's IF function displays a value or text based on a logical test. It displays one of two results, depending on the outcome of your logical test. For example, if you offer customers a discount for purchases of \$200 or more, an IF function could be used to display either the correct discount amount or \$0. For purchases greater than \$200, the IF function would calculate the discount; for purchases less than \$200, the formula would insert \$0.

IF Function Syntax

The generic parts of the IF function are shown in the following table.

FUNCTION	SYNTAX
IF	IF(logical_test, value_if_true, value_if_false)

The following table outlines the arguments of the IF function.

ARGUMENT	DESCRIPTION
logical_test	The condition being checked using a comparison operator, such as =, >, <, >=, <=, or <> (not equal to)
value_if_true	The value, text in quotation (") marks, or calculation returned if the logical test result is found to be true
value_if_false	The value, text in quotation (") marks, or calculation returned if the logical test result is found to be false

How the IF Function Works


The formula =IF(C6>=200,C6*D6,0) is used as an example to explain the function result. Excel performs the logical test to determine whether the value in C6 is greater than or equal to 200. A value of 200 or more would evaluate as true. Any of the following would evaluate as false: a value less than 200, a blank cell, or text entered in cell C6. If the logical test proves true, the calculation C6*D6 is performed and the result displays in the formula cell. If the calculation proves false, the value 0 (zero) displays.

You may also use the IF function to display a text message or leave the cell blank. You may create complex calculations and even use other functions in arguments within an IF function, called nesting. Two examples that display text are shown in the following table.

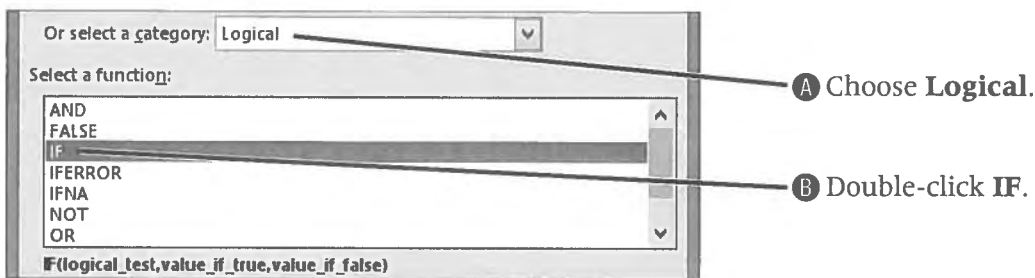
FORMULA	ACTION IF TRUE	ACTION IF FALSE
IF(F3>150000, "Over Budget", "Within Budget")	The text <i>Over Budget</i> displays	The text <i>Within Budget</i> displays
IF(D6<=30, "", "Late")	The cell displays blank	The text <i>Late</i> displays

DEVELOP YOUR SKILLS EX04-D07

Use the IF Function

1. Save your file as **EX04-D07-Commissions-FirstInitialLastName**.
2. Type the column heading **Sales** in cell **F4** and **Met Goal?** in cell **G4**.
3. Enter values in the range **F5:F8** as shown.
4. Type **Goal** in cell **A15** and **30000** in cell **F15**.
5. Select cell **G5** and click the **Insert Function**  button in the Formula Bar.
6. Follow these steps to find the IF function:

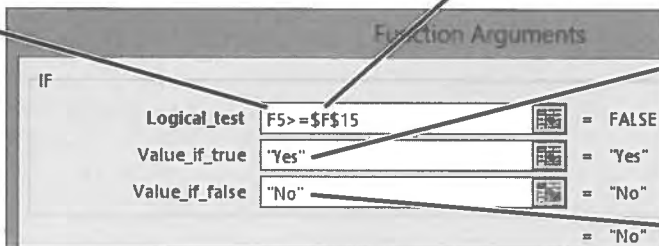
	F	G
4	Sales	Met Goal?
5	28775	
6	6575	
7	27850	
8	30725	



7. If necessary, move the Function Arguments dialog box out of the way by dragging its title bar until you can see **column G**.
8. Follow these steps to specify the IF function arguments:

A Select cell **F5** in the worksheet, tap **[Shift] + [>]**, and then tap **[=]** (for greater than or equal to).


B Select cell **F15** in the worksheet (the \$30,000 goal amount) and tap **[F4]**.



C Click in the **Value_If_True** box, type **Yes**, and tap **[Tab]**. (Excel adds the quotation marks.)

D Enter **No** in the **Value_If_False** box. Tap **[Enter]**.

9. Review the completed formula in the Formula Bar.
10. Use **AutoFill** to copy the formula in cell **G5** down to the range **G6:G8**.
11. Select cell **G5**.
12. In the Formula Bar, click between the quotation (") mark and the N, and tap **[Delete]** twice to delete **No**.
13. Click **Enter** in the Formula Bar.

 =IF(F5>=\$F\$15,"Yes","")

14. Use **AutoFill** to copy the formula in cell **G5** down to the range **G6:G8**, and save the workbook.

	A	B	C	D	E	F	G
4	<i>Sales Team Member</i>	<i>January</i>	<i>February</i>	<i>March</i>	<i>Qtr 1 Total</i>	<i>Sales</i>	<i>Met Goal?</i>
5	Talos Bouras	250	486	415	1151	28775	
6	Leisa Malimali	74	88	101	263	6575	
7	Brian Simpson	389	303	422	1114	27850	
8	Amy Wyatt	346	381	502	1229	30725	Yes
9	Monthly Total	1059	1258	1440	3757		
10							
11	Average	264.75	314.5	360	939.25		
12	Maximum	389	486	502	1229		
13	Minimum	74	88	101	263		
14	Count	4	4	4	4		
15	Goal					30000	

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.

5 Formatting Cell Contents, Basic Skills

In this lesson, you will use Excel's formatting features to enhance your worksheets, including the Format Painter, which allows you to efficiently apply consistent formatting. You will also gain experience with Excel's Find and Replace commands, which allow you to quickly locate and change entries within worksheets. By the end of this lesson, you will have developed the skills necessary to create professional worksheets.

CASE STUDY: FORMATTING WITH EXCEL

The accountant for Green Clean has drafted an income statement, which you intend to use to examine quarterly revenue and expense figures. You will use many of Excel's formatting features to make the spreadsheet easier to read and understand. You will also create a workbook theme so uniform formatting may be applied to Green Clean's other worksheets.

LEARNING OBJECTIVES

After studying this lesson, you will be able to:

- Format worksheets using a variety of methods
- Control text to align and fit within cells
- Alter the appearance of numbers through a variety of methods
- Format cells with borders and fill colors
- Find and replace data and formatting

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 00 min
- Concepts Review: 15 min
- Total: 1 hr 15 min

Formatting Worksheets

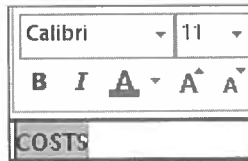
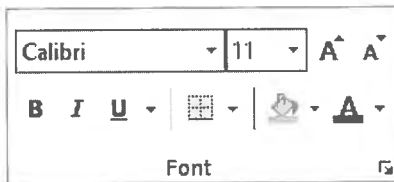
Formatting deals with changing how the data in your worksheet looks, not with changing the data itself. In Excel and other Microsoft Office programs, you can format text by changing the font type, size, and color. You can also apply various font enhancements, including bold, italic, and underline. Excel's Live Preview feature allows you to preview many formatting changes by holding the mouse pointer over the option, so that you can see the formatting in action.

Formatting Entries

Formatting commands can be applied either through the Ribbon or by using the Mini toolbar. The Mini toolbar offers many of the same options as the Font group on the Home tab, but conveniently places them adjacent to the active cell. Different versions of the Mini toolbar will appear when you right-click a cell, and when you highlight a cell's contents.

FROM THE KEYBOARD

- Ctrl+B** for bold
- Ctrl+I** for italicize
- Ctrl+U** for underline



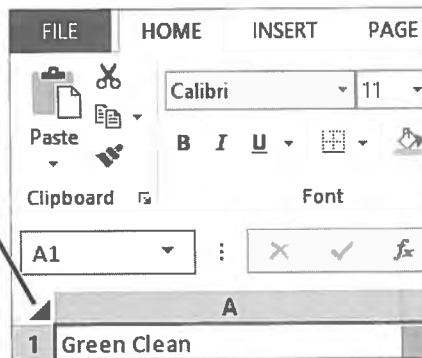
Formatting options can be selected from both the Ribbon and the Mini toolbar.

DEVELOP YOUR SKILLS EX05-D01

Format Cells with the Ribbon and Mini Toolbar

1. Open **EX05-D01-IncomeStatement** file from the **EX2013 Lesson 05** folder and save it as **EX05-D01-IncomeStatement-[FirstInitialLastName]**.
2. Follow these steps to change the font size of the entire worksheet:

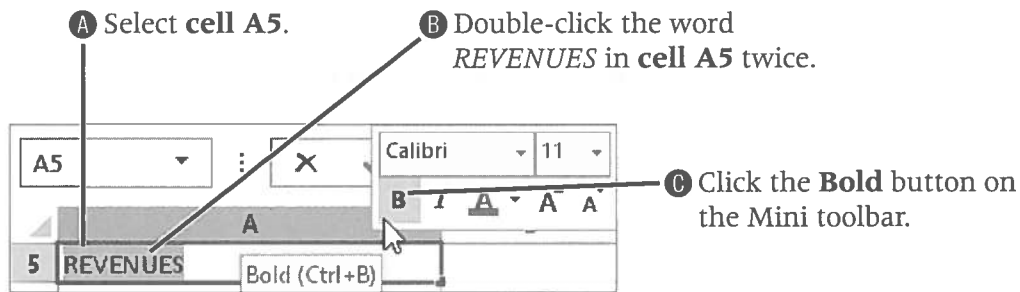
A Click the **Select All** button.



B Choose **Home**→**Font**→**Font Size** menu button.

C Choose **12**.

- Follow these steps to apply Bold formatting to cell A5:



- Right-click cell A10 to display the Mini toolbar.
- Click the **Bold** **B** button on the Mini toolbar.
- Save the file and leave it open; you will modify it throughout this lesson.

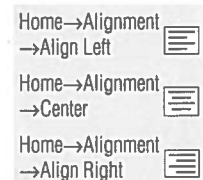
Using Excel's Alignment and Indent Features

Excel allows you to alter how text is aligned within cells. In addition to the standard left, center, and right horizontal alignments, you can indent cells contents within a cell from either edge.

Aligning Entries

The Align Left, Center, and Align Right buttons let you align entries within cells. By default, text entries are left aligned and number entries are right aligned.

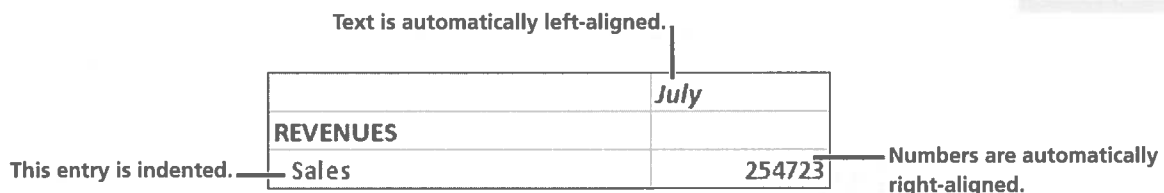
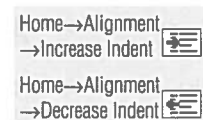
FROM THE RIBBON



Indenting Cell Entries

The Increase Indent and Decrease Indent buttons let you offset entries from the edges of cells. If a cell entry is left aligned, it will indent from the left edge, and if it is right aligned, it will indent from the right edge.




FROM THE RIBBON



DEVELOP YOUR SKILLS EX05-D02

Work with Alignment and Indent

- Save your file as **EX05-D02-IncomeStatement-[FirstInitialLastName]**.
- Select the range **B4:E4**.


3. Choose **Home**→**Alignment**→**Align Right** .
4. Select the **range A6:A7**.
5. Choose **Home**→**Alignment**→**Increase Indent** .
6. Select the **range A11:A22**.
7. Choose **Home**→**Alignment**→**Increase Indent** .
8. Save the file and leave it open.

Using Excel's Text Control Options

The Alignment group on the Home tab provides options that allow you to merge cells and wrap lengthy text within a cell. Additionally, you can shrink text to fit within a cell.

Merging and Splitting Cells

The Merge Cells option allows you to combine cells. You can merge cells both vertically and horizontally, and merged cells behave as one large cell. The merged cell takes on the name of the top-left cell in the merged range. For example, if you merge cells A1:E1, the resulting merged cell will be named A1.

FROM THE RIBBON
Home→Alignment→
Merge & Center 

The Merge & Center button merges selected cells and changes the alignment of the merged cell to center. This technique can be used to center a heading across columns, but it can only be used on one row at a time. You can split a merged and centered cell by clicking the Merge & Center button again.

	A	B	C	D	E
1	Green Clean				

Here, the original contents of cell A1 are merged and centered over the range A1:E1

Merge Across

Unlike the Merge & Center, the Merge Across command is used to merge the contents of multiple rows simultaneously. For example, if you used Merge & Center on the range A1:D2, the result would be one large merged cell over this range. However, if you used Merge Across on this same range, the result would be two merged cells (neither of which is centered) within the ranges A1:D1 and A2:D2.

Wrapping Text

The Wrap Text option forces text to wrap within a cell, ensuring that no text will be cut off. The row height increases to accommodate the additional lines of wrapped text.

FROM THE RIBBON
Home→Alignment
→Wrap Text 

Entering a Line Break

To display text on a second line within a single cell, you can insert a line break.

FROM THE KEYBOARD

[Alt]+[Enter] to insert a line break

<i>September</i>	<i>Quarter Total</i>
188684	704785

The line break that forces "Total" to a second line can be removed by clicking here and tapping **Delete**.

Shrinking Text to Fit Within a Cell

There may be times when changing the width of a column or wrapping text is not appropriate, yet you still want all of the text within the cell to be displayed. The Shrink to Fit option allows you to reduce the text size of the cell entry to the exact size that fits the existing cell width.

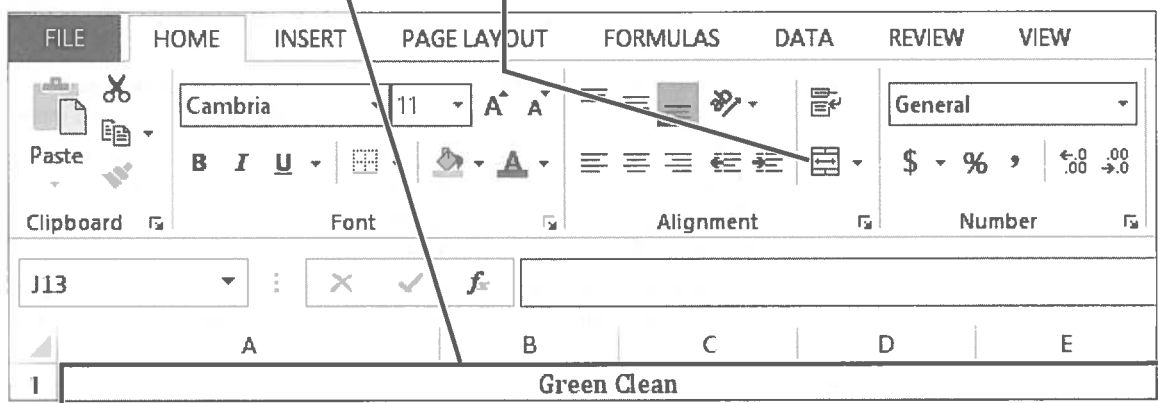
DEVELOP YOUR SKILLS EX05-D03



Control Text in Cells

1. Save your file as **EX05-D03-IncomeStatement-[FirstInitialLastName]**.
2. Follow these steps to merge and center a range of cells:

A Select the range **A1:E1**.

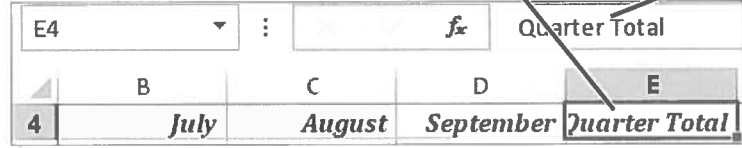
B Choose **Home**→**Alignment**→**Merge & Center**.



3. Select the range **A2:E3**.
4. Choose **Home**→**Alignment**→**Merge & Center** menu ▼→**Merge Across**.
5. Choose **Home**→**Alignment**→**Center** .
6. Select cell **A29**.
7. Choose **Home**→**Alignment**→**Wrap Text** .

8. Follow these steps to manually enter a line break in a cell:

A Select cell E4.



B Click to the left of **Total** and tap **Backspace** to remove the space between words.

C Hold down **Alt** and tap **Enter**.

9. Tap **Enter** to complete the entry; save your file and leave it open.

Formatting Numbers

Number formats change the way numbers are displayed, although they do not change the actual numbers. Once a number format has been applied to a cell, it remains with the cell—even if the contents are deleted.

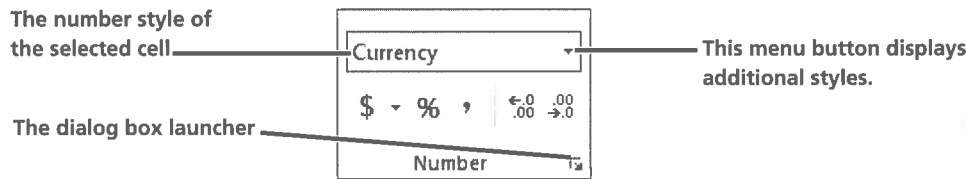
NUMBER FORMAT	DESCRIPTION
General	Numbers are formatted with the General format by default. This format does not apply any special formats to the numbers.
Comma Style	The Comma Style format inserts a comma after every third digit in the number. This format also inserts a decimal point and two decimal places, and indents the entry.
Currency	The Currency format is the same as the Comma Style format, except that it adds a dollar (\$) sign in front of the number and does not indent the entry.
Accounting	The Accounting format is the same as Comma Style format, except that a dollar sign is placed at the left edge of the cell.
Percent Style	The Percent Style, also known as Percentage, inserts a percent (%) sign to the right of the number. The percentage is calculated by multiplying the number by 100.

The following table provides several examples of formatted numbers.

NUMBER ENTERED	FORMAT	HOW THE NUMBER IS DISPLAYED
5347.82	General	5347.82
5347.82	Comma with 0 decimal places	5,348
5347.82	Comma with 2 decimal places	5,347.82
5347.82	Currency with 0 decimal places	\$5,348
5347.82	Currency with 2 decimal places	\$5,347.82
.5347	Percentage with 0 decimal places	53%
.5347	Percentage with 2 decimal places	53.47%

Using the Number Command Group

The Number command group on the Home tab allows you to format numbers in many ways. If you click the dialog box launcher in the Number group, the Format Cells dialog box will appear, providing further formatting options.



Applying the Percent Style

The Percent Style, also called Percentage in Excel, adds a percent sign (%) after a number. To properly apply this style you must either apply the formatting before you type the number, or enter the value with two decimal places prior to applying the formatting.

How Numbers Display in Cells

Unlike text, numbers will not spill over into adjacent cells when they are too long. If the entry contains decimals, they will be rounded to as many decimal places as will fit within the cell. If the entry is formatted such that it cannot appear fully within the cell, number signs (#####) will appear. In this instance you will widen the column to make the entry visible.

These formatted numbers are too wide to be visible.

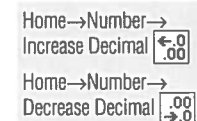
	A	B	C	D	E
25	Net Income (Loss)	#####	#####	#####	#####
26					
27	Net Income to Total Revenues	0.271361665	0.311508894	-0.03845273	0.203218575

Decimals in these entries are rounded.

Adjusting Decimal Places

Most number formats display two decimal places by default. You can adjust the number of decimal places displayed by using the Increase Decimal and Decrease Decimal buttons. Decimals within your entry will automatically round as you add or remove decimal places.

FROM THE RIBBON



Displaying Negative Numbers

Negative number displays can be either preceded by a minus sign or surrounded by parentheses. You can also display negative numbers in red. The Currency and Number options in the Format Cells dialog box allow you to choose the format for negative numbers.

This negative entry is displayed with a negative sign.

	A	B	C	D	E
25	Net Income (Loss)	70398	82662	-7385	145675
26					
27	Net Income to Total Revenues	0.271361665	0.311508894	(0.03845273)	0.203218575

This negative entry is displayed in red with parentheses.

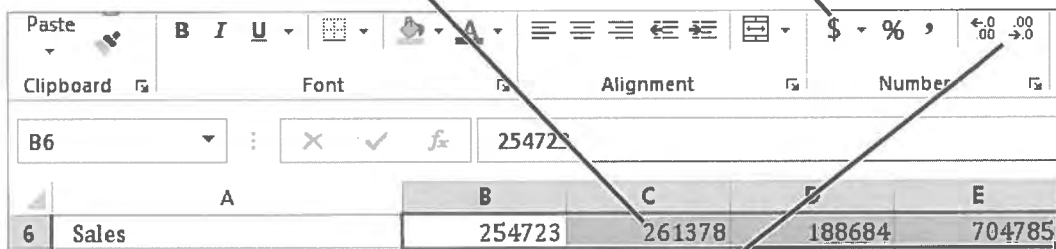
DEVELOP YOUR SKILLS EX05-D04

Format Numbers

1. Save your file as **EX05-D04-IncomeStatement-[FirstInitialLastName]**.
2. Follow these steps to apply the Accounting format to a range of cells:





A Select the **range B6:E6**.

B Choose **Home**→**Number**→**Accounting Number Format**.



C Notice the **number signs (###)** indicate that the formatted numbers are too wide to display.

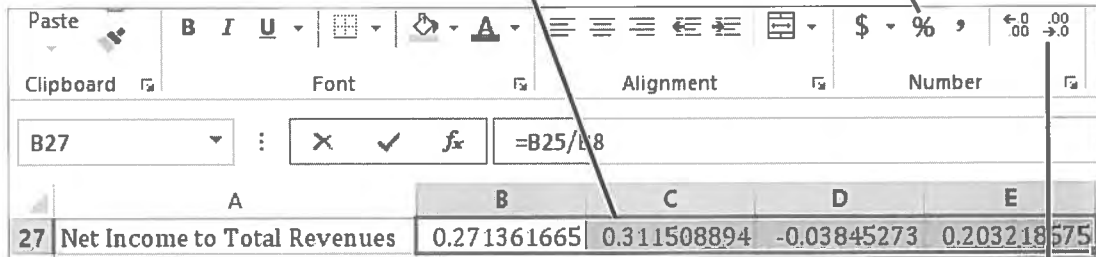
D Choose **Home**→**Number**→**Decrease Decimal** twice.

3. Select the **range B7:E7**.
4. Choose **Home**→**Number**→**Comma Style** .
5. Choose **Home**→**Number**→**Decrease Decimal**  twice.
6. Select the **range B8:E8**, hold down **Ctrl**, and select the **range B11:E11**.
7. Choose **Home**→**Number**→**Accounting Number Format** .
8. Choose **Home**→**Number**→**Decrease Decimal**  twice.
9. Repeat **steps 7–8** to apply **Accounting Number Format** with no decimals to the **ranges B23:E23** and **B25:E25**.

10. Select the **range B12:E22**.
11. Apply **Comma Style** formatting with no decimals to the selection.
12. Follow these steps to apply the Percent Style to a range of cells:

A Select the **range B27:E27**.

B Choose **Home**→**Number**→**Percent Style**.



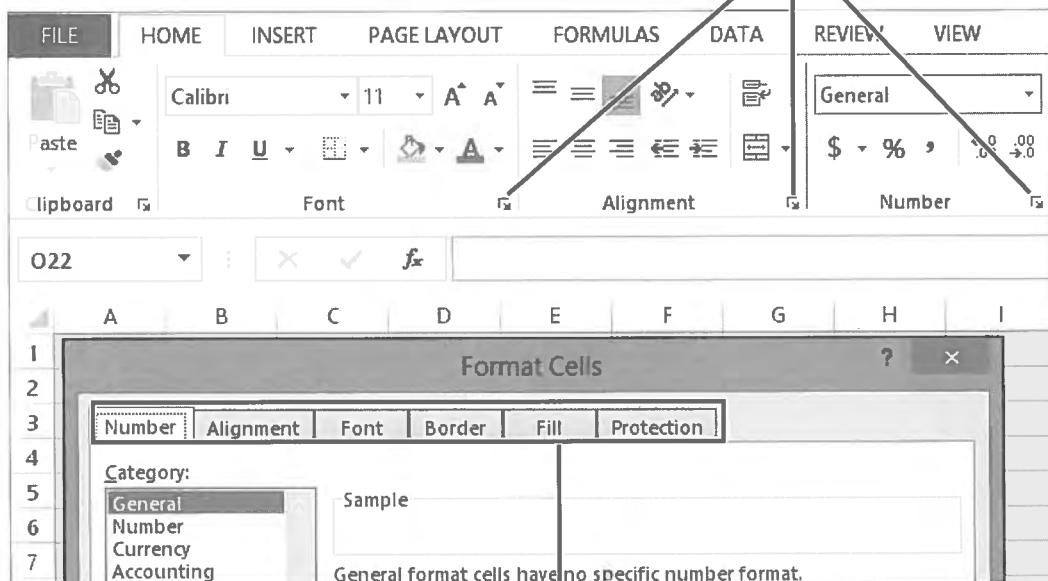
C Choose **Home**→**Number**→**Increase Decimal** twice.

13. Save your file and leave it open.

Using the Format Cells Dialog Box

The Format Cells dialog box contains six tabs that allow you to format your worksheet. Some options in this dialog box are not available on the Ribbon; you must use these tabs to access them.

These dialog box launchers allow you to access the Format Cells dialog box.



These tabs contain useful formatting options.

Applying Borders and Fills to Cells

Borders are lines around the cell edges that both print and display in the worksheet. Fills are background shading and pattern effects that fill entire cells. Keep in mind that “less is more” when applying colors and other formatting.

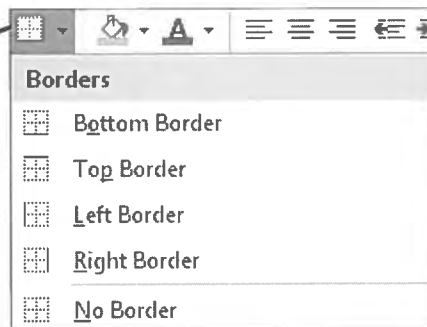
Applying Borders

The Borders button lets you add borders to cell edges. When you click the Borders menu ▼ button, a list of options appears.

FROM THE RIBBON



The Borders menu ▼ button displays the image of the last border applied.



Aside from the All Borders option, each border must be applied one edge at a time to all cells in a selected range.

Applying Fill Colors and Patterns

The Fill Color button lets you fill the background of selected cells with color. When you click the Fill Color menu button, a palette of colors appears. You can apply a color to all selected cells by choosing it from the palette, and can remove a color by selecting the No Fill option.

FROM THE RIBBON



The No Fill option

More Colors will display additional color options.

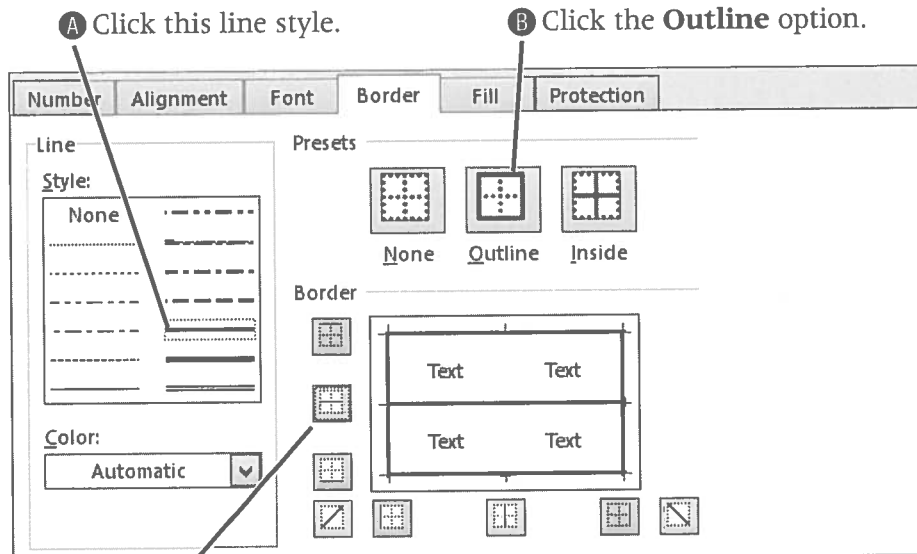
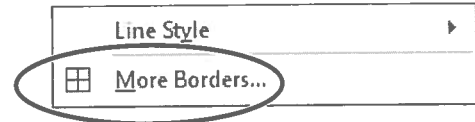


The Fill Color of the most recently used color appears here.

DEVELOP YOUR SKILLS EX05-D05

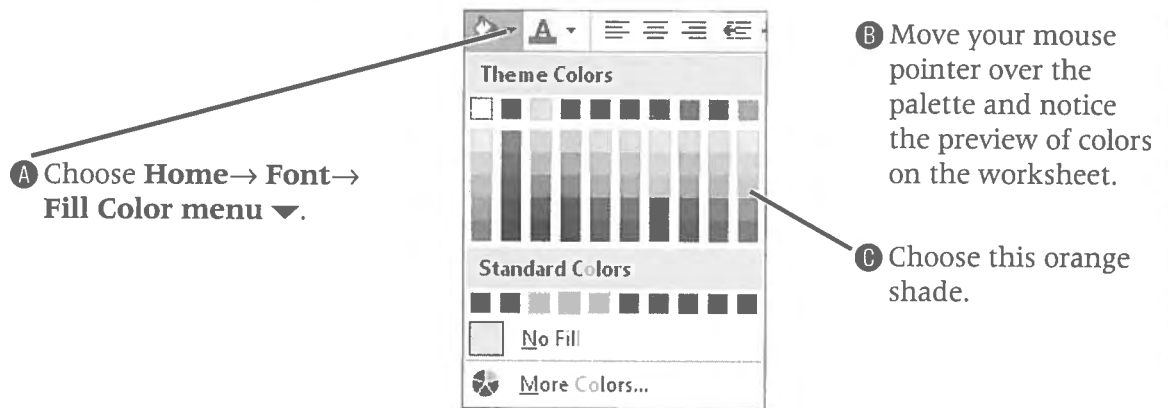
Format with the Format Cells Dialog Box

1. Save your file as **EX05-D05-IncomeStatement-[FirstInitialLastName]**.
2. Select the range **A1:E27**.
3. Choose **Home**→**Font**→**Borders** menu ▼→**More Borders**.
4. Follow these steps to apply the border formatting:



5. Use **Ctrl+Z** to undo the borders.
6. Select the range **B7:E7**, hold down **Ctrl**, and select the range **B22:E22**. Release **Ctrl**.
7. Click the **Borders** menu ▼ button.
8. Choose **Bottom Border** to place a border along the bottom of the selected cells.
9. Select the range **B25:E25**.
10. Click the **Borders** menu ▼ button and choose **Top and Double Bottom Border**.
11. Select the range **A5:E5**, hold down **Ctrl**, and select the range **A10:E10**. Release **Ctrl**.

12. Follow these steps to apply a fill color to the selected ranges:



13. Click away from the selection to view the color in the selected ranges. Save your file and leave it open.

Using Excel's Find and Replace Commands

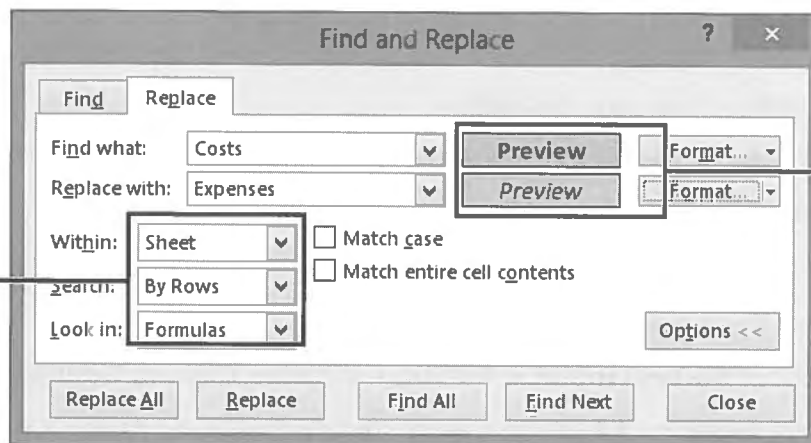
Excel's Find command can perform searches for a particular word, number, cell reference, formula, or format within a worksheet or an entire workbook. The Replace feature helps you to find an item and replace it with a specified item. While using these features you should keep in mind that Excel searches for text without regard for upper- or lowercase, but will replace text only with the exact case you type.

FROM THE KEYBOARD

Ctrl+F to find

Ctrl+H to replace

You can limit the Find and Replace command to specific areas of a workbook.



You can find and replace items with specific cell formats.

DEVELOP YOUR SKILLS EX05-D06

Find and Replace Entries

1. Save your file as **EX05-D06-IncomeStatement-[FirstInitialLastName]**.
2. Choose **Home**→**Editing**→**Find & Select** →**Replace**.

3. Follow these steps to prepare to replace all instances of *Costs* with *Expenses*.

A Type **Costs** in the Find What field.

B Tap **Tab** and type **Expenses** in the Replace With field.

C Click **Find Next** to see the next place that *Costs* appears.

D Click **Replace** to replace this one instance of *Costs*.

E Click **Replace All** to replace every remaining instance of *Costs*.

4. Click **OK** to acknowledge the total number of replacements.
5. Click the **Options** button in the Find and Replace dialog box.
6. Follow these steps to begin setting the formatting to be found:

A Delete the contents of the **Find What** and **Replace With** boxes.

B Click the top **Format** menu ▼ button and select **Choose Format From Cell**.

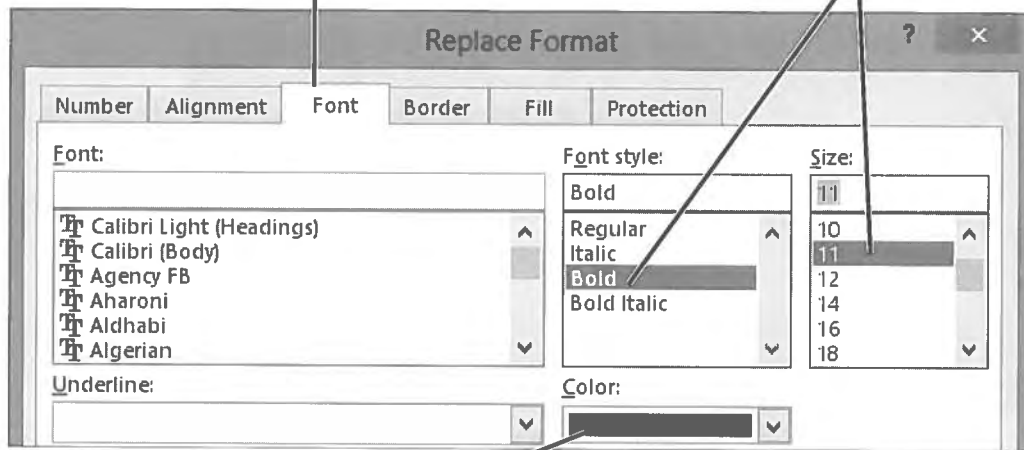
C Select cell **B4**.

D Click the bottom **Format** menu ▼ button and select **Format**.

7. Follow these steps to continue defining the format:

A Select the **Font** tab.

B Choose **Bold** and **11** for the font style and size.



C Choose any color here; click **OK**.

D Click **Replace All** in the Find and Replace dialog box.

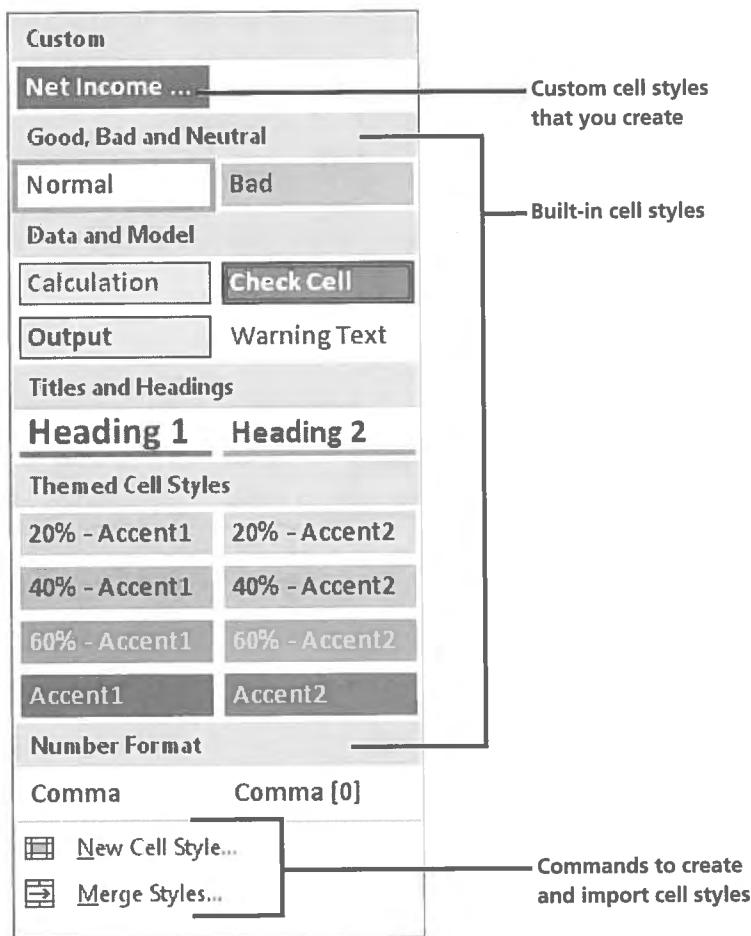
8. Click **OK** in the dialog box that appears.
9. Click the top **Format menu ▼** button and choose **Clear Find Format**.
10. Click the bottom **Format menu ▼** button and choose **Clear Replace Format**.
11. Click **Close** to exit the Find and Replace dialog box.
12. Select cell **E4**.
13. Choose **Home**→**Font**→**Font Color menu ▼** button and choose the same fill color applied to the range **B4:D4**.
14. Save and then close your file.

Working with the Format Painter and Quick Styles

The Format Painter applies formatting from existing worksheet cells, while Quick Styles apply predefined formats to cells. Both of these tools can greatly simplify the formatting of a worksheet.

The Format Painter

The Format Painter lets you copy text and number formats from one cell to another. This can be extremely helpful if you have a cell to which many formatting options have been applied and you do not wish to go through the process of applying each option individually to another cell or range of cells.



Applying Quick Styles to Cells

You can apply Excel's built-in cell styles, also called Quick Styles, or create your own styles for a uniform worksheet design. A cell style's formatting may include the font, number format, borders, or fill.

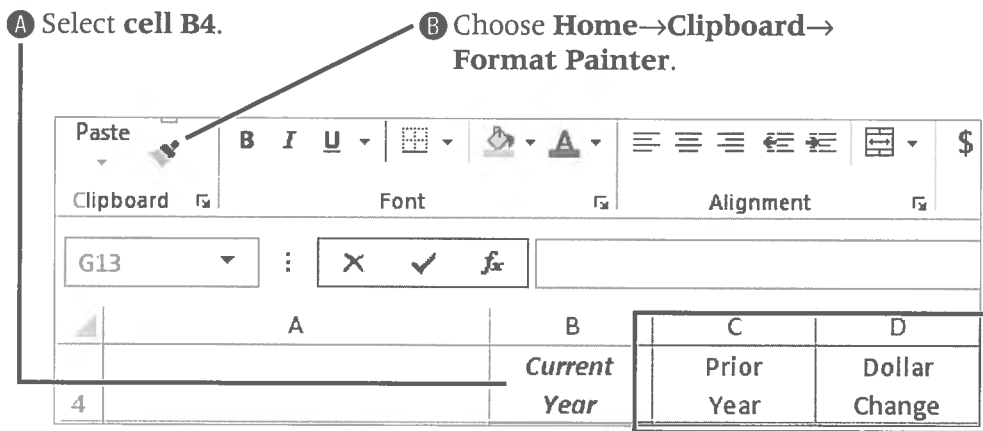
New cell styles that you create appear in the Custom section of the styles list. They are based on the workbook theme, so the colors change automatically to match any new theme applied. Among the built-in styles, only the Themed Cell Styles change colors. Any styles you create or edit apply only to the currently open workbook. The Merge Styles command in the Styles list allows you to import styles created in a different workbook into the current workbook.

DEVELOP YOUR SKILLS EX05-D07

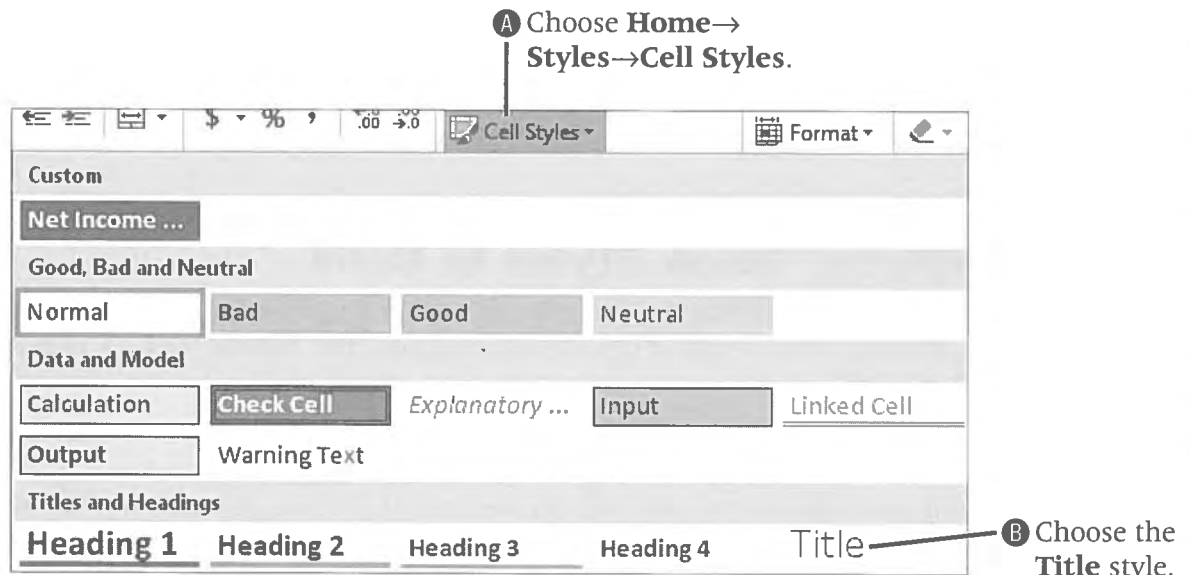
Change Formatting

1. Open **EX05-D07-ISComp** from the **EX2013 Lesson 05** folder and save it as **EX05-D07-ISComp- [FirstInitialLastName]**.
2. Click the **Sheet2** worksheet tab.

- Follow these steps to apply consistent formats to the column headers using the Format Painter:
 - Select cell B4.
 - Choose **Home**→**Clipboard**→**Format Painter**.
 - Select the range C4:D4.



- Select the range A1:A3.
- Follow these steps to apply a built-in cell style:
 - Choose **Home**→**Styles**→**Cell Styles**.
 - Choose the **Title** style.



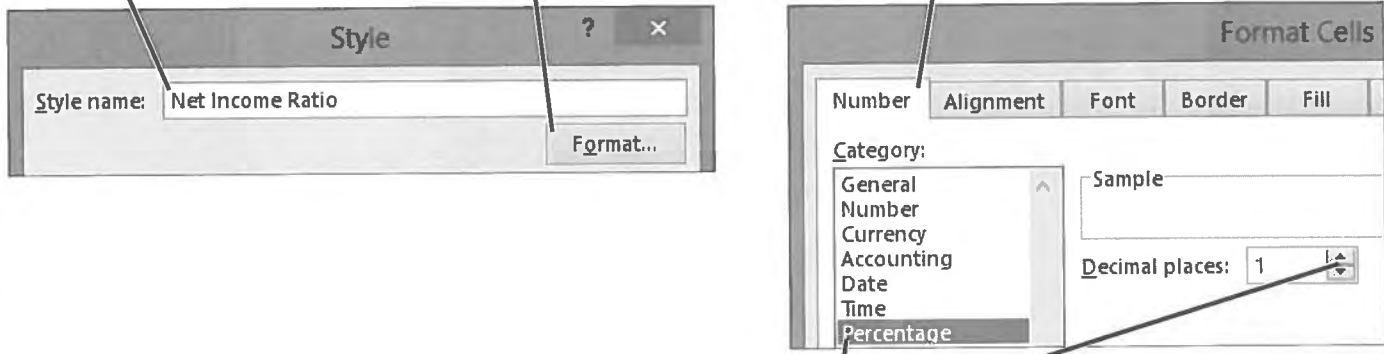
- Select the range B25:D25.
- Choose **Home**→**Styles**→**Cell Styles** and select **Total** from within the Titles and Headings group.
- Deselect the range.
- Choose **Home**→**Styles**→**Cell Styles**.
- Choose **New Cell Style** at the bottom of the list.

11. Follow these steps to begin creating a cell style:

A Type **Net Income Ratio** here.

B Click the **Format** button.

C Select the **Number** tab.



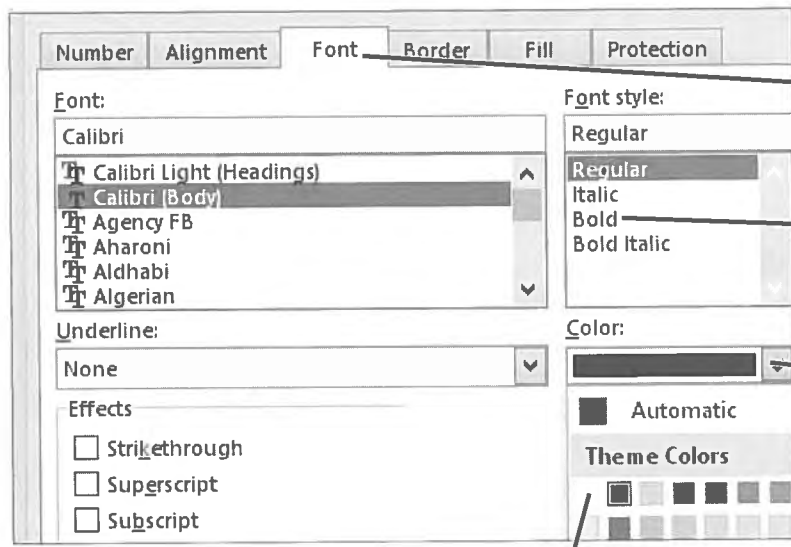
D Choose **Percentage**.

E Click the **spinner arrows** to change decimal places to **1**.

12. With the Format Cells dialog box still displayed, select the **Fill** tab.

13. Choose a dark fill color, such as the fourth color in the sixth column of the Theme Colors palette.

14. Follow these steps to set the text characteristics for the cell style:



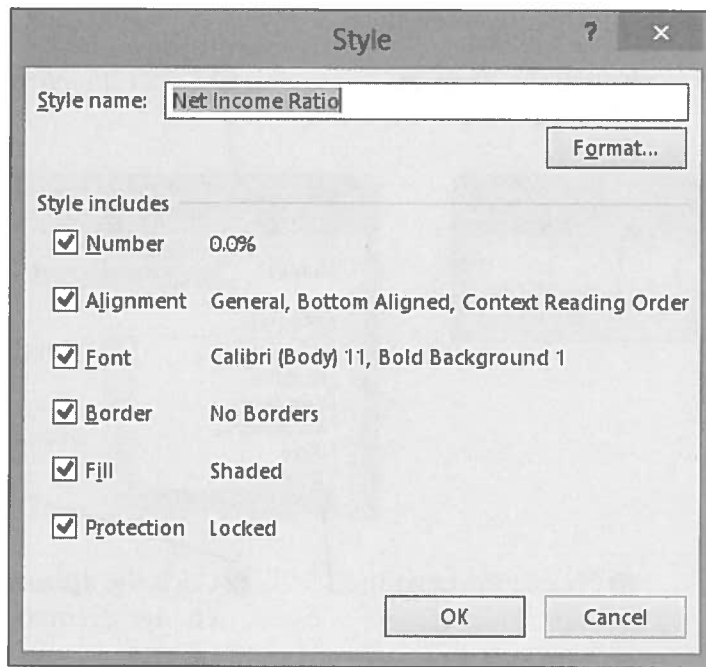
A Select the **Font** tab.


B Choose **Bold**.

C Click the **Color menu ▼** button.

D Choose the indicated white theme color.

E Click **OK**.



15. Click **OK** to close the Style dialog box.
16. Select the range **A27:D27**.
17. Choose **Home**→**Styles**→**Cell Styles**  and select your **Net Income Ratio** style from the **Custom** group at the top of the list.
18. Deselect the range.
19. Save and then close the file.

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.

Charting Worksheet Data

Charting is an important skill to have when using worksheets because comparisons, trends, and other relationships are often conveyed more effectively with charts than by displaying only data. In this lesson, you will use Excel to create column charts, line charts, and pie charts. You will edit and format legends, data labels, and other chart objects. You will also add trendlines to worksheets.

LEARNING OBJECTIVES

After studying this lesson, you will be able to:

- Create different types of charts
- Move and size embedded charts
- Modify and format chart elements
- Create trendlines
- Preview and print worksheets

LESSON TIMING

- Concepts/Develop Your Skills: 1 hr 00 min
- Concepts Review: 15 min
- Total: 1 hr 15 min

CASE STUDY: CHARTING SALES PERFORMANCE

You have been asked to prepare several charts for Green Clean. You will prepare charts that compare sales in the various quarters, display the growth trend throughout the year, and illustrate the contributions of each sales team member to the company sales as a whole. You will use Excel's charting features to produce accurate and easy-to-understand visuals that meet Green Clean's high standards.

Creating Charts in Excel

Many people are “visual learners” and find that numerical data is easier to interpret when presented in a chart. Charts are linked to the data from which they are created, thus charts are automatically updated when worksheet data changes. You can apply options and enhancements to each chart element, such as the title, legend, plot area, value axis, category axis, and data series.

Chart Placement

You have the option of either embedding a new chart into the worksheet where the data resides or placing it on a separate sheet. This can be done when the chart is first created, or at any time thereafter.

Embedded charts can be created by choosing the chart type from the Insert tab. To avoid covering the worksheet data, you can move and resize an embedded chart.

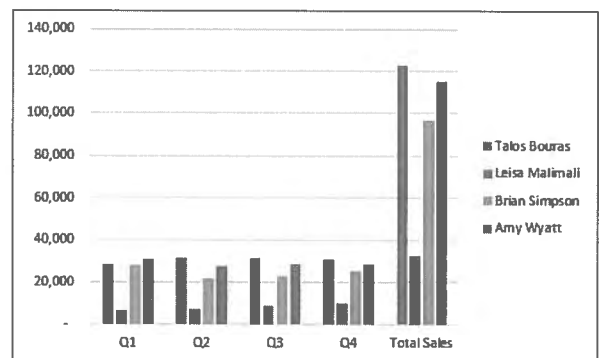
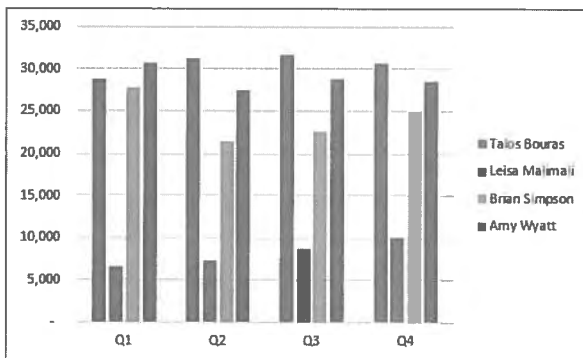
FROM THE KEYBOARD

[F11] to create a chart on its own sheet

You can use the **[F11]** key to place a full-size chart on its own sheet. When you do, the chart on the new sheet will be based on the default chart type. You can easily change the type after creating the chart with the Change Chart Type option.

Choosing the Proper Data Source

It is important to select both the appropriate data, and the proper row and column headings for your column and bar charts to make sure the data are accurate. Usually, you will not include both individual category data and totals because the individual data would appear distorted.



The column chart that excludes the Total Sales data does a better job of displaying the differences between each data series.

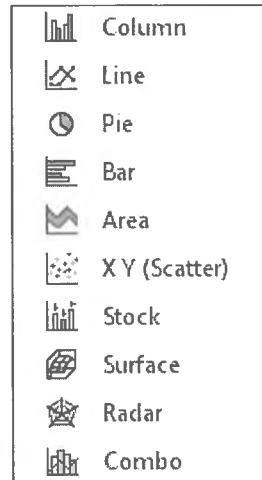
Chart Types

Excel provides 10 major chart types, as well as several subtypes for each. Each chart type represents data in a different manner, and you can also create a customized chart (which can be used as a template) to meet your exact needs.

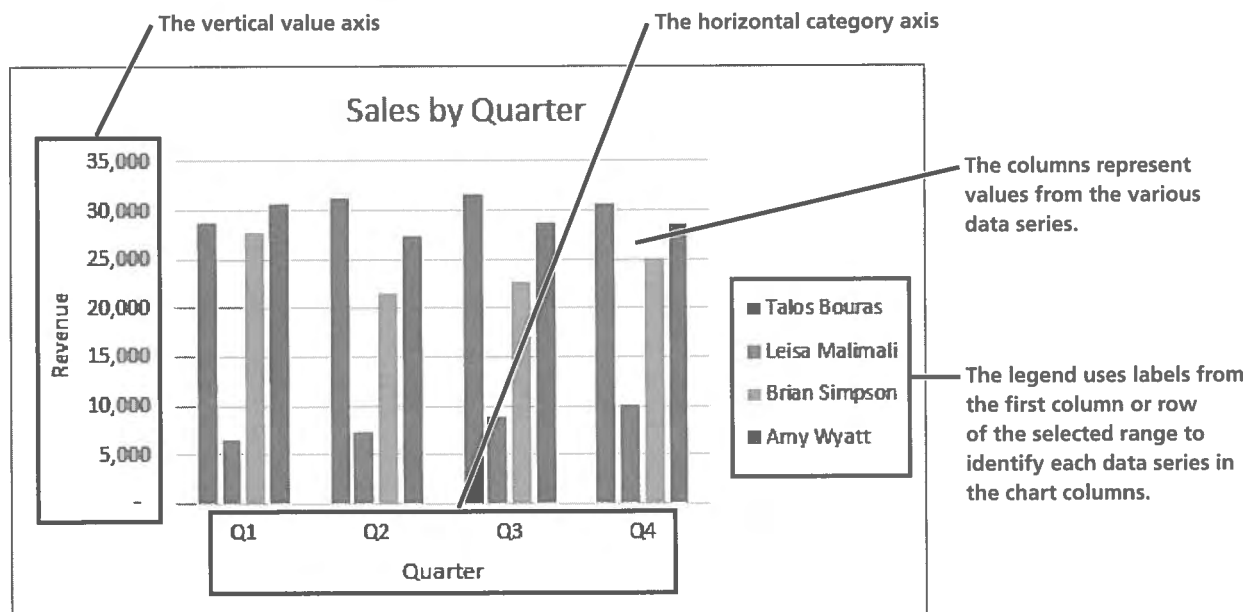
FROM THE RIBBON
 Insert→Charts→
 Recommended Charts

Chart and Axis Titles

Excel allows you to create titles for your charts as well as for the value and category axes. If you choose a range of information that includes what appears to Excel to be a title, Excel will include it in the new chart.



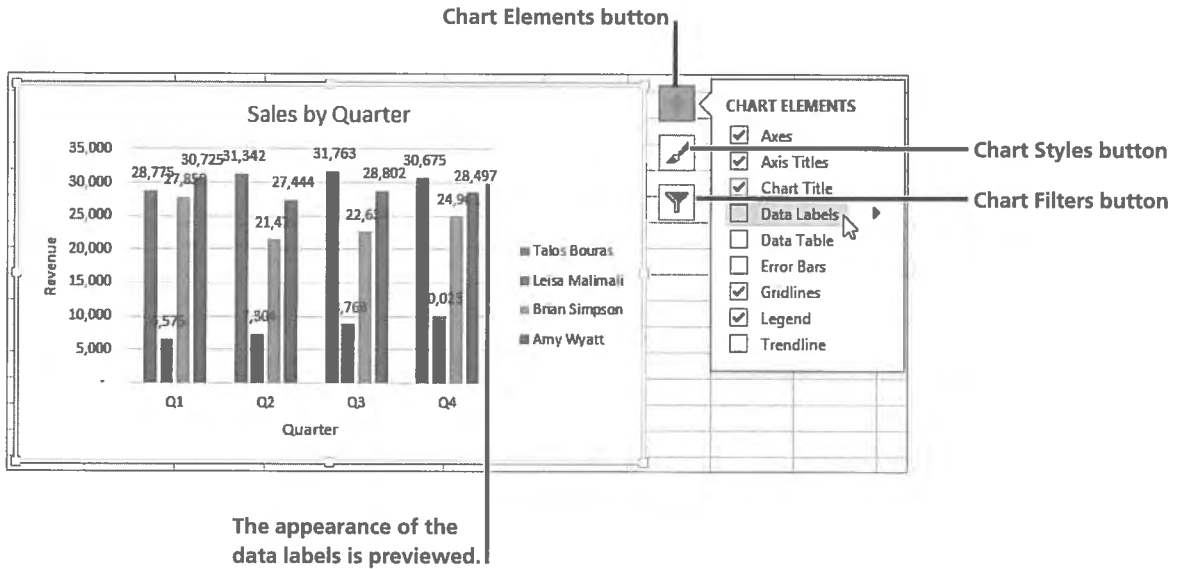
	A	B	C	D	E	F
2	<i>Quarterly and Total Sales - Fiscal Year</i>					
3						
4		Q1	Q2	Q3	Q4	Total Sales
5	Talos Bouras	28,775	31,342	31,763	30,675	\$ 122,555
6	Leisa Malimali	6,575	7,304	8,768	10,023	\$ 32,670
7	Brian Simpson	27,850	21,471	22,634	24,961	\$ 96,916
8	Amy Wyatt	30,725	27,444	28,802	28,497	\$ 115,468
9						
10	Quarter Total	\$ 93,925	\$ 87,561	\$ 91,967	\$ 94,156	\$ 367,609



This column chart compares values using vertical bars. It was created using the highlighted worksheet data.

Chart Formatting Control

To quickly preview and select different chart elements, styles, and filters, you can use the chart formatting buttons that appear when a chart is selected. When you scroll over an option within any of the three buttons, its appearance will be previewed within your chart.



DEVELOP YOUR SKILLS EX06-D01

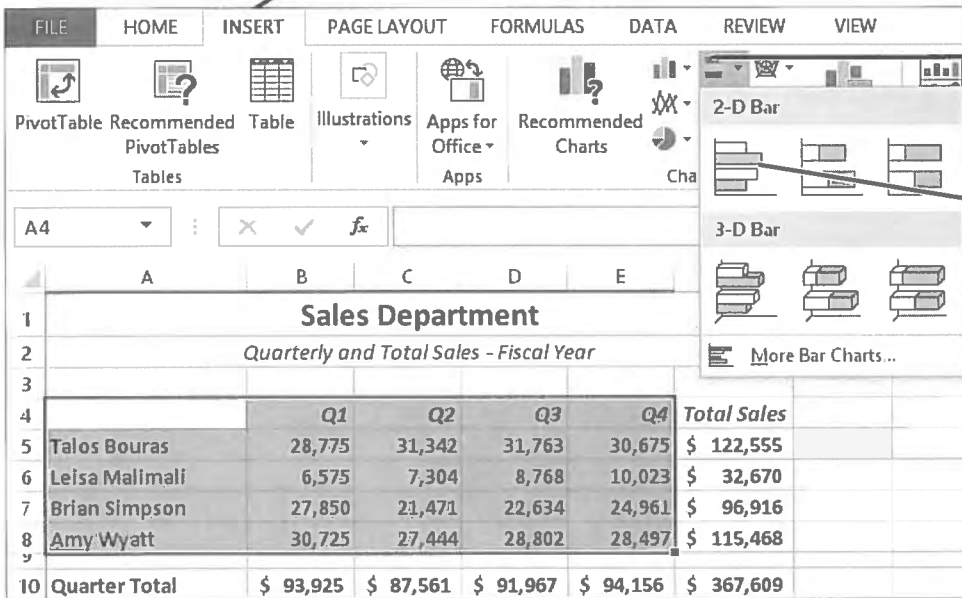
Create a Chart

1. Open **EX06-D01-SalesCharts** from the **EX2013 Lesson 06** folder and save it as **EX06-D01-SalesCharts-[FirstInitialLastName]**.
2. Select the range **A4:E8** in the **Sales by Quarter** worksheet.
3. Tap the **[F11]** key.
4. Double-click the new chart tab, type **Sales by Rep**, and tap **[Enter]**.
5. Display the **Sales by Quarter** worksheet and make certain the range **A4:E8** is still selected.



6. Follow these steps to create a clustered bar chart:

A Click the **Insert** tab.



B Click the **Bar** button.

C Choose the first chart type listed under **2-D Bar** (Clustered Bar).

7. Look at the Ribbon to see that the **Chart Tools** are now displayed and the **Design** tab is active.



8. Follow these steps to title the chart:



A Highlight the default title.



B Type the new title shown here.

C Click in a blank area of the chart to accept the new title.

9. Remaining within the chart, follow these steps to add a vertical axis title:

A Click the **Chart Elements** button.

B Choose **Axis Titles**.

C Click and type **Quarter** for the vertical axis, and then click and type **Sales** for the horizontal axis.

D Click in any blank area of the chart to accept each new title.

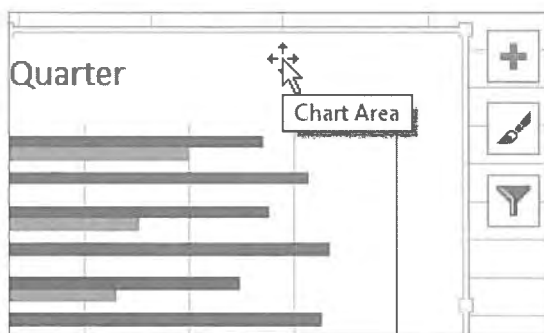
10. Save the file and leave it open; you will modify it throughout this lesson.

Moving and Sizing Embedded Charts

When a chart is selected, it is surrounded by a light border with sizing handles displayed. A selected chart can be both moved and resized.

Moving Embedded Charts

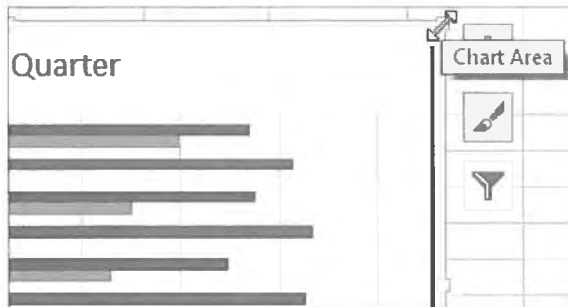
Charts that are embedded in a worksheet can easily be moved to a new location. A chart can be moved by a simple drag, but you need to ensure that you click the chart area and not a separate element.



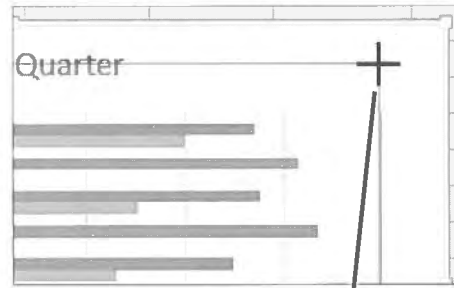
A four-pointed arrow (along with the "Chart Area" ScreenTip) indicates that you can drag to move this selected chart.

Sizing Embedded Charts

To size a chart, it must first be selected. You can drag a sizing handle when the double-arrow mouse pointer is displayed. To change a chart size proportionately, hold **[Shift]** while dragging a corner handle. If you wanted to only change the height or width of a chart you would not hold **[Shift]**.



A double arrow appears when you point at a chart's sizing handle.



As you drag to size a chart element, a black line displays the new size.

Deleting Charts

Deleting an embedded chart is simple—just select the chart area and tap **[Delete]**. You can delete a chart that is on its own tab by deleting the worksheet.

DEVELOP YOUR SKILLS EX06-D02

Size and Move an Embedded Chart

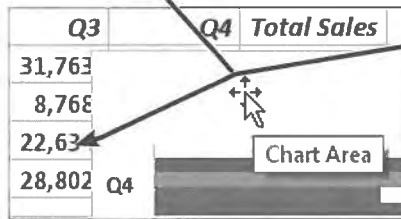
1. Save your file as **EX06-D02-SalesCharts-[FirstInitialLastName]**.
2. Click once on the chart area of the embedded chart in the **Sales by Quarter** sheet to select the chart.
3. Follow these steps to resize the chart to be smaller:



- A Place the mouse pointer here until you see the **double-pointed arrow** (not a four-pointed arrow).
- B Press and hold **[Shift]** while you drag the sizing handle down and to the left.
- C Release the mouse button to decrease the size a little, and then release **[Shift]**.

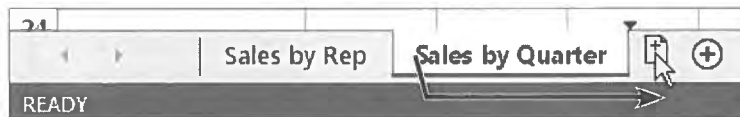
4. Follow these steps to move the chart and center it below the worksheet data:

- A Place the mouse pointer over a blank area of the chart so that a **four-pointed arrow** appears.



- B Drag the chart down and to the left until it is just below **row 11** and centered within **columns A–F**.
- C Release the mouse button.

5. Hold down **Ctrl**, drag the **Sales by Quarter** sheet tab to the right, and then release the mouse and **Ctrl**.



6. Rename the **Sales by Quarter (2)** sheet to **Team Totals**.
7. Click once to select the chart in the **Team Totals** sheet and tap **Delete**.
8. Use **Ctrl** + **Z** to undo the Delete command.
9. Use **Ctrl** + **Y** to redo the Delete command.
10. Save the file and leave it open.

Exploring Other Chart Types

Here you will explore line and pie charts and how they can make your data work for you. Pie charts are suitable when you are examining data that represent portions of a whole (just as pieces of an apple pie, when combined, represent the whole pie).

Line Charts

Line charts are most useful for comparing trends over a period of time. Like column charts, line charts have category and value axes. Line charts also use the same or similar objects as column charts.

	A	B	C	D	E	F
1	Sales Department					
2	<i>Quarterly and Total Sales - Fiscal Year</i>					
3						
4		Q1	Q2	Q3	Q4	Total Sales
5	Talos Bouras	28,775	31,342	31,763	30,675	\$ 122,555
6	Leisa Malimali	6,575	7,304	8,768	10,023	\$ 32,670
7	Brian Simpson	27,850	21,471	22,634	24,961	\$ 96,916
8	Amy Wyatt	30,725	27,444	28,802	28,497	\$ 115,468
9						
10	Quarter Total	\$ 93,925	\$ 87,561	\$ 91,967	\$ 94,156	\$ 367,609

The chart was created using the selected data.

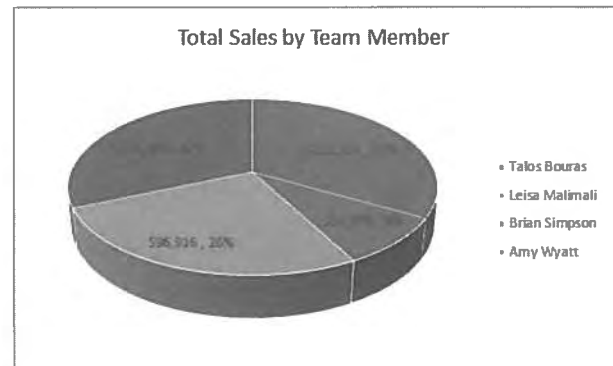


Data labels show the precise value of the various data points.

Pie Charts

You typically select only two sets of data when creating pie charts: the values to be represented by the pie slices and the labels to identify the slices.

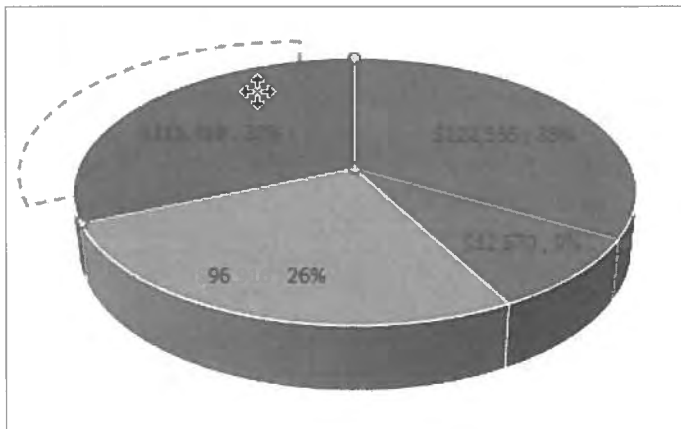
	A	B	C	D	E	F
4		Q1	Q2	Q3	Q4	Total Sales
5	Talos Bouras	28,775	31,342	31,763	30,675	\$ 122,555
6	Leisa Malimali	6,575	7,304	8,768	10,023	\$ 32,670
7	Brian Simpson	27,850	21,471	22,634	24,961	\$ 96,916
8	Amy Wyatt	30,725	27,444	28,802	28,497	\$ 115,468
9						
10	Quarter Total	\$ 93,925	\$ 87,561	\$ 91,967	\$ 94,156	\$ 367,609



This pie chart is based on the selected data.

Exploding Pie Slices

There will be times when you want to draw attention to a particular slice of a pie chart. You can make one slice explode from the chart simply by dragging it away from the other slices.



As you drag a slice out to give it an exploded effect, Excel will show with a dashed line where it will land.

Rotating and Elevating Pie Charts

You can change the rotation and perspective (also known as elevation) of pie charts to display data in a different position or change the angle at which it is viewed.

FROM THE RIBBON
 Format→Shape
 Styles→Shape
 Effects→3-D
 Rotation→3-D Rotation
 Options

DEVELOP YOUR SKILLS EX06-D03

Create a Line Chart

1. Save your file as **EX06-D03-SalesCharts-[FirstInitialLastName]**.
2. Select the **Sales by Quarter** worksheet.
3. Follow these steps to select the data for the line chart:

A Select the range **A4:E4**.

B Press and hold **[Ctrl]** while selecting the range **A10:E10**.

C Choose **Insert→Charts→Insert Line Chart→Line with Markers**.




	Q1	Q2	Q3	Q4	Total Sales
Talos Bouras	28,775	31,342	31,763	30,675	\$ 122,555
Leisa Malimali	6,575	7,304	8,768	10,023	\$ 32,670
Brian Simpson	27,850	21,471	22,634	24,961	\$ 96,916
Amy Wyatt	28,725	27,444	28,802	28,497	\$ 115,468
Quarter Total	\$ 93,925	\$ 87,561	\$ 91,967	\$ 94,156	\$ 367,609

4. With the chart selected, choose **Chart Tools→Design→Location→Move Chart**.
5. Follow these steps to move the chart to its own sheet:

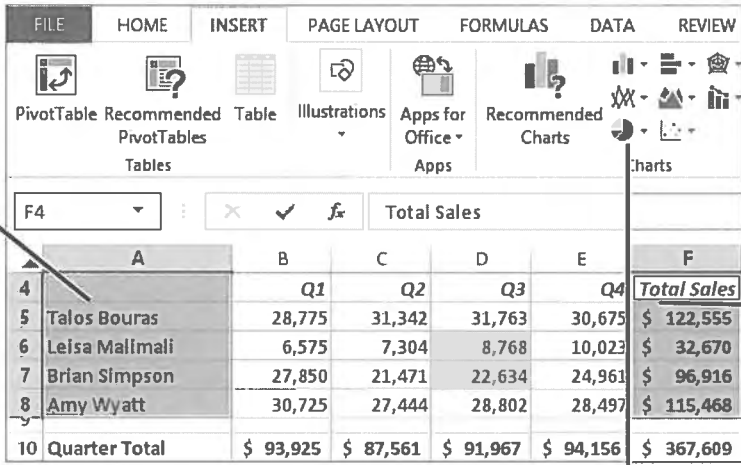
A Highlight **Chart2** and type **Sales Trend**.

B Click **OK**.

6. Click the **Title** text box, type **Sales Trend**, and tap **[Enter]**.

7. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element** →**Axis Titles**→**Primary Horizontal**.
8. Type **Quarter** and tap **[Enter]** to replace the default horizontal axis title.
9. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element** →**Axis Titles**→**Primary Vertical**, type **Revenue**, and tap **[Enter]**.
10. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element** →**Data Labels**→**Above**.
11. Select the **Team Totals** worksheet.
12. Follow these steps to select the range for the pie chart:


A Drag to select the range **A4:A8**.



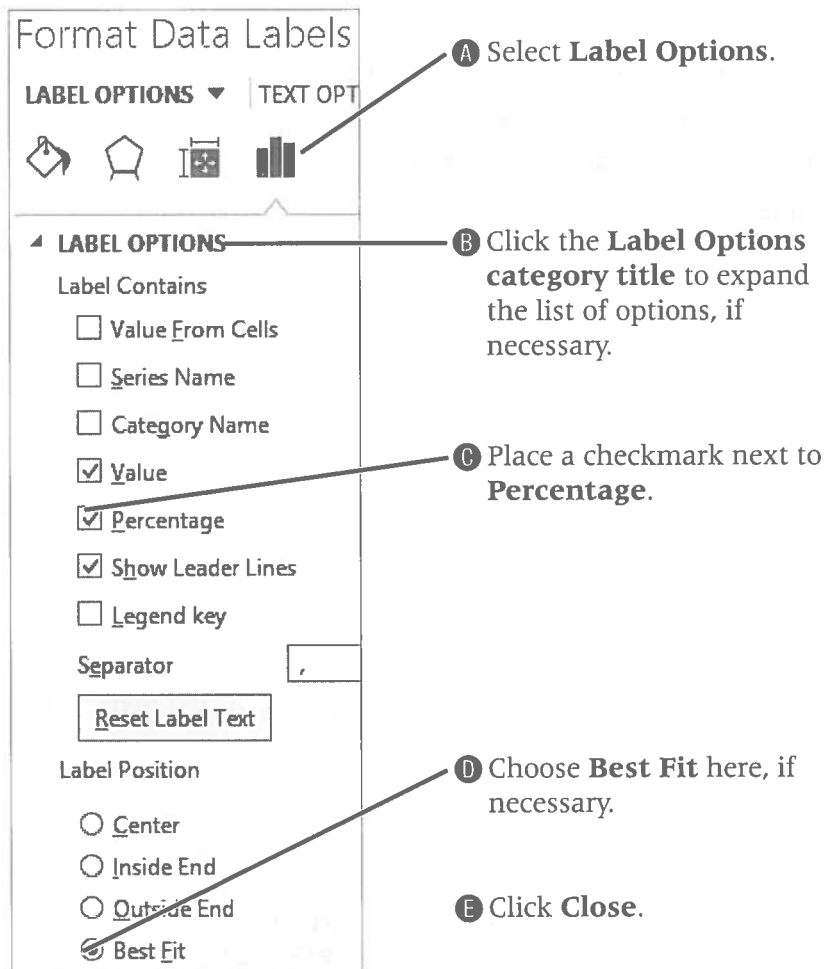
B While holding **[Ctrl]**, drag to select the range **F4:F8**.

C Choose **Insert**→**Charts**→**Insert Pie or Doughnut Chart** ▼→**3-D Pie**.

	A	B	C	D	E	F
4		Q1	Q2	Q3	Q4	Total Sales
5	Talos Bouras	28,775	31,342	31,763	30,675	\$ 122,555
6	Leisa Mallimali	6,575	7,304	8,768	10,023	\$ 32,670
7	Brian Simpson	27,850	21,471	22,634	24,961	\$ 96,916
8	Amy Wyatt	30,725	27,444	28,802	28,497	\$ 115,468
10	Quarter Total	\$ 93,925	\$ 87,561	\$ 91,967	\$ 94,156	\$ 367,609

13. Place the mouse pointer over the chart area so that the **four-pointed arrow** appears, and then drag down and left until it is below **row 11** and centered between **columns A–F**.
14. Edit the chart title to read **Total Sales by Team Member**. Click outside of the Title box to accept the new title.
15. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element** →**Data Labels**→**More Data Label Options**.

16. Follow these steps to format the data labels:



A Select **Label Options**.

B Click the **Label Options** category title to expand the list of options, if necessary.

C Place a checkmark next to **Percentage**.

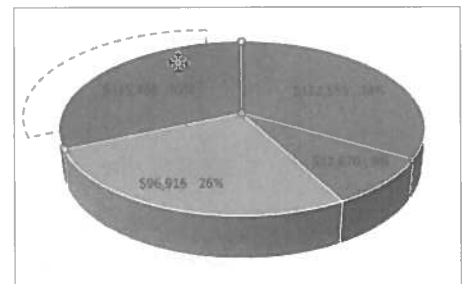
D Choose **Best Fit** here, if necessary.

E Click **Close**.

17. Click the slice representing **Amy Wyatt's sales**, and then pause and click it again.

18. Place the mouse pointer over the **Amy Wyatt** slice until you see a move pointer, and then drag away from the pie chart slightly and release.

19. Save the file and leave it open.



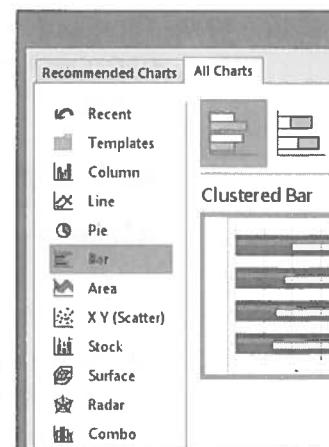
Modifying Existing Charts

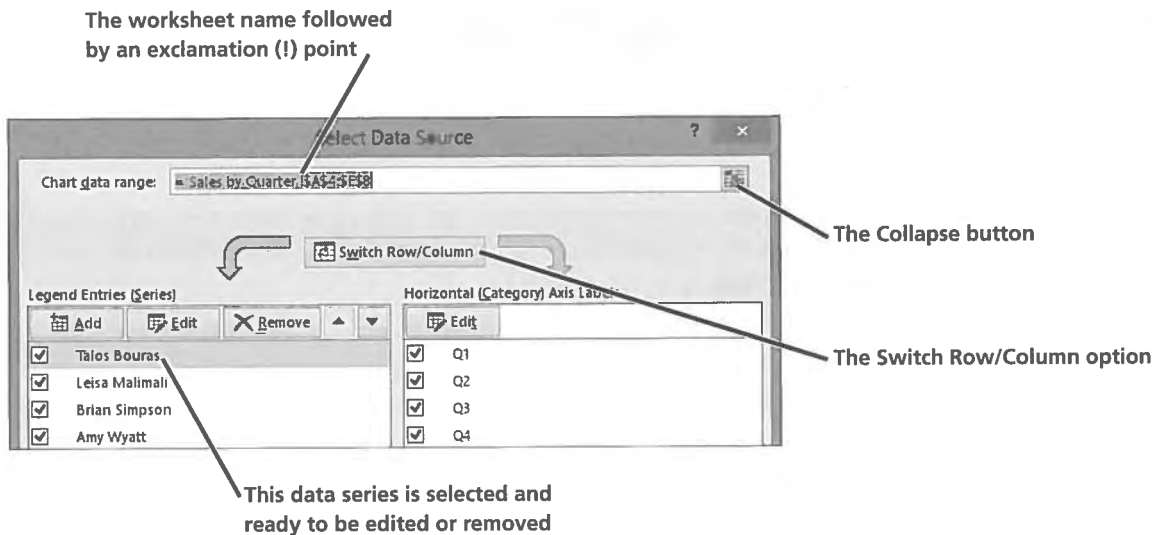
You can modify any chart object after the chart has been created. The following table describes the various Chart Tools available to modify your charts.

CHART TOOLS ON THE RIBBON	
Contextual Tab	Command Groups on the Tab
Design	<ul style="list-style-type: none"> ■ <i>Chart Layouts</i>: Change the overall layout of the chart and add chart elements. ■ <i>Chart Styles</i>: Choose a preset style for your chart. ■ <i>Data</i>: Switch the data displayed on rows and columns, and reselect the data for the chart. ■ <i>Type</i>: Change the type of chart, set the default chart type, and save a chart as a template. ■ <i>Location</i>: Switch a chart from being embedded to being placed on its own sheet and vice versa.
Format	<ul style="list-style-type: none"> ■ <i>Current Selection</i>: Select a specific chart element, apply formatting, and reset formatting. ■ <i>Insert Shapes</i>: Insert and change shapes. ■ <i>Shape Styles</i>: Visually make changes to the selected chart element. ■ <i>WordArt Styles</i>: Apply WordArt to text labels in your chart. ■ <i>Arrange</i>: Change how your chart is arranged in relation to other objects in your worksheet. ■ <i>Size</i>: Change the size of your chart.

Changing the Chart Type and Source Data

It's easy to change an existing chart to a different type using the Change Chart Type dialog box. You can also change the source data from within the Select Data Source dialog box. You may find it easier to edit the existing data range by using the collapse button. Aside from editing the data range, you can also alter individual data series, add additional data series, and alter the horizontal axis. Note that the Switch Row/Column option swaps the data in the vertical and horizontal axes.





Modifying and Formatting Chart Elements

The legend, titles, and columns are chart elements. Once selected, you can delete, move, size, and format different elements. You can move a selected element by dragging it with the mouse when you see the move pointer, or change its size by dragging a sizing handle.

You can modify any chart element after the chart has been created by double-clicking the chart element to display a Format task pane with many options for that element. For example, options in the Format Chart Title dialog box allow you to adjust the vertical alignment, adjust the text direction, and apply a fill, border, or other visual effects.

Previewing Formatting Before Applying

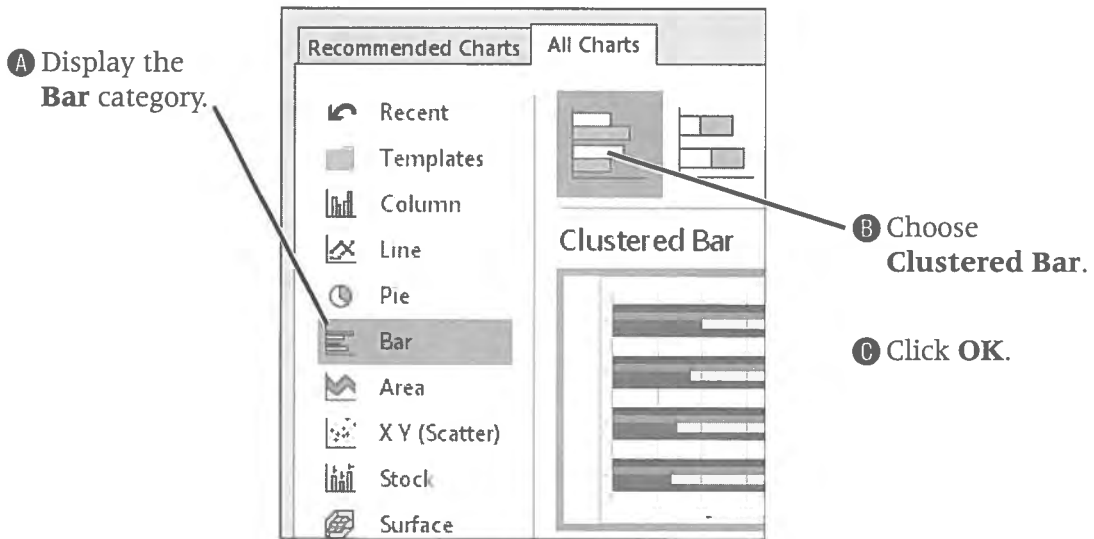
The Chart Formatting buttons allow you to preview a variety of formatting changes. If you place the mouse pointer over an option accessed through these buttons, a preview displays how the change will look in your chart.

DEVELOP YOUR SKILLS EX06-D04

Modify a Chart

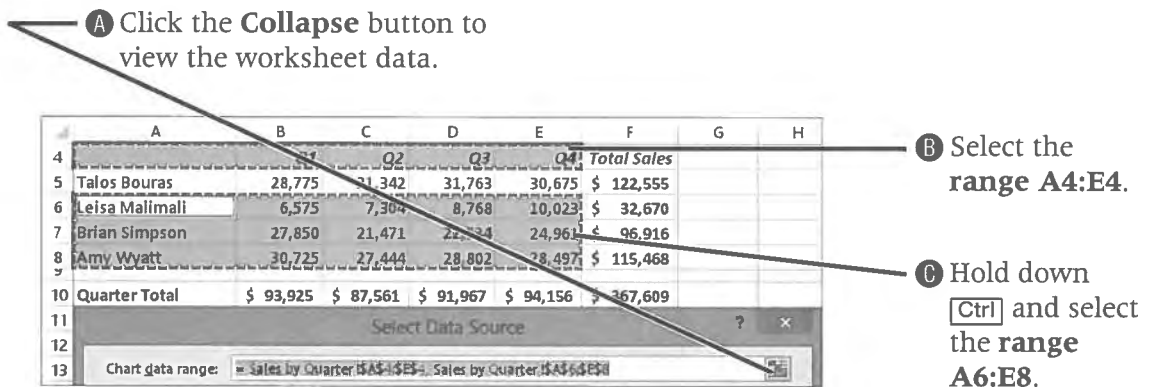
1. Save the file as **EX06-D04-SalesCharts-[FirstInitialLastName]**.
2. Select the **Sales by Rep** worksheet, click anywhere within the column chart, and choose **Chart Tools**→**Design**→**Type**→**Change Chart Type**.

3. Follow these steps to change the chart type:



4. Choose **Chart Tools**→**Design**→**Data**→**Select Data** .

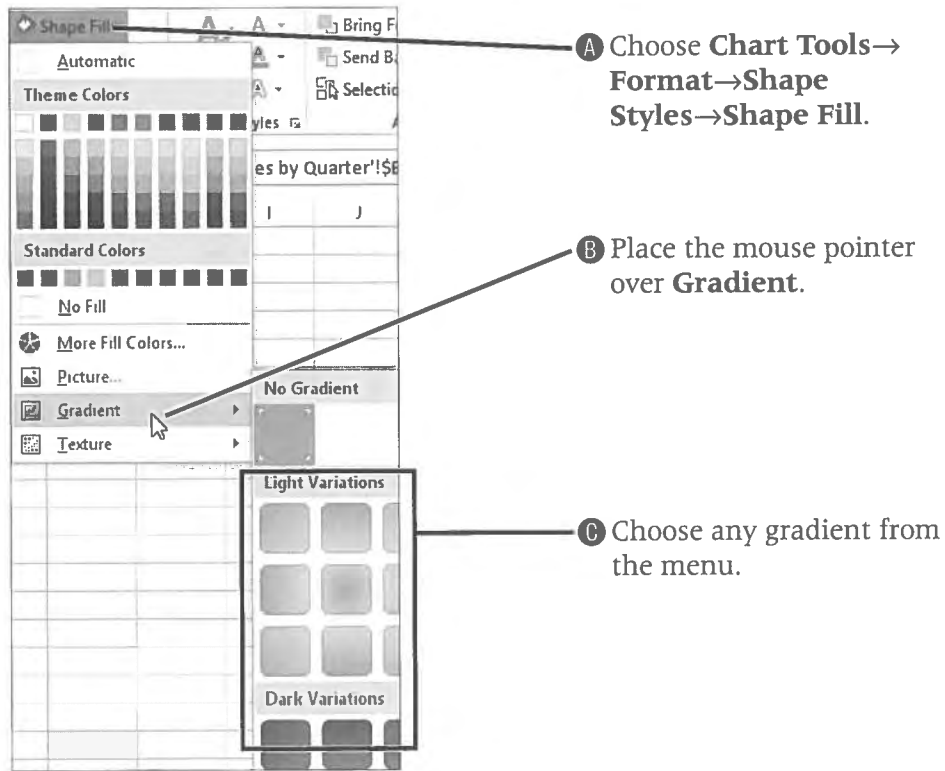
5. Follow these steps to reselect the chart data range:



6. Select one of the column bars for **Leisa Malimali** and tap **Delete**.

7. Click anywhere within the top bar in the chart.

8. Follow these steps to apply formatting to the Amy Wyatt data series:



9. Click anywhere within the chart area to select it.

10. Choose **Chart Tools**→**Format**→**Shape Styles**→**Shape Outline** →**Weight** and select **3 pt**.

11. Choose **Chart Tools**→**Format**→**Shape Styles**→**Shape Outline**  and apply any color; then, click away from the chart to review your formatting changes.

12. Double-click any of the values in the **horizontal axis**.

13. Follow these steps to format the axis numbers as Currency:

Format Axis

AXIS OPTIONS ▼ | **TEXT OPTIONS**

▶ **AXIS OPTIONS**

▶ **TICK MARKS**

▶ **LABELS**

▲ **NUMBER**

Category

- Custom
- General
- Number
- Currency**
- Accounting
- Date
- Time
- Percentage
- Fraction
- Scientific
- Text
- Special
- Custom

A If necessary, select **Axis Options**.

B Choose **Number**.

C Click the drop-down arrow and select **Currency**.

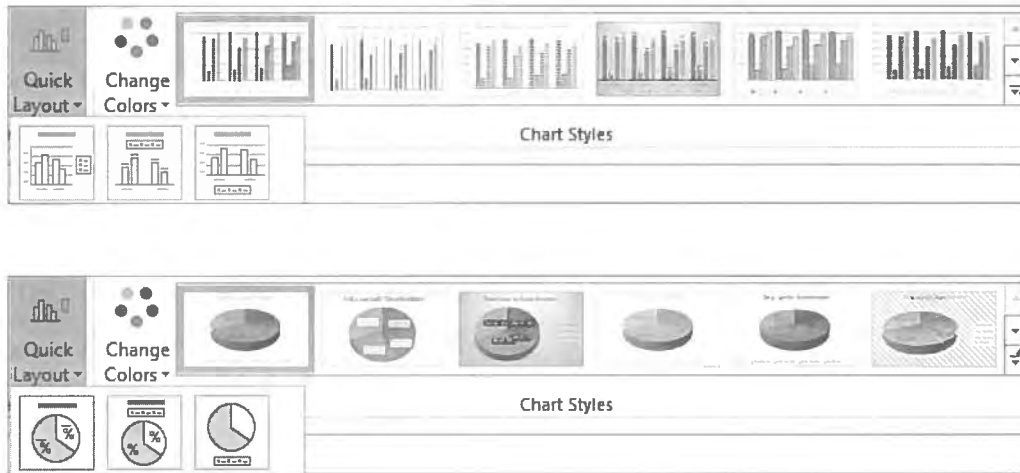
D Click **Close**.

14. Change the default chart title to **Sales by Rep.**

15. Save the file and leave it open.

Applying Layouts and Styles to Charts

Chart layouts, also known as quick layouts, are designs that contain various preset chart elements. Choosing a chart layout saves time versus adding and formatting chart elements one at a time. Chart styles are based on the theme applied to your workbook. You can apply many preset styles to each chart type.



The available chart layouts and styles change based on the type of chart selected.

Formatting Attributes Controlled by the Selected Style

When you choose a style for your chart, the colors and effects (such as fill effects) change to match the style selected. Data in worksheet cells are not affected by any styles you apply to charts. Excel does not allow you to create your own styles, but you can save the formatting from a selected chart as a template to use as the basis for future charts.

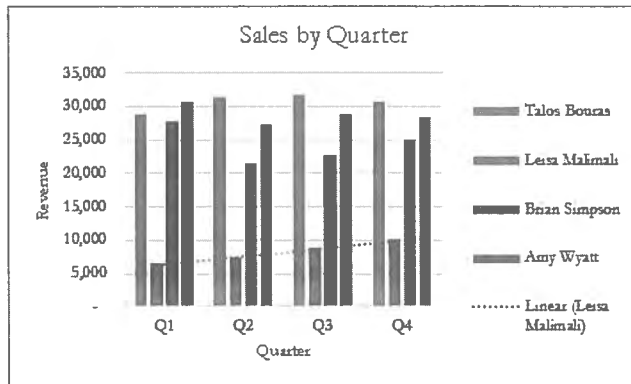
DEVELOP YOUR SKILLS EX06-D05

Apply a Layout and a Style to a Chart

1. Save your file as **EX06-D05-SalesCharts- [FirstInitialLastName]**.
2. Select the **Sales by Rep** sheet and choose **Page Layout**→**Themes**→**Themes** →**Organic**.
3. Click in the chart area of the **Sales by Rep** chart to select the chart, if necessary.
4. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Quick Layout** .
5. Choose **Layout 2** in the list.
6. Choose **Chart Tools**→**Design**→**Chart Styles**→**More** .
7. Choose **Style 4** in the list.
8. Save the file and leave it open.

Creating Trendlines

Trendlines are used on charts for data analysis and prediction. A trendline displays the trend (increasing or decreasing) of one data series in a chart. There are several types of trendlines available, each suited to the display of particular data types. For example, a linear trendline works well with data that follow a fairly straight path. A moving average trendline will smooth out fluctuations in data by averaging two or more adjacent data points for each trendline data point.



This linear trendline depicts the upward trend for Leisa Malimali's sales.


DEVELOP YOUR SKILLS EX06-D06

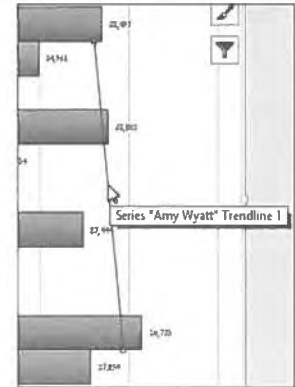
Add a Trendline

1. Save your file as **EX06-D06-SalesCharts-[FirstInitialLastName]**.
2. Follow these steps to add a trendline to the Amy Wyatt data series:



- A Select the **Sales by Rep** sheet.
- B Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element**→**Trendline**→**Linear**.
- C Choose **Amy Wyatt**.
- D Click **OK**.

3. Position the tip of the pointer arrow against the trendline and click to select the trendline.
4. Choose **Chart Tools**→**Design**→**Chart Layouts**→**Add Chart Element** →**Trendline**→**Linear Forecast**.
5. If necessary, double-click the trendline to open the **Format Trendline** task pane.
6. In the **Forecast** area of Trendline Options, change **Forward** from 2.0 periods to 1; tap **Enter**.
7. With the trendline still selected, select **Moving Average** in the Format Trendline task pane; click **Close**.
8. Save the file and leave it open.



Previewing and Printing Charts

The print area within the File tab of Backstage view shows chart previews. Keep in mind that if an embedded chart is active when you choose to print, only the chart itself will print. You must deselect an embedded chart to print its entire worksheet.

DEVELOP YOUR SKILLS EX06-D07

Preview and Print a Chart

1. Save the file as **EX06-D07-SalesCharts - [FirstInitialLastName]**.
2. Select the **Team Totals** worksheet; then click once to select the pie chart.
3. Choose **File**→**Print**.
4. Tap **Esc** to exit Backstage view without printing.
5. Click in a cell away from the pie chart to deselect the chart.
6. Choose **File**→**Print**.
7. Tap **Esc** to exit Backstage view without printing.
8. Display the **Sales Trend** worksheet and, if desired, choose **File**→**Print** to print the worksheet.
9. Save then close the file. Exit **Excel**.

Concepts Review

To check your knowledge of the key concepts introduced in this lesson, complete the Concepts Review quiz on the student resource center.

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