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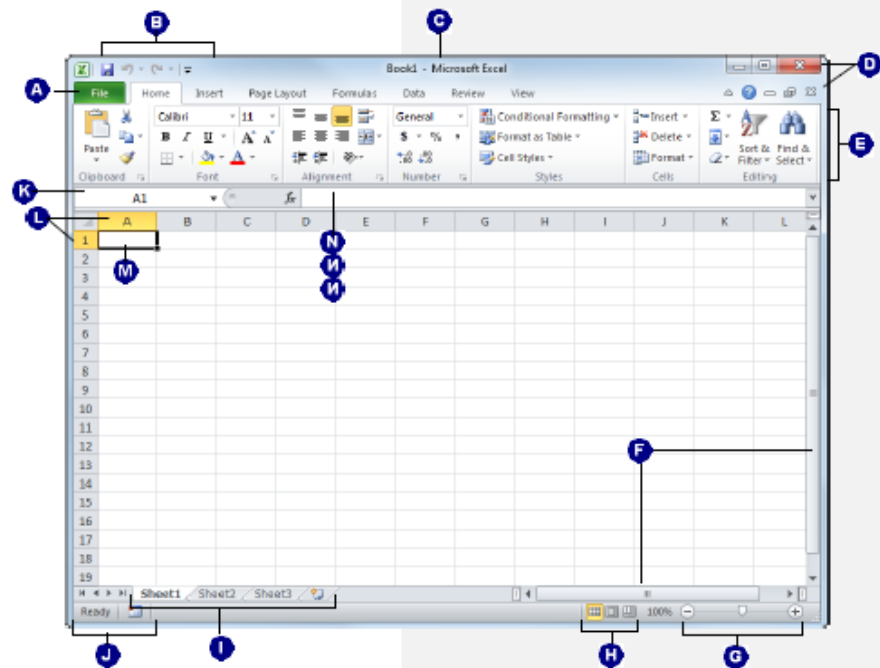
Program Fundamentals

Understanding the Excel Program Screen

The Excel 2010 program screen may seem confusing and overwhelming at first. This lesson will help you become familiar with the Excel 2010 program screen as well as the new user interface.

Exercise Notes

- **Exercise File:** None required.
- **Exercise:** Understand and experiment with the different parts of the Microsoft Office Excel 2010 screen.





A	File tab: Contains basic file management commands—such as New, Open, Save, and Close—and program options.	H	View buttons: Use these buttons to quickly switch between Normal, Page Layout, and Page Break Preview views.
B	Quick Access Toolbar: Contains common commands such as Save and Undo. You can add more commands as well.	I	Worksheet tabs: Workbooks have three worksheets by default. You can move from one worksheet to another by clicking the worksheet tabs.
C	Title bar: Displays the name of the workbook you are working on and the name of the program you are using.	J	Status bar: Displays messages and feedback on the current state of Excel. Right-click the status bar to configure it.
D	Close button: Click the close button in the Title bar to exit the Excel program entirely, or click the close button in the Ribbon to close only the current workbook.	K	Name box: Displays the active cell address or object name. Click the list arrow to enter formulas.
E	Ribbon: The tabs and groups on the Ribbon replace the menus and toolbars found in previous versions of Excel.	L	Row and column headings: Cells are organized and referenced by row and column headings (for example, cell A1).
F	Scroll bars: Use the vertical and horizontal scroll bars to view different parts of the worksheet.	M	Active cell: You can enter or edit data in the active cell.
G	Zoom slider: Click and drag the slider to zoom in or out of a window. You can also use the + and – buttons.	N	Formula Bar: Allows you to view, enter, and edit data in the active cell. Displays values or formulas in the cell.

Program Fundamentals

Giving Commands

Excel 2010 provides easy access to commands through the Ribbon. The Ribbon keeps commands visible while you work instead of hiding them under menus or toolbars.

Ribbon

The Ribbon is made up of three basic components: tabs, groups, and buttons. It is the primary way to give commands in Excel.

Tabs: Commands are organized into *tabs* on the Ribbon. Each tab contains a different set of commands. There are different types of tabs:

- **Command tabs:** These tabs appear by default whenever you open the Excel program. In Excel 2010, the Home, Insert, Page Layout, Formulas, Data, Review, and View tabs appear by default.
- **Contextual tabs:** Contextual tabs appear whenever you perform specific task, or when a specific object is selected. The tabs offer commands relative to only that object or task. For example, whenever you select an image, the Picture Tools tab appears on the Ribbon.

Groups: The commands found on each tab are organized into *groups* of related commands. For example, the Font group contains commands used for formatting fonts. Click the Dialog Box Launcher () in the bottom-right corner

Exercise

- **Exercise File:** None required.
- **Exercise:** Click each tab on the Ribbon to view its commands. Click the File tab to view Backstage view.

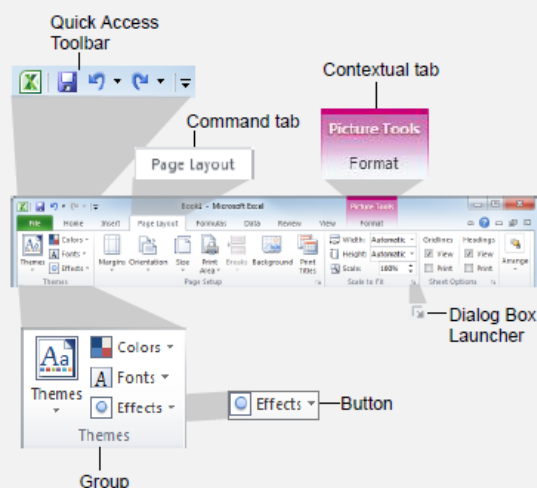


Figure 1-2: Elements of the Ribbon.



of a group to display even more commands. Some groups also contain galleries that display several formatting options.

- ❗ **Trap:** Based on the size of the program window, Excel changes the appearance and layout of the commands within the groups.

Buttons: One way to issue a command is by clicking its *button* on the Ribbon. Buttons are the smallest element of the Ribbon. Click a button to give a command.

✓ Tips

- ✓ You can hide the Ribbon so that only tab names appear, giving you more room in the program window. To do this, double-click the currently displayed command tab. Or, right-click a Ribbon tab and select **Minimize Ribbon** from the contextual menu. To display the Ribbon again, click any tab.

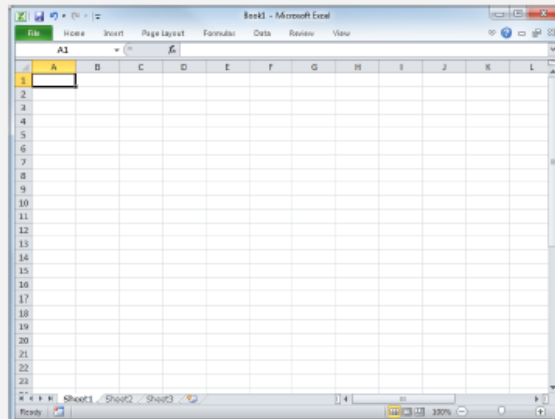


Figure 1-3: Hiding the Ribbon gives you more room in the program window.

Program Fundamentals

File tab

The *File tab* appears in the upper-left corner of the program window. When clicked, it opens *Backstage view*, which is where you find commands for basic file management, including New, which creates a new file; Open, which opens an existing file; Save, which saves the currently opened file; and Close, which closes the currently opened file. This is also where you find commands for controlling program options and sharing.

✓ Tips

- ✓ The File tab replaces the File menu and Office Button found in previous versions of Excel.

Quick Access Toolbar

The *Quick Access Toolbar* appears to the right of the File tab and provides easy access to the commands you use most frequently. By default, the Save, Undo, and Redo buttons appear on the toolbar; however, you can customize this toolbar to meet your needs by adding or removing buttons.

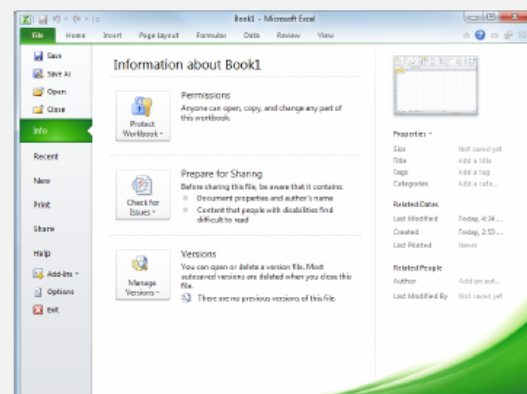


Figure 1-4: The Info tab in Backstage view.

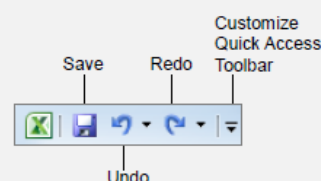


Figure 1-5: The Quick Access Toolbar.



Program Fundamentals

Using Command Shortcuts

Command shortcuts provide other ways to give commands in Excel. Shortcuts can be a time-saving and efficient alternative to the Ribbon. Use shortcuts for the commands you use most frequently.

Keystroke shortcuts

Without a doubt, *keystroke shortcuts* are the fastest way to give commands in Excel. They're especially great for issuing common commands, such as saving a workbook.

In order to issue a command using a keystroke shortcut, you simply press a combination of keys on your keyboard. For example, rather than clicking the Copy button on the Ribbon to copy a cell, you could press and hold the copy keystroke shortcut, <Ctrl> + <C>.

Contextual menus

A *contextual menu* displays a list of commands related to a specific object or area. To open a contextual menu:

1. Right-click an object or area of the worksheet or program screen.

A contextual menu appears, displaying commands that are relevant to the object or area that you right-clicked.

Exercise

- **Exercise File:** None required.
- **Exercise:** Memorize some common keystroke shortcuts.

Open a contextual menu in the main part of the program window.

Table 1-2: Common Keystroke Shortcuts

<Ctrl> + <O>	Opens a workbook.
<Ctrl> + <N>	Creates a new workbook.
<Ctrl> + <S>	Saves the current workbook.
<Ctrl> + <P>	Prints the worksheet.
<Ctrl> + 	Toggles bold font formatting.
<Ctrl> + <I>	Toggles italic font formatting.
<Ctrl> + <C>	Copies the selected cell, text or object.
<Ctrl> + <X>	Cuts the selected cell, text or object.
<Ctrl> + <V>	Pastes the selected cell, text or object.
<Ctrl> + <Home>	Moves the cell pointer to the beginning of the worksheet.
<Ctrl> + <End>	Moves the cell pointer to the end of the worksheet.



Getting Started with Worksheets

Overview of Formulas and Cell References

This lesson introduces formulas and the different elements that are required to write a formula.

Values

Values are any numerical data entered in a worksheet. Once values are entered in the worksheet, they can be used in formulas.

Formulas

Formulas are values, but unlike regular values, formulas contain information to perform a numerical calculation, such as adding, subtracting, or multiplying. A cell with the formula $=5+3$ will display the result of the calculation: 8.

All formulas must start with an equal sign (=). Then you specify more information: the values you want to calculate and the arithmetic operator(s) or function name(s) you want to use to calculate the values.

- **Operators** are the basic symbols used in mathematics: + (plus), - (minus), / (divide), * (multiply). In Excel, you use these just as you would to write out a math problem.
- **Functions** are used more often in Excel. Functions are pre-made formulas that you can use as shortcuts, or to perform calculations that are more complicated.

Relative and absolute cell references

Formulas can contain numbers, like 5 or 8, but more often they reference the contents of cells. A *cell reference* tells Excel where to look for values you want to use in a formula. For example, the formula $=A5+A6$ adds the values in cells A5 and A6.

Using cell references is advantageous because if you change the values in the referenced cells, the formula result automatically updates using the new values. There are two types of cell references: relative and absolute.

- **Relative:** Relative references refer to cells in relation to the cell that contains the formula. When the formula is moved, it references new cells based on their location relative to the formula. Relative references are the default type of references in Excel.
- **Absolute:** Absolute references always refer to the same cell, even when the formula is copied. Absolute references are indicated with dollar signs (\$A\$1) in formulas. Pressing <F4> changes a cell reference to absolute.

Exercise Notes

- **Exercise File:** None required.
- **Exercise:** Understand how formulas are used in Excel.

	A	B	C
1	100		
2	300		
3	500		
4	600		

Values
Values in Column A.

	A	B	C
1	100	200	
2	300		
3	500		
4	600		

Formulas
A formula in cell B1 using the multiplication operator. The cell displays the result of the formula, while the Formula Bar displays the formula.

	A	B	C
1	100	200	
2	300		
3	500		
4	600		

Relative cell reference
When the formula in cell B1 is copied to the rest of the cells in column B, the cell references are updated in each row.

	A	B	C
1	100	200	
2	300	600	
3	500	1000	
4	600	1200	

The results of each formula are different because each formula refers to a different cell.

	A	B	C
1	100	200	200
2	300	600	
3	500	1000	
4	600	1200	

Absolute cell reference
When the formula in cell C1 is copied to the rest of the cells in column C, the cell references are not updated.

	A	B	C
1	100	200	200
2	300	600	200
3	500	1000	200
4	600	1200	200

The results of each formula are the same because each formula refers to the same cell.



Getting Started with Worksheets

Entering Formulas

This lesson takes a look at how to enter formulas in a cell. A formula starts with an equal sign, followed by:

- Values or cell references joined by an operator.

Example: =5+3 or =A1+A2

- A function name followed by parentheses containing function arguments. Functions are the most common way to enter formulas in Excel.

Example: =SUM(A1:A2)

Enter a formula with an operator

- Click a cell where you want to enter a formula.
- Type =, then type cell references and operators.
You can also enter the formula in the Formula Bar.
- Press <Enter>.

The formula calculates the result and displays it in the cell where you entered it.

Enter a formula with a function

- Click a cell where you want to enter a formula.
- Click the **Insert Function** button in the Formula Bar.

If you know the name of the function you want to use, you can type it out instead of selecting it from the Function button.

Other Ways to Enter a Function:

Click the **Formulas** tab on the Ribbon and click the **Insert Function** button in the Function Library group.

- Select the function you want to use and click **OK**.
The Function Arguments dialog box appears.
- Enter the function arguments and click **OK**.
The result of the formula appears in the cell.

Tips

- You can use the Formula AutoComplete feature to help you create and edit complex formulas. Type an = (equal sign) in a cell or the Formula Bar and start typing the formula. A list of functions and names that match the text you entered appears. Select an item from the list to insert it into the formula.

Exercise Notes

- Exercise File:** Sales2-3.xlsx

- Exercise:** In cell B11, total the values in B7:B10

In cell G4, multiply F4 by G2, making G2 an absolute cell reference.

In cell G7, multiply F7 by G2, making G2 an absolute cell reference.

In cell C11, AutoSum the column C expense values.

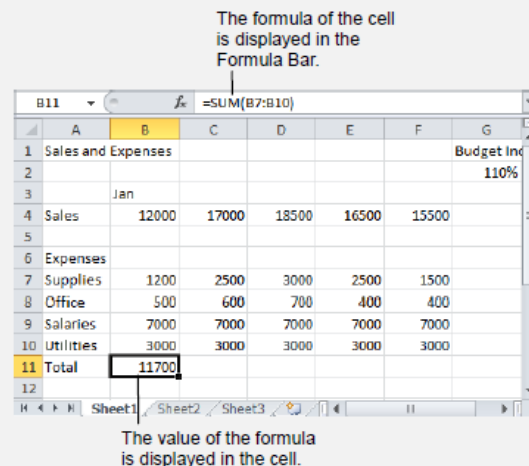


Figure 2-4: Entering a formula in a worksheet.

Table 2-4: Examples of Operators and Functions

=	All formulas start with an equal sign.
+	=A1+B1
-	=A1-B1
*	=B1*2
/	=A1/C2
SUM	=SUM(A1:A3)
AVERAGE	=AVERAGE(A2,B1,C3)
COUNT	=COUNT(A2:C3)



1. Click a **cell** next to the column or row of numbers you want to sum.

For example, if you want to add up a column of numbers, click the cell at the bottom of the column. Or, if you want to add up a row of numbers, click the cell to the right of the row.

- Click the **Home** tab and click the **AutoSum** button in the **Editing** group.

The SUM function appears in the cell and a moving dotted line appears around the cell range that Excel thinks you want to sum. If the range is not correct, click and drag to select the correct range.

- ✔ **Tip:** Click the **AutoSum** button list arrow to choose from other common functions, such as Average.

- Other Ways to Enter AutoSum:**
Press **<Alt> + <=>**.

3. Press the **<Enter>** key to confirm the action.

The cell range is totaled in the cell. If you change a value in the summed range, the formula will automatically update to show the new sum.

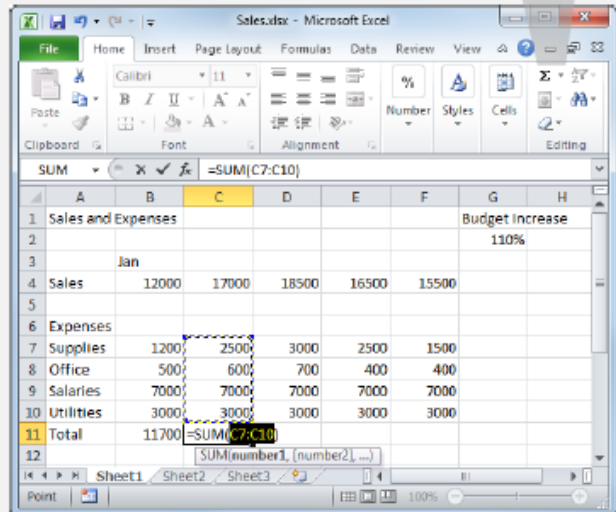
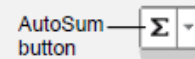


Figure 2-6: AutoSum automatically enters a SUM formula and selects the cells it thinks you want to total.

Entering Content Automatically

Since entering data is a major task in Excel, this lesson covers three tools that make are very useful in data entry: Fill, AutoComplete, and PickList.

Use Fill

Fill is a great way to enter sequential numbers, months or days quickly. Fill looks at cells that you have already filled in and makes a guess about how you want to fill in the rest of the series. For example, if you enter January, Fill will fill in the following months for you. You can also use Fill to copy formulas to adjacent cells.

1. Select a cell or cell range that contains the data and increment you want to use.

Excel can detect patterns pretty easily. A series of 1, 2, 3, 4 is easy to detect, as is 5, 10, 15, 20. It can also detect a pattern with mixed numbers and letters, such as UPV-3592, UPV-3593, UPV-3594.

- ✔ **Tip:** If you select only one cell, that same value is copied to the adjacent cells when you Fill—unless Excel recognizes it as a date or time, in which case it will fill in the next logical date or time period.

2. Position the mouse pointer over the fill handle (the tiny box in the cell's lower-right corner) until the pointer changes to a plus sign +.

Exercise Notes

- **Exercise File:** Sales2-4.xlsx
- **Exercise:** Fill in the month labels in row 3. Labels should start with Jan in column B and end with Jun in column G

Copy the formula in cell G7 to cells G8:G10. Copy the formula in cell C11 over to columns D, E, F, and G.

	A	B	C	D	E	F	G	H
1	Sales and Expenses						Budget Increase	
2							110%	
3		Jan						
4	Sales	12000	17000	18500	16500	15500	Jun	
5								
6	Expenses							
7	Supplies	1200	2500	3000	2500	1500		
8	Office	500	600	700	400	400		
9	Salaries	7000	7000	7000	7000	7000		
10	Utilities	3000	3000	3000	3000	3000		
11	Total	11700	13100					
12								

Figure 2-7: Fill fills in months after January into the selected cells. Notice that a screen tip previews the content being filled into the cells.

D11	fx =SUM(D7:D10)					
A	B	C	D	E	F	



- Click and drag the fill handle to the cells that you want to fill with the information.

As you click and drag, a screen tip appears previewing the value that will be entered in the cell once you release the mouse button.

Table 2-5: Fill Series Examples

Selected Cell(s)	Entries in Next Three Cells
January	February, March, April
Jan	Feb, Mar, Apr
5:00	6:00, 7:00, 8:00
Qtr 1	Qtr 2, Qtr 3, Qtr 4
5 10	15, 20, 25
1/20/12	1/21/12, 1/22/12, 1/23/12
UPV-3592	UPV-3593, UPV-3594, UPV-3595

	A	B	C	D	E	F
1	Sales and Expenses					
2						
3		Jan	Feb	Mar	Apr	May
4	Sales	12000	17000	18500	16500	15500
5						
6	Expenses					
7	Supplies	1200	2500	3000	2500	1500
8	Office	500	600	700	400	400
9	Salaries	7000	7000	7000	7000	7000
10	Utilities	3000	3000	3000	3000	3000
11	Total	11700	13100	13700	12900	11900
12						

Figure 2-8: Formulas that are copied with Fill are updated relative to their location. This formula copied from C11 is updated to use cell references from the D column.

Getting Started with Worksheets

Enter an absolute cell reference in a formula

- Enter the formula using operators or functions.
- Click the cell you want to reference and press the <F4> key.

Dollar signs \$ are added to the cell reference in the formula.

- Other Ways to Add an Absolute Cell Reference in a Formula:**
Type the address of the cell with \$ (dollar signs) before every reference heading. (For example, type \$B\$4).

Total values automatically with AutoSum

Adding up the values in a range of cells is the most popular formula in Excel, so they've made this easy to do with the AutoSum feature. AutoSum inserts the SUM function (which adds all the values in a range of cells) and selects the range of cells Excel thinks you want totaled.

	C	D	E	F	G	H
1					Budget Increase	
2					110%	
3	Feb	Mar	Apr	May	Jun	
4	17000	18500	16500	15500	=F4*\$G\$2	
5						
6						
7	2500	3000	2500	1500		
8	600	700	400	400		
9	7000	7000	7000	7000		
10	3000	3000	3000	3000		
11	13100	13700	12900	11900		
12						

Figure 2-5: A formula with a relative (F4) and an absolute (\$G\$2) cell reference.



Creating and Working with Charts

Choosing and Selecting the Source Data

Charts are a great way to share data and information. The foundation of charts is the data they illustrate. Choosing the right data is the first and most important step in creating a chart.

Choose the right data

When you realize that you need a chart, you have to decide what data needs to be included in it.

- **What is the main point?**
What is the purpose of the chart? Identify the point of the chart, and then include the data that illustrates this point and puts it in context.
- **What is the truth?**
Avoid spinning the data. Communicate what the data shows, not what you want it to say.
- **Keep it simple.**
Only show the data that is relevant. This makes it easier to process the information that is important. Make sure that the rest of the data is available so that your conclusions are backed up with ample evidence.

Select the data

Once you know what data and labels you wish to include in the chart, select them.

1. Click and drag to select the cells you want to include in the chart. To select multiple non-adjacent cells, select a cell or cell range and hold down the <Ctrl> key while you select other cells.
Include labels for rows and columns in the cells you select. These labels provide context for the chart data.

✓ Tips

- ✓ If a value changes in the chart's data source, that change is automatically updated in the chart.
- ✓ If you do not include labels in the selected cell range, Excel will insert placeholders in the chart.

Exercise

- **Exercise File:** Survey5-1.xlsx
- **Exercise:** Select A4:D9 and A12:D12.

	A	B	C	D	E
1	North Shore Travel - Northern Division				
2	Travel Purpose Survey Results				
3					
4		Business	Leisure	Other	Total
5	Australia	25	15	3	43
6	Canada	35	40	10	85
7	China	63	58	16	137
8	Europe	97	150	20	267
9	Japan	48	32	7	87
10	Middle East	18	12	2	32
11	South Africa	4	5	0	9
12	U.S.	135	122	90	347

Figure 5-1: An example of results from a survey. You want to show that among all travel destinations, the most popular destination for trips taken for leisure is Europe.

Labels identify the data listed in the worksheet. In this example, the labels appear in column A and row 4.

	A	B	C	D	E
1	North Shore Travel - Northern Division				
2	Travel Purpose Survey Results				
3					
4		Business	Leisure	Other	Total
5	Australia	25	15	3	43
6	Canada	35	40	10	85
7	China	134	58	16	208
8	Europe	97	150	20	267
9	Japan	48	32	7	87
10	Middle East	18	12	2	32
11	South Africa	4	5	0	9
12	United States	135	122	90	347

Figure 5-2: In this example, the data labels in column A and row 4 are selected along with the values in B5:D9 and B12:D12.



Creating and Working with Charts












Choosing the Right Chart

Once you've determined the results you want your chart to display, choose the chart that best suits this purpose. The most popular charts are column, line, pie, and bar charts.

Exercise

- **Exercise File:** None required.
- **Exercise:** Review the different types of charts available in Excel.

Chart Types in Excel

	Column	Column charts are used when you want to compare different values vertically side-by-side. Each value is represented in the chart by a vertical bar. If there are several series, each series is represented by a different color.
	Line	Line charts are used to illustrate trends over time. Each value is plotted as a point on the chart and is connected to other values by a line. Multiple items are plotted using different lines.
	Pie	<p>Pie charts are useful for showing values as a percentage of a whole. The values for each item are represented by different colors.</p> <p>Limit pie charts to eight sections.</p>
	Bar	Bar charts are just like column charts, except they display information in horizontal bars rather than in vertical columns.
	Area	Area charts are the same as line charts, except the area beneath the lines is filled with color.
	XY (Scatter)	Scatter charts are used to plot clusters of values using single points. Multiple items can be plotted by using different colored points or different point symbols.
	Stock	Stock charts are effective for reporting the fluctuation of stock prices, such as the high, low, and closing points for a certain day.
	Surface	A surface chart is useful for finding optimum combinations between two sets of data. Colors and patterns indicate values that are in the same range.
	Doughnut	A doughnut chart shows the relationship of parts to a whole, but it can contain more than one data series. (You may want to try stacked column or stacked bar charts instead.)
	Bubble	Bubble charts are similar to XY Scatter charts, but they compare three sets of values instead of two, with the third set determining the size of the bubble.
	Radar	Radar charts compare the aggregate values of a number of data series.



Creating and Working with Charts

Inserting a Chart

Once you've chosen the type of chart you wish to use, insert the chart in your worksheet.

1. Make sure the cell range containing the data and labels you want to chart are selected.
Tip: You can chart non-adjacent cells if you hold down the <Ctrl> key while selecting the cells.

2. Click the **Insert** tab on the Ribbon.

In the Charts group, there are several chart types to choose from. Each of the chart types then has several charts to choose from.

3. Click a **chart type** button in the Charts group.

A list of charts for the selected chart type appears.

4. Select the chart you want to use from the list.

The chart appears in the worksheet and the Chart Tools appear on the Ribbon. The Chart Tools include three new tabs—Design, Layout and Format—that help you modify and format the chart.

Tip

- ✓ To see all available chart types, click any chart type in the Charts group, and then select **All Chart Types**. The Insert Chart dialog box appears, displaying every chart type that is available.

Exercise

- **Exercise File:** Survey5-3.xlsx
- **Exercise:** Select cell range A4:D9 and insert a 2-D Clustered Column chart.

Move the chart so that the upper left corner is in cell A14.

Resize the chart so that it covers A14:F28.

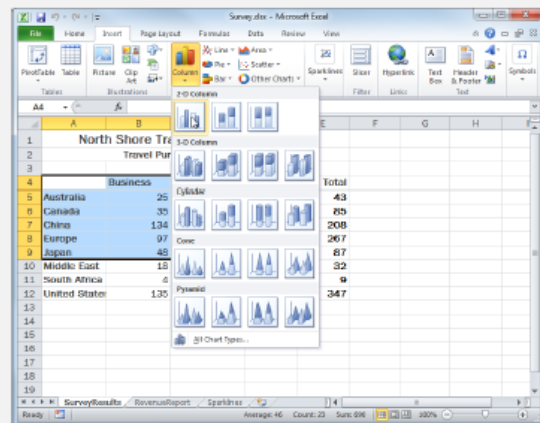


Figure 5-3: Selecting a chart to insert.

Move a chart within a worksheet

Usually you will have to move a chart after it is inserted because it covers up the data on the worksheet.

1. Select the chart.
2. Point to the chart's border.
The pointer changes to a cross-arrow pointer.
3. Click and drag the chart in the worksheet.

Move a chart to another worksheet

You can move a chart to another worksheet as an embedded object or move it to its own worksheet.

1. Under Chart Tools on the Ribbon, click the **Design** tab and click the **Move Chart** button in the Location group.

The Move Chart dialog box appears, displaying two options:

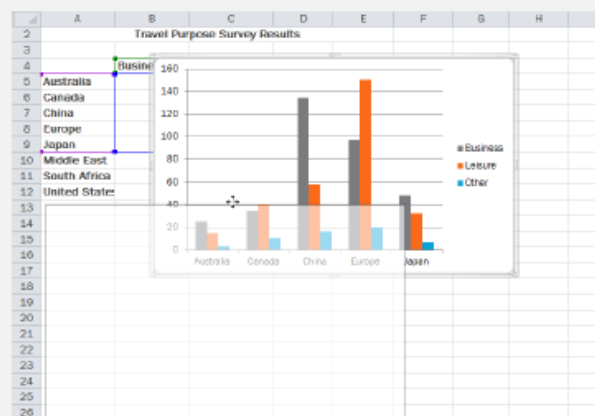


Figure 5-4: To move a chart within a worksheet, click and drag the chart to a new location.



Creating and Working with Charts

- **New sheet:** Moves the chart to its own worksheet.
 - **Object in:** Allows you to embed the chart in another existing worksheet.
2. Select the option you want to use and enter or select a worksheet name.
 3. Click **OK**.

Resize the chart

1. Select the chart.

Eight sizing handles appear along the chart edges once it is selected. Sizing handles are used to change the size of charts and other objects.

✓ **Tip:** Clicking a chart displays the Chart Tools on the Ribbon, which include the Design, Layout, and Format tabs.

2. Click a sizing handle and drag it to resize the chart. The chart is resized.

✓ **Tip:** A faint outline appears as you drag the chart border so that you can preview the size of the chart before releasing the mouse button.

🔗 **Other Ways to Resize a Chart:**
Under Chart Tools on the Ribbon, click the **Format** tab and use the Height and Width fields in the **Size** group.

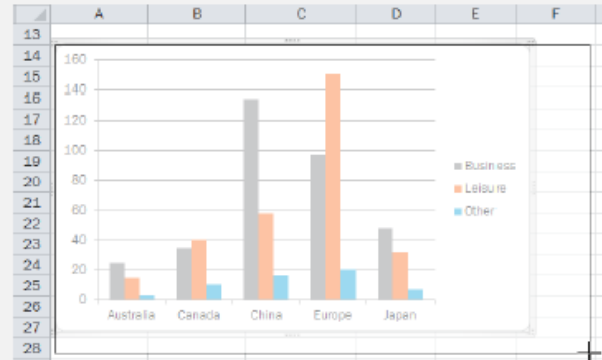


Figure 5-5: To resize a chart, click and drag the corner of the chart.

Managing Workbooks

Creating Headers and Footers

You can use a header to include the same information at the top of every printed page or a footer to include information at the bottom of every page. You can enter your own headers or footers, insert built-in ones, or insert specific elements such as pictures or page numbers.

Create a basic header or footer

1. Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

The workbook automatically switches to Page Layout View and the cursor appears in the header area.

The header and footer areas are split into three sections—left, right, and center. Click any of the sections to enter text in that section.

✓ **Tip:** Enter your note here. To work with the footer instead of the header, click the **Click to add footer** text at the bottom of the worksheet or click the **Go To Footer** button in the Navigation group on the Design tab.

2. Enter header text, then click away from the header area.

When you are finished working with the header and footer, you can return to Normal view.

🔗 **Other Ways to Create a Header or Footer**

Comment [Dan1]: Creating Headers and Footers

Create a basic header or footer

1. Open the **Sales7-1.xlsx** file.

2. Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

3. Click the **center** section of the header.

4. Type **Monthly Sales**.

Use Auto Headers & Footers

Explain these options to your students, even though they are not used in the exercise.

Built-in headers and footers are incredibly helpful and time-saving. Take a look at these helpful options with students.

Header		Tuesday Reservations	
Daily Summary			
Tuesday			
Last	First	Bookings	Sales
Anderson	Jennifer	2	850.00
Bernett	Muriel	2	1,410.00
Bertone	Tim	7	2,430.00
Biko	Roger	3	1,050.00
Bilanga	Stan	4	1,400.00
Black	Joseph	2	700.00



- Other Ways to Create a Header or Footer:
- Click the **View** tab on the Ribbon and click the **Page Layout View** button in the Workbook Views group. Click in the header or footer area.

Use Auto Headers & Footers

Instead of entering your own header or footer text or fields, use built-in options that are already available.

- Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

Now you can add an auto header or footer.

- Click either the **Header** or **Footer** button in the Header & Footer group on the Design tab.

Here you will see a list of many different types of page numbers, titles, dates, and file paths that can be added.

- Select the auto header or footer you want to use.

It is automatically inserted into the worksheet. Any manual header or footer information you have previously entered is replaced.

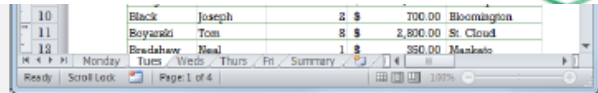


Figure 6-11: Adding header text.

Tuesday Reservations

Daily Summary
Tuesday

Last	First	Bookings	Sales	Location
Anderson	Joseph	2	\$ 850.00	Minneapolis
Bentley	Phyllis	2	\$ 1,410.00	Minneapolis
Brown	Tim	7	\$ 2,490.00	Duluth
Clark	Roger	3	\$ 1,050.00	Two Harbors
Chicago	Shirley	4	\$ 1,490.00	Minneapolis
Clark	Joseph	2	\$ 200.00	Minneapolis
Cornwall	Tom	6	\$ 2,890.00	St. Cloud
MacDonald	Neil	1	\$ 350.00	Mankato
Clark	Arthur	0	\$ -	Richman
Chang	William	5	\$ 1,750.00	Maplewood
Cheney	Harry	10	\$ 3,800.00	Madison
Clark	William	5	\$ 2,100.00	St. Paul
Clark	Harry	7	\$ 2,490.00	Maple
Donaldson	Harry	0	\$ 2,160.00	Duluth
Trouton	William	10	\$ 3,800.00	St. Paul
Clark	Joseph	2	\$ 1,050.00	Maple
Clark	Arthur	1	\$ 350.00	Brooklyn Center
MacDonald	Neil	1	\$ 350.00	Madison
Perkins	Bob	2	\$ 1,050.00	St. Cloud
Washington	Walter	0	\$ -	Madison
Donaldson	Arthur	10	\$ 3,800.00	Spring Lake Park
Donaldson	Arthur	0	\$ 2,800.00	Minneapolis
Smith	John	4	\$ 1,400.00	Minneapolis
Smith	Richard	1	\$ 350.00	Maple
Smith	John	4	\$ 1,400.00	Minneapolis
Donaldson	Arthur	2	\$ 200.00	St. Peter
Thompson	John	10	\$ 3,800.00	Minneapolis
Thomas	Ann	2	\$ 850.00	Madison
Thompson	Harmon	5	\$ 1,750.00	Duluth

Figure 6-12: A spreadsheet with header and footer.

Managing Workbooks

Insert Header & Footer Elements

You can also insert individual elements into the header or footer such as pictures or page numbers.

- Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

The Header & Footer Elements group appears on the Design tab, displaying commands to add several different elements to your header or footer.

- Click the button in the Header & Footer Elements group for the element you want to add.

Tips

- ✓ Headers and footers can be formatted using the commands in the Font group on the Home tab.
- ✓ You can also work with headers and footers by using the Page Setup dialog box. Click the **Page Layout** tab and click the **Dialog Box Launcher** in the **Page Setup** group. Click the **Header/Footer** tab. Here you can edit headers and footers and select to withhold the header or footer from the first page or to designate different odd and even pages.

Comment [Dan2]: Creating Headers and Footers cont'd

Insert Header & Footer Elements

- Click the **right section** of the header.

- Click the **Page Number** button in the Header & Footer Elements group.








The page number field is added to the worksheet.

Table 7-1: Header & Footer Elements Group great additions to workbooks. See if the combination of elements you need already exists in built-in options.

Table 6-1: Header & Footer Elements Group

Button	Description
Page Number	Displays the correct page number for each page.
Number of Pages	Displays the total number of pages in the worksheet.




	Current Date	Displays the current date.
	Current Time	Displays the current time of day.
	File Path	Displays the workbook's name and file path.
	File Name	Displays the workbook's name.
	Sheet Name	Display's the worksheet's name.
	Picture	Opens the Insert Picture dialog box, where you can browse for and insert a picture file.
	Format Picture	Is only available once a picture has been inserted; this button allows you to adjust the picture's size, brightness or contrast.

More Functions and Formulas

Using Logical Functions (IF)

This lesson introduces a very useful function, the IF function. The IF function is a conditional function or logical function because it will evaluate a condition you specify and return one value if the condition is true and another value if the condition is false. For example, you could use the IF function in an invoice to create a formula that would subtract a 5% discount from the invoice if the total was more than \$500.00, otherwise it wouldn't subtract anything.

The IF function is one of the more difficult functions, but it's also very powerful.

1. Click the **Insert Function** button on the Formula bar.
The Insert Function dialog box appears.
 2. Click the **Or select a category** list arrow and select **Logical**.
Functions that fall under this category are shown in the Select a function box.
 3. Select **IF** in the Select a function box and click **OK**.
The Function Arguments dialog box appears.
-  **Other Ways to Find a Function:**
Type the function's name in the Search for a function box. Or, select the function from the Select a function box.

Exercise

- **Exercise File:** Functions.xlsx, IF worksheet
- **Exercise:** Determine the Federal Income Tax for these people and enter these arguments for the IF function in cell B17:
Logical test: B14>=500
Value_if_true: B14*.15
Value_if_false: B14*.1
Copy the IF function from B17 to cells C17:H17.

=IF(A5>10,A4*.75,A4)

Logical Test
Value or expression that can be evaluated to True or False

Value if True
Value that is returned if Logical Test is True

Value if False
Value that is returned if Logical Test is False

Figure 7-17: The syntax for the IF Function.



You're ready to start entering the IF formula. There are three parts in this formula:

- **Logical Test:** This is the first argument, and it evaluates a statement as true or false.
- **Value if True:** If the statement in the Logical Test is true, then this value is entered.
- **Value if False:** If the statement in the Logical Test is false, then this value is entered.

- Enter the arguments for the IF function and click **OK**.

The function is run, and the results appear in the cell.

- ✓ **Tip:** Remember, you can also create cell references by clicking the cell or cell range you want to reference. Click the Collapse Dialog button to collapse the function palette and select the cell range if the Function Arguments dialog box is in the way.

- **Other Ways to Use the IF Function in a Formula:**
Write the formula using the syntax
`=IF(logical_test,value_if_true,value_if_false)`.

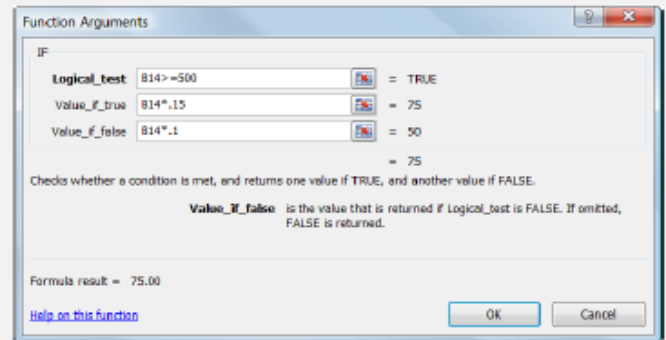


Figure 7-18: The Function Arguments dialog box.

More Functions and Formulas

Using Financial Functions (PMT)

The PMT function is a very valuable function if you work with real estate, investments, or are considering taking out a loan. The PMT function calculates the payment for a loan based on periodic payments and a constant interest rate. For example, say you want to take out a \$10,000 car loan at 8% interest and will pay the loan off in four years. You can use the PMT function to calculate that the monthly payments for such a loan would be \$244.13.

You can also use the PMT function to determine payments to annuities or investments. For example, if you want to save \$50,000 in 20 years by saving the same amount each month, you can use PMT to determine how much you must save.

- Click the **Insert Function** button on the Formula bar.
The Insert Function dialog box appears.
- Click the **Or select a category** list arrow and select **Financial**.

Functions that fall under this category are shown in the Select a function box.

Exercise

- **Exercise File:** Functions.xlsx, PMT worksheet
- **Exercise:** In cell D4, create a PMT function that uses these arguments:
Rate: C4/12
Nper: B4*12
Pv: A4

The result is a negative number: Add a – (negative) symbol between the = and PMT in the Formula bar so the value is positive.

Copy the PMT function to D5:D6.

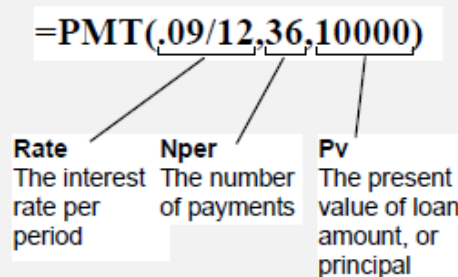


Figure 7-19: The syntax for the PMT Function.



3. Select **PMT** in the Select a function box and click **OK**.

The Function Arguments dialog box appears.

4. Enter the required arguments for the PMT function and click **OK**.

The results of the function are displayed in the selected cell.

✓ **Tip:** Remember, you can also create cell references by clicking the cell or cell range you want to reference. Click the Collapse Dialog button to collapse the function palette and select the cell range if the Function Arguments dialog box is in the way.

- Other Ways to Use the PMT Function in a Formula:

Write the formula using the syntax

PMT(rate,nper,pv)

Figure 7-20: The Function Arguments dialog box.

	A	B	C	D
1	Mortgage Payment Table			
2				
3	Loan Amount	Loan Length (in years)	Interest Rate	Monthly Payment
4	\$ 150,000	20	7.0%	\$1,162.95
5	\$ 150,000	20	7.5%	\$1,208.39
6	\$ 150,000	30	7.5%	\$1,048.82

Figure 7-21: The results of the PMT function.

Table 9-2: Total Row Calculation Options

None	No function is inserted.
Average	Calculates the average, or arithmetic mean, of the numbers in the column.
Count	Counts the number of all nonblank cells, regardless of what they contain.
Count Numbers	Counts the number of cells that contain numbers, including dates and formulas. Ignores all blank cells and cells that contain text or errors.
Max	Returns the largest value in a column.
Min	Returns the smallest value in a column.
Sum	Adds all of the numbers in a column.
StdDev	Estimates standard deviation based on a sample. The standard deviation is a measure of how widely values are dispersed from the average value.
Var	Estimates variance based on a sample.
More Functions...	Opens the Insert Function dialog box, where you can choose a different function to perform on the column's values.



Sorting a Table

Excel is very good at sorting information. Excel can sort records alphabetically, numerically, or chronologically (by date). Additionally, Excel can sort information in ascending (A to Z) or descending (Z to A) order. You can sort an entire list or any portion of a list by selecting it.

1. Click the **filter button** for the column you want to sort.

A list appears, displaying several options for sorting the table data. The options at the top are for sorting.

Other Ways to Sort:

Click the **Home** tab and click the **Sort & Filter** button in the Editing group. Select a sorting option from the list.

2. Select the sort option you want to use.

3. Click **OK**.

Tips

- ✓ If you add or edit data in a table that is filtered or sorted, you need to click the **Reapply** button in the Sort & Filter group on the Data tab to include the new or edited data.

Custom Sorting

When you need to sort by more than one field, you have to use a Custom Sort.

The Custom Sort can sort records by more than one field, such as if you want to sort alphabetically by first and last name, or by state and city.

1. Click a field's **filter button** and select **Sort by** → **Custom Sort** from the list.

The Custom Sort dialog box appears.

Other Ways to Use Custom Sort:

Click the **Home** tab and click the **Sort & Filter** button in the Editing group. Select **Custom Sort** from the list.

2. Click the **Sort by** list arrow and select the field by which you want to sort.

This is the first field you want to sort by.

3. Click the **Sort on** list arrow and choose what you want to sort by in the field.

The options for the Order change depending on what you choose for the Sort On variable.

Exercise

- **Exercise File:** Table9-4.xlsx

- **Exercise:** Sort by Last name in Ascending order (A-Z).

Apply a custom sort to sort first by Last name, and then First name.

	A	B	C
1	First	Last	Address
4	Susan	Ratcliff	Rt. 8, Box 109
5	Bob	Arthur	326 Elm Ave
6	Gerald	Lincoln	4545 Washington Ave.
7	Roger	Wilson	85 Lake Shore Dr.
8	William	Nelson	1717 Louis Court
9	Jimmy	Howard	206 E. Park Bend
10	Steve	Jennings	608 Van Burren St. #8
11	Peter	Boggins	741 280th St.
12	Nancy	Pauls	189 Industrial Blvd.
13	Susan	Scott	223 Lake St.



	A	B	C
1	First	Last	Address
2	Bob	Arthur	326 Elm Ave
3	Bob	Arthur	326 Elm Ave
4	Le Ann	Berg	754 W. 91st St.
5	Peter	Boggins	741 280th St.
6	Jimmy	Howard	206 E. Park Bend
7	Richard	Issac	803 Turtle Rd.
8	Steve	Jennings	608 Van Burren St. #8
9	Hillary	Jordan	P.O. Box 99
10	Ronald	Lensfield	87 91st St.
11	Gerald	Lincoln	4545 Washington Ave.

Figure 9-5: The list before and after being sorted in ascending order by the Last field.

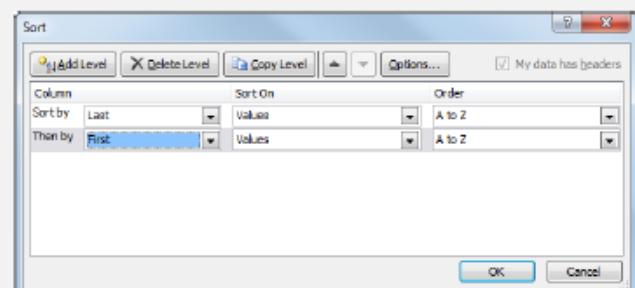


Figure 9-6: An example of sorting a table by multiple fields.



Working with Tables

4. Click the **Order** list arrow and select the order by which you want to sort the data.
5. Click **OK**.
6. (Optional) To sort by multiple fields, click the **Add Level** button and set the sort specifications for the next field.
7. Click **OK**.

The data in the table is sorted by the sort specifications.

	A	B	C
1	First	Last	Address
2	Bob	Arthur	326 Elm Ave
3	Bob	Arthur	326 Elm Ave
4	Le Ann	Berg	754 W. 91st St.
5	Peter	Boggins	741 280th St.
6	Jimmy	Howard	206 E. Park Bend
7	Richard	Issac	803 Turtle Rd.
8	Steve	Jennings	608 Van Burren St. #8
9	Hillary	Jordan	P.O. Box 99
10	Ronald	Lensfield	87 91st St.
11	Gerald	Lincoln	4545 Washington Ave.
12	Elsa	Martinez	418 Oak St
13	William	Nelson	1717 Louis Court

Figure 9-7: The table sorted by last name, then first name.