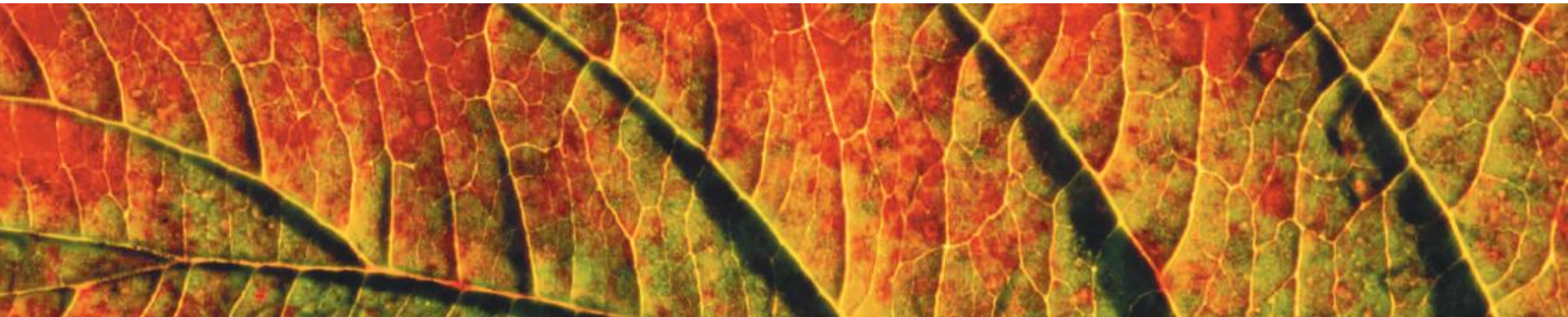


Excel Tutorial 1: Getting Started with Excel

Microsoft[®] Office 2010



Objectives

- Understand the use of spreadsheets and Excel
- Learn the parts of the Excel window
- Scroll through a worksheet and navigate between worksheets
- Create and save a workbook file
- Enter text, numbers, and dates into a worksheet
- Resize, insert, and remove columns and rows

Objectives

- Select and move cell ranges
- Insert formulas and functions
- Insert, delete, move, and rename worksheets
- Work with editing tools
- Preview and print a workbook

Visual Overview

Excel stores spreadsheets in files called **workbooks**. The contents of a workbook are shown in a workbook window.

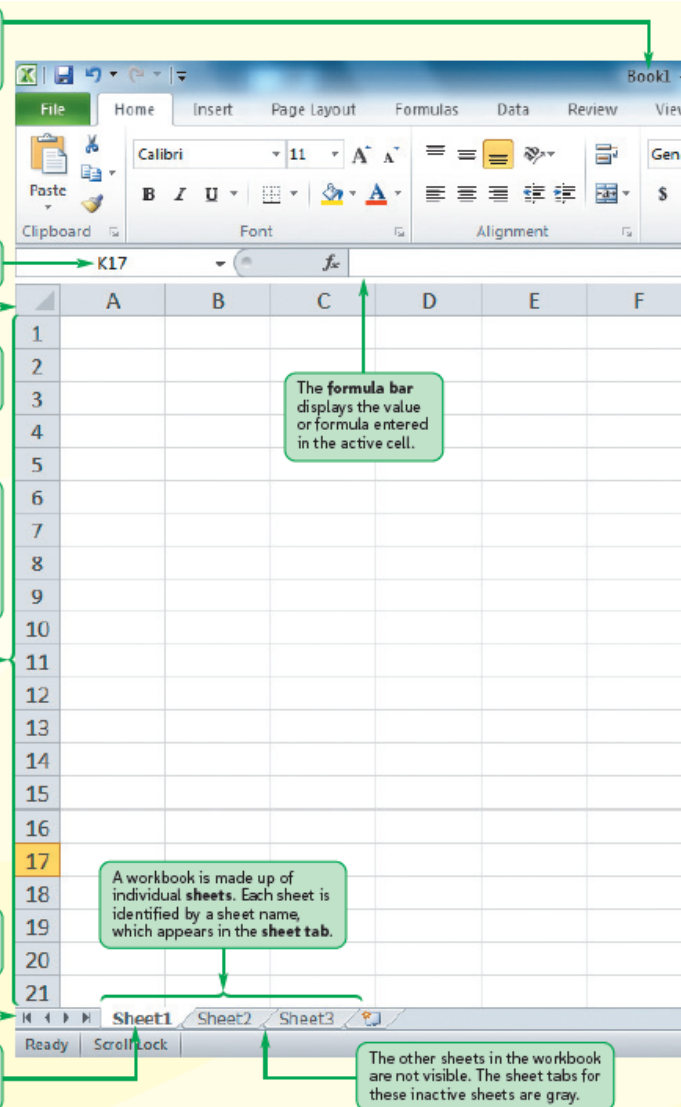
The **Name box** displays the cell reference of the active cell.

The **Select All** button is used to select all of the cells in the active worksheet.

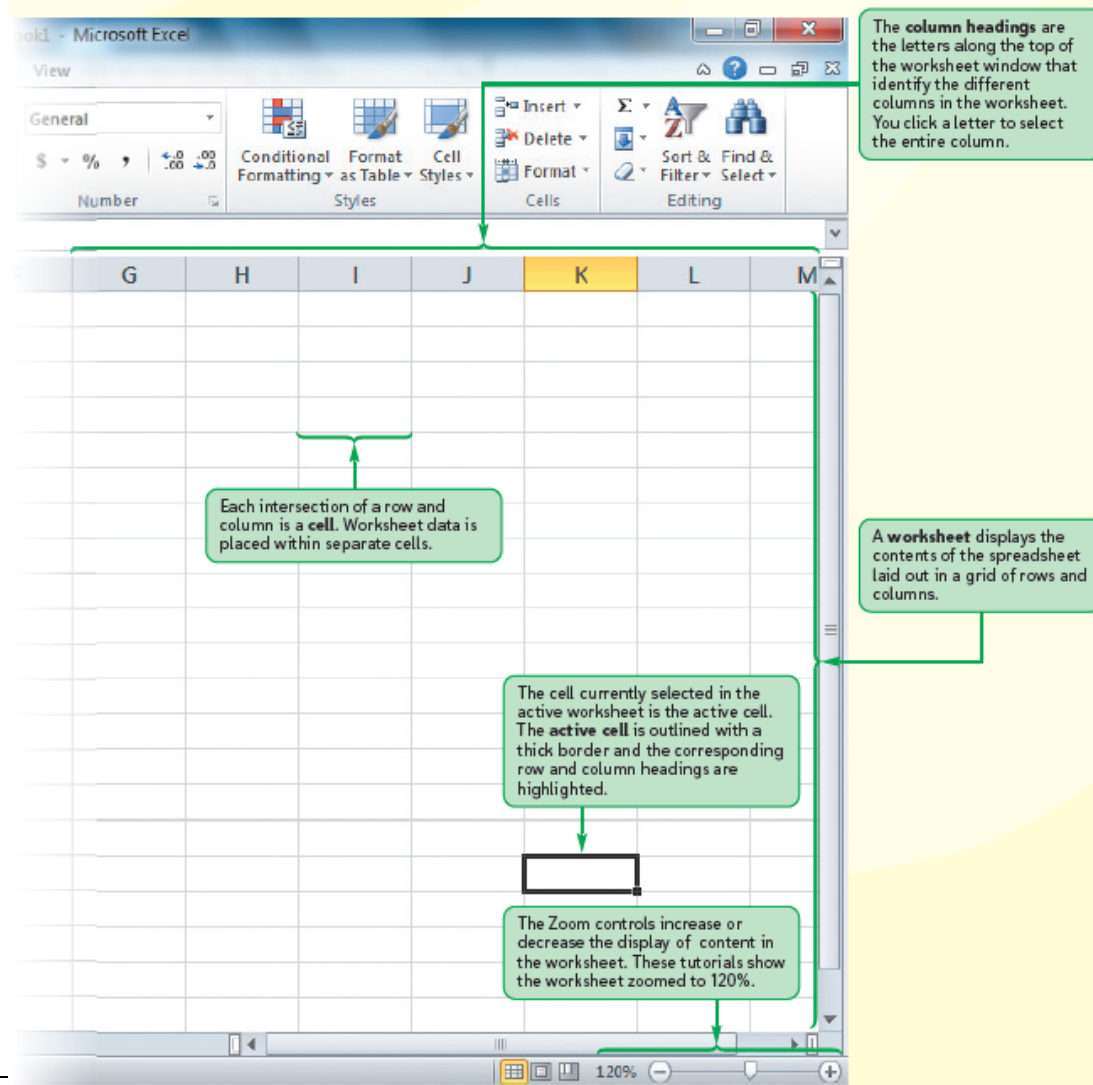
The **row headings** are the numbers along the left side of the worksheet window that identify the different rows in the worksheet. You click a row heading to select the entire worksheet row.

The **sheet tab scrolling buttons** scroll the list of sheet tabs in the worksheet.

The sheet currently displayed in the workbook window is the **active sheet**; its sheet tab is white.



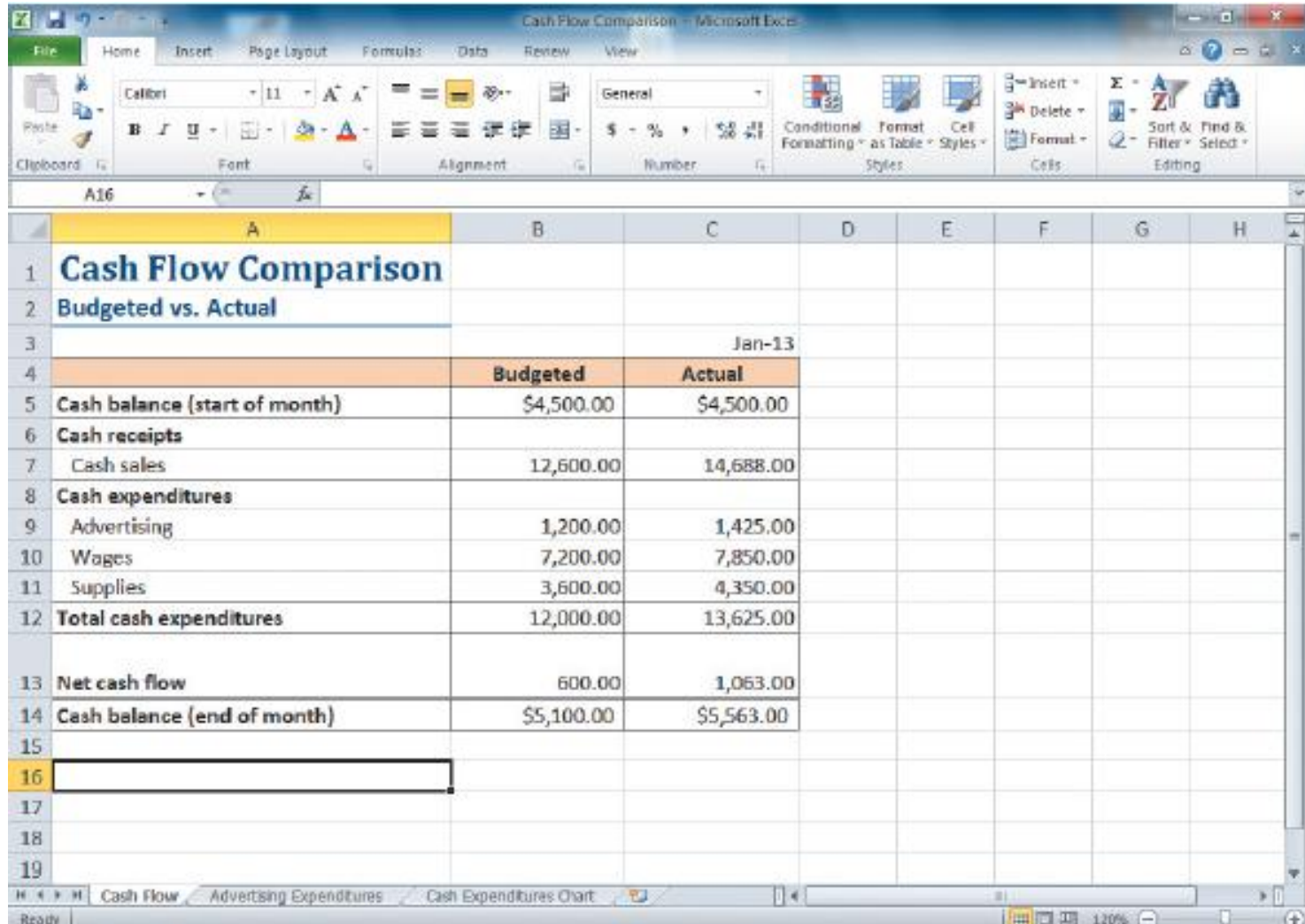
The Excel Window



Introducing Microsoft Excel 2010

- Computer program used to enter, store, analyze, and present quantitative data
- Creates electronic versions of **spreadsheets**
 - Collection of text and numbers laid out in a grid
- Displays values calculated from data
- Allows **what-if analysis**
 - Ability to change values in a spreadsheet and assess the effect they have on calculated values

Spreadsheet Data in Excel



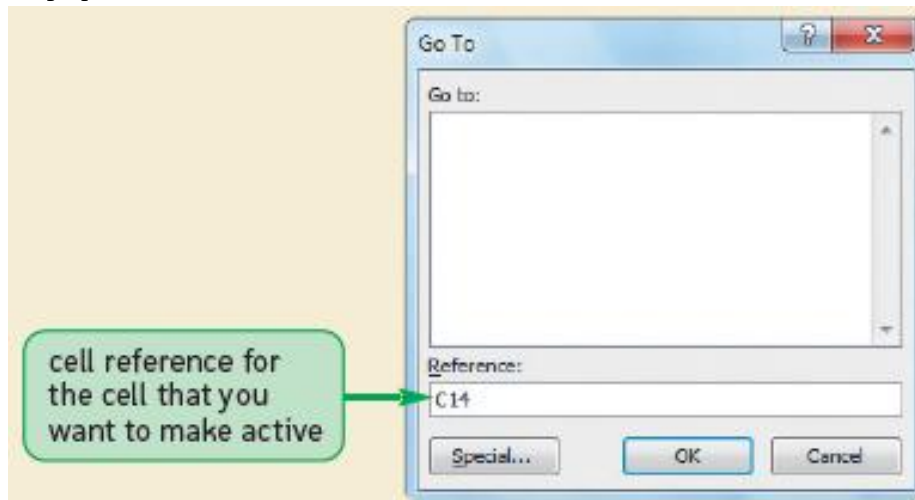
	A	B	C	D	E	F	G	H
1	Cash Flow Comparison							
2	Budgeted vs. Actual							
3			Jan-13					
4		Budgeted	Actual					
5	Cash balance (start of month)	\$4,500.00	\$4,500.00					
6	Cash receipts							
7	Cash sales	12,600.00	14,688.00					
8	Cash expenditures							
9	Advertising	1,200.00	1,425.00					
10	Wages	7,200.00	7,850.00					
11	Supplies	3,600.00	4,350.00					
12	Total cash expenditures	12,000.00	13,625.00					
13	Net cash flow	600.00	1,063.00					
14	Cash balance (end of month)	\$5,100.00	\$5,563.00					
15								
16								
17								
18								
19								

Worksheet Navigation

- A workbook can have two kinds of sheets:
 - Worksheet contains a grid of rows and columns into which user enters data
 - **Chart sheet** provides visual representation of data
- **Cell reference** identifies column/row location

Worksheet Navigation

- To navigate between worksheets
 - Use sheet tabs
- To navigate within a worksheet
 - Use mouse, keyboard, GoTo dialog box, or type cell reference in Name box



Worksheet Navigation Keys

Press	To move the active cell
↑ ↓ ← →	Up, down, left, or right one cell
Home	To column A of the current row
Ctrl+Home	To cell A1
Ctrl+End	To the last cell in the worksheet that contains data
Enter	Down one row or to the start of the next row of data
Shift+Enter	Up one row
Tab	One column to the right
Shift+Tab	One column to the left
Page Up, Page Down	Up or down one screen
Ctrl+Page Up, Ctrl+Page Down	To the previous or next sheet in the workbook

Planning a Workbook

- Use a **planning analysis sheet** to define:
 - Goal or purpose of workbook
 - Type of data to collect
 - Formulas needed to apply to data you collected and entered
 - Appearance of workbook content

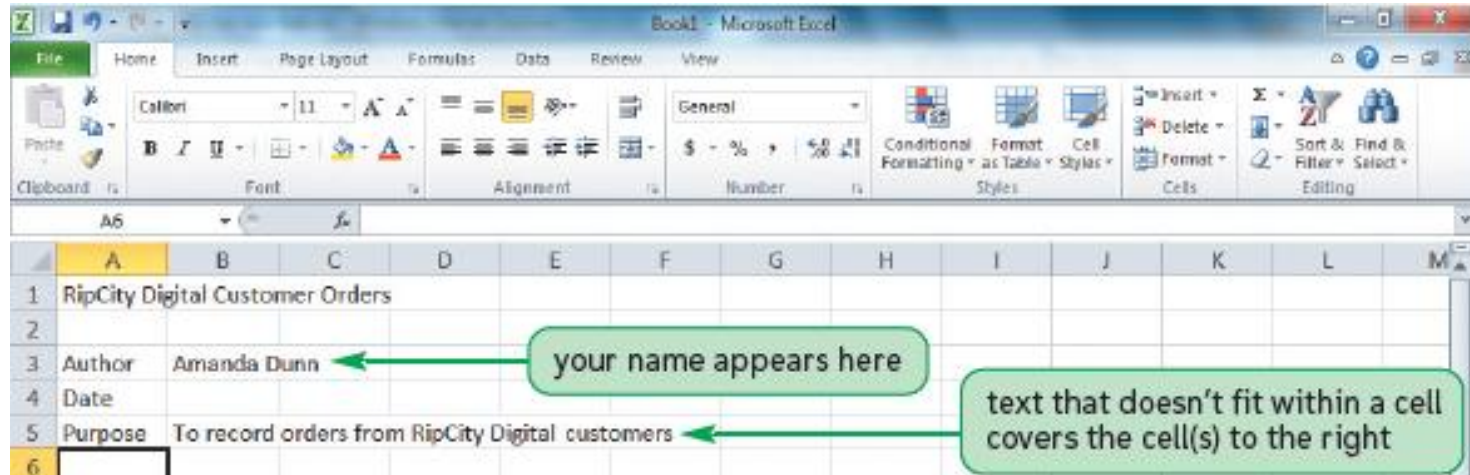
Entering Text, Numbers, and Dates

- **Text data**
 - Combination of letters, numbers, and symbols
 - Often referred to as a **text string**
- **Number data**
 - Numerical value to be used in a mathematical calculation
- **Date and time data**
 - Commonly recognized formats for date and time values

Entering Text

- New data appears in both the active cell and the formula bar
- Truncation
- AutoComplete feature
- To enter multiple lines of text within a cell
 - Create a line break with Alt + Enter

Entering Text



Entering Numbers

numbers are right-aligned within the cell

numeric value formatted as currency

	A	B	C	D	E	F	G	H	I	J	K	L
1	Last	First	Address	Date	DVDs	Price per DVD						
2	Dawes	Gregory	402 Elm St. Merrill, MI 48637	3/13/2013	7	\$17.29						
3												
4												

Working with Columns and Rows

- To make data easier to read:
 - Modify size of columns and rows in a worksheet
- To modify size of columns or rows:
 - Drag border to resize
 - Double-click border to autofit
 - Format the Cells group to specify

Working with Columns and Rows

- Column width
 - Expressed in terms of number of characters or **pixels** (8.43 characters equals 64 pixels)
 - Note: Pixel size is based on screen resolution
- Row height
 - Measured in **points** (1/72 of an inch) or pixels
 - Default row height: 15 points or 20 pixels

Working with Columns and Rows

row heights match their contents

The screenshot shows the Microsoft Excel interface with the following data:

	A	B	C	D	E	F	G	H	I
1	Last	First	Address	Date	DVDs	Price per DVD			
2	Dawes	Gregory	402 Elm St. Merrill, MI 48637	3/13/2013	7	\$17.29			
3	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	3/14/2013	25	\$15.79			
4	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	3/17/2013	32	\$12.99			
5	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	3/24/2013	20	\$15.79			

Working with Columns and Rows

- Inserting a column or row
 - Existing columns or rows shift to accommodate

The screenshot shows a Microsoft Excel spreadsheet with a table of data. A new column, labeled 'D', has been inserted between columns C and E. The existing columns (E through H) have shifted one position to the right. A green callout box labeled 'new column content' points to the new column D. Another green callout box labeled 'inserted column' points to the new column D. A third green callout box labeled 'existing columns shifted to the right' points to the columns E through H.

	A	B	C	D	E	F	G	H	I
1	Last	First	Address	Phone	Date	DVDs	Price per DVD		
2	Dawes	Gregory	402 Elm St. Merrill, MI 48637	(989) 555-3433	3/13/2013	7	\$17.29		
3	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79		
4	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	(315) 555-7823	3/17/2013	32	\$12.99		
5	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	(207) 555-9915	3/24/2013	20	\$15.79		
6									
7									
8									
9									
10									
11									

Working with Columns and Rows

- Deleting and clearing a row or column
 - Deleting removes both the data and the cells
 - Clearing removes the data, leaving blank cells where data had been

Visual Overview

The File tab opens Backstage view, which provides access to commands for saving and printing the workbook.

The spelling checker verifies the words in the active worksheet against the program's dictionary. You can replace or ignore the words it flags as misspelled.

The Page Layout tab provides commands to change the way worksheets appear on printed pages.

A formula is an expression that returns a value. This formula calculates the sum of the values in range H6:H9.

A group of cells is called a **cell range** or **range**. Ranges can be either adjacent or nonadjacent.

You can rename a sheet so that it has a brief description of its contents or purpose.

The Insert Worksheet tab inserts a new worksheet at the end of the workbook.

The status bar indicates whether you are in Ready mode or Edit mode.

	A	B	C	D
1	RipCity Digital			
2	Customer Orders			
3	3/31/2013			
4				
5	Last	First	Address	Phone
6	Ferris	Andrew	135 College Avenue Bar Harbor, ME 04609	(207) 555-01
7	Garcia	Susan	1025 Drake Avenue Exeter, NH 03833	(603) 555-10
8	Torbet	Dr. Lila	5 North Lane Oswego, NY 13126	(315) 555-78
9	Rhoden	Tony	24 Mountain Drive Auburn, ME 04210	(207) 555-99
10				
11				
12				
13				
14				
15				
16				
17				

Ready Average: \$12.90

Worksheet Data

The screenshot shows the Microsoft Excel interface with a worksheet titled "ital Orders". The ribbon is set to the "Formulas" tab, and the "AutoSum" button is highlighted. The worksheet contains a table with the following data:

Phone	Date	DVDs	Price per DVD	Charge
(207) 555-0101	3/5/2013	2	\$18.29	\$36.58
(603) 555-1091	3/14/2013	25	\$15.79	\$394.75
(315) 555-7823	3/17/2013	32	\$12.99	\$415.68
(207) 555-9915	3/24/2013	20	\$15.79	\$315.80
	TOTAL	79		\$1,162.81

Callouts and their descriptions:

- The Sum button (also referred to as the AutoSum feature)** inserts Excel functions to sum, average, or count all the values in a column or row, as well as display the minimum or maximum value in a column or row.
- The Find command** locates text and values in the workbook and the Replace command overwrites them. Click the Find & Select button to access both commands.
- An adjacent range** is a group of cells in a single rectangular block of cells. This adjacent range covers cells G6:H10.
- A nonadjacent range** is two or more distinct adjacent ranges. This nonadjacent range covers the adjacent range A6:A9, the adjacent range E6:E10, and the adjacent range G6:H10.
- The view buttons** change how the worksheet content is displayed—Normal view, Page Layout view, or Page Break Preview.

The status bar at the bottom shows: Average: \$12,906.19 Count: 18 Sum: \$167,780.48 120%

Working with Cells and Ranges

- **Range reference** indicates location and size of a cell range
 - Adjacent (A1:G5)
 - Nonadjacent (A1:A5;F1:G5)
- Selecting a range
 - Work with all cells in the range as a group
- Moving and copying a range
 - Drag and drop
 - Cut and paste

Working with Cells and Ranges

- Inserting and deleting a range
 - Existing cells shift to accommodate the change



Working with Formulas

- **Formula**
 - An expression that returns a value
 - Written using **operators** that combine different values, resulting in a single displayed value

Operation	Arithmetic Operator	Example	Description
Addition	+	=10+A1	Adds 10 to the value in cell A1
		=B1+B2+B3	Adds the values in cells B1, B2, and B3
Subtraction	–	=C9–B2	Subtracts the value in cell B2 from the value in cell C9
		=1–D2	Subtracts the value in cell D2 from 1
Multiplication	*	=C9*B9	Multiplies the values in cells C9 and B9
		=E5*0.06	Multiplies the value in cell E5 by 0.06
Division	/	=C9/B9	Divides the value in cell C9 by the value in cell B9
		=D15/12	Divides the value in cell D15 by 12
Exponentiation	^	=B5^3	Raises the value of cell B5 to the third power
		=3^B5	Raises 3 to the value in cell B5

Working with Formulas

- Entering a formula
 - Click cell where you want formula results to appear
 - Type = and an expression that calculates a value using cell references and arithmetic operators
 - Cell references allow you to change values used in the calculation without having to modify the formula itself
 - Press Enter or Tab to complete the formula

Working with Formulas

- **Order of precedence**
 - Set of predefined rules used to determine sequence in which operators are applied in a calculation

Formula	Application of the Order of Precedence	Result
=50+10*5	10*5 calculated first and then 50 is added	100
=(50+10)*5	(50+10) calculated first and then multiplied by 5	300
=50/10-5	50/10 calculated first and then 5 is subtracted	0
=50/(10-5)	(10-5) calculated first and then 50 is divided by that value	10
=50/10*5	Two operators at same precedence level, so the calculation is done left to right in the expression	25
=50/(10*5)	(10*5) calculated first and then 50 is divided by that value	1

Working with Formulas

- Viewing a formula
 - Select cell and review expression displayed in the formula bar
 - Each cell reference is color coded in the formula and corresponding cell in the worksheet

The screenshot shows the Microsoft Excel interface with the 'Formulas' tab selected. The formula bar displays the formula `=F6*G6`. The worksheet contains a table with columns: Last, First, Address, Phone, Date, DVDs, Price per DVD, and Charge. Cell H6 (row 6, column 8) contains the formula `=F6*G6`. Three green callout boxes provide additional information:

- formula displayed in the formula bar
- cell border colors match the colors in the formula bar
- formula in cell H6 multiplies the values in cells F6 and G6

	A	B	C	D	E	F	G	H
1	RipCity Digital							
2	Customer Orders							
3	3/31/2013							
4								
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge
6	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2013	2	\$17.29	=F6*G6
7	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79	

Working with Formulas

- Copying and pasting formulas
 - Cell references adjust to reflect new location of the formula in the worksheet

The screenshot shows the Microsoft Excel interface with the 'RipCity Digital Orders' worksheet. The formula bar displays '=F8*G8'. The worksheet contains a table with columns: Last, First, Address, Phone, Date, DVDs, Price per DVD, and Charge. The data rows are numbered 1 through 11. Three green callout boxes provide context:

- shortcut button provides options for pasting formulas and values**: Points to the 'Paste' button in the ribbon.
- formulas pasted into selected range**: Points to the range F8:G10.
- cell containing copied formula**: Points to cell H8.

	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge
1	RipCity Digital							
2	Customer Orders							
3								
4								
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge
6	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2013	2	\$17.29	\$34.58
7	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79	\$394.75
8	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	(315) 555-7823	3/17/2013	32	\$12.99	\$415.68
9	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	(207) 555-9915	3/24/2013	20	\$15.79	\$315.80
10								
11								

Working with Formulas

- Guidelines for writing effective formulas:
 - Keep them simple
 - Do not hide data values within formulas
 - Break up formulas to show intermediate results

Introducing Functions

- **Function**

- Named operation that returns a value
- Simplifies a formula, reducing a long formula into a compact statement; for example, to add values in the range A1:A10:

- Enter the long formula:

`=A1+A2+A3+A4+A5+A6+A7+A8+A9+A10`

- or -

- Use the SUM function to accomplish the same thing:

`=SUM(A1:A10)`

Entering a Function

The screenshot shows the Microsoft Excel interface with the 'Formulas' tab selected. The spreadsheet is titled 'RipCity Digital Orders'. The data is organized as follows:

	A	B	C	D	E	F	G	H	I
1	RipCity Digital								
2	Customer Orders								
3	3/31/2013								
4									
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge	
6	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2013	2	\$17.29	\$34.58	
7	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79	\$394.75	
8	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	(315) 555-7823	3/17/2013	32	\$12.99	\$415.68	
9	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	(207) 555-9915	3/24/2013	20	\$15.79	\$315.80	
10					TOTAL	=SUM(F6:F9)			
11									
12									

Annotations in the image:

- A green box with the text 'a colored border indicates the range used in the function' points to the range F6:F9.
- A green box with the text 'ScreenTip shows the function being entered into the cell' points to the formula bar showing '=SUM(F6:F9)'. A small ScreenTip box also shows 'SUM(number1, [number2], ...)'.

Entering Functions with AutoSum

- Fast, convenient way to enter commonly used functions
- Includes buttons to quickly insert/generate:
 - Sum of values in column or row (SUM)
 - Average value in column or row (AVERAGE)
 - Total count of numeric values in column or row (COUNT)
 - Minimum value in column or row (MIN)
 - Maximum value in column or row (MAX)

Entering Functions with AutoSum

Excel selects the range over which the AutoSum is applied

click to enter an AutoSum function into the selected cell

Excel inserts the SUM function and the most likely cell reference

	A	B	C	D	E	F	G	H
1	RipCity Digital							
2	Customer Orders							
3	3/31/2013							
4								
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge
6	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2013	2	\$17.29	\$34.58
7	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79	\$394.75
8	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	(315) 555-7823	3/17/2013	32	\$12.99	\$415.68
9	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	(207) 555-9915	3/24/2013	20	\$15.79	\$315.80
10					TOTAL	79		=SUM(H6:H9)
11								
12								

Working with Worksheets

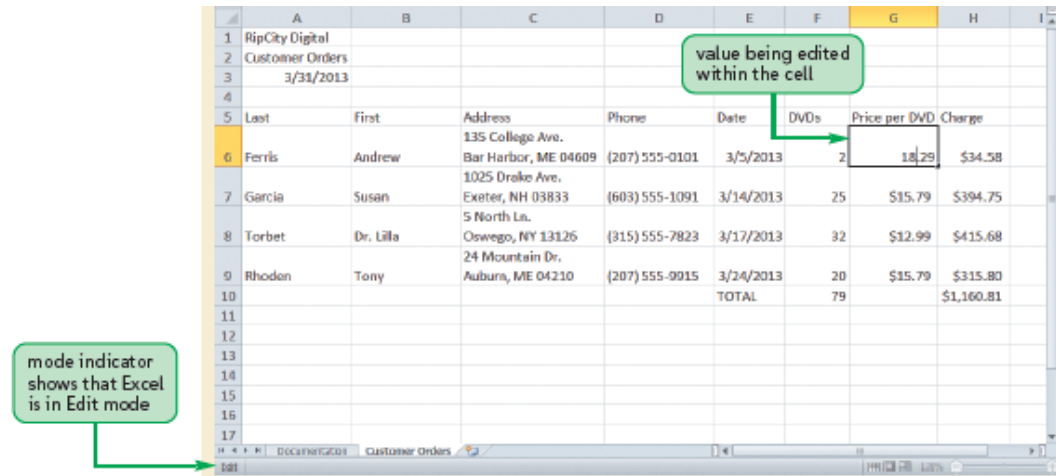
- Inserting a worksheet
 - Name of new worksheet is based on number and names of other sheets in the workbook
- Deleting a worksheet
- Renaming a worksheet
 - 31 characters maximum, including blank spaces
 - Width of sheet tab adjusts to length of name

Working with Worksheets

- Moving and copying a worksheet
 - To move:
 - Click and drag
 - To copy:
 - Ctrl + drag and drop
 - Place most important worksheets at beginning of workbook (leftmost sheet tabs), less important worksheets toward end (rightmost tabs)

Editing Worksheet Content

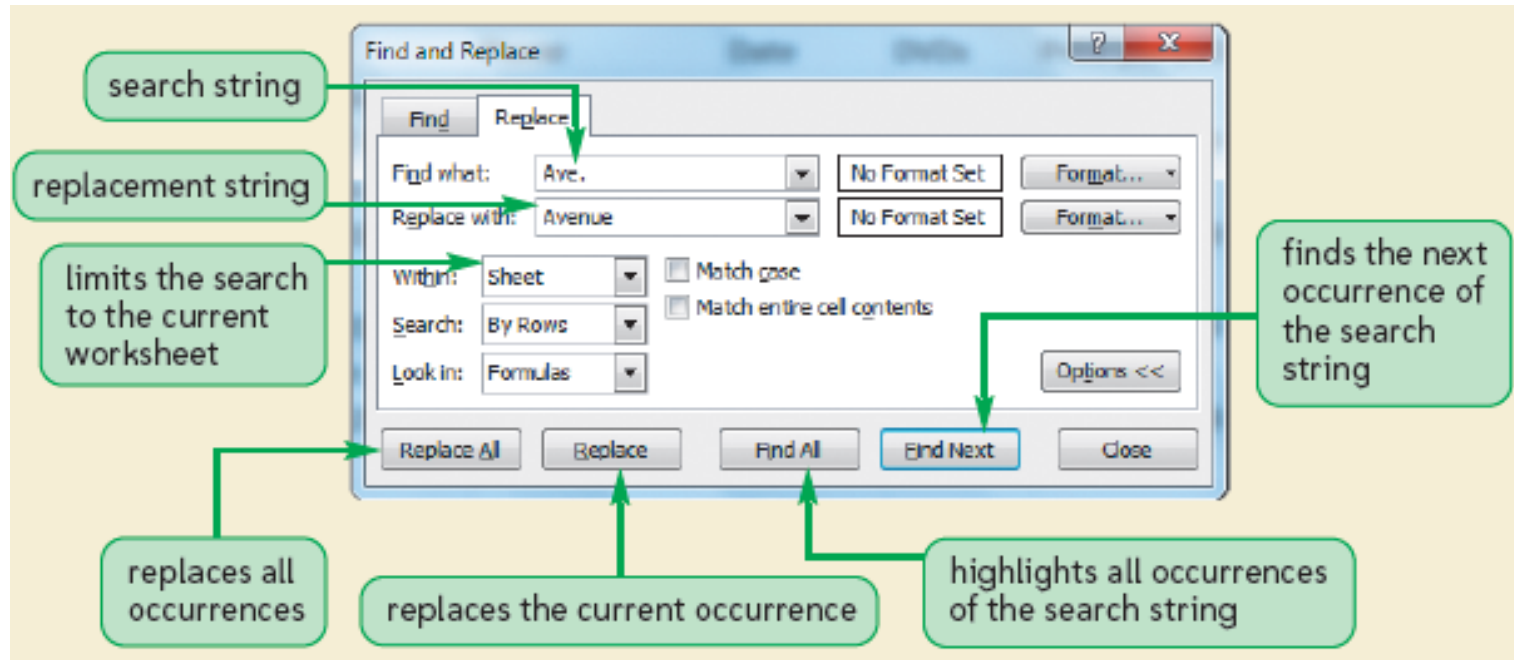
- Use **Edit mode** to edit cell contents
 - Keyboard shortcuts apply only to text within selected cell



- Undoing and redoing an action
 - Excel maintains a list of actions performed in a workbook during current session

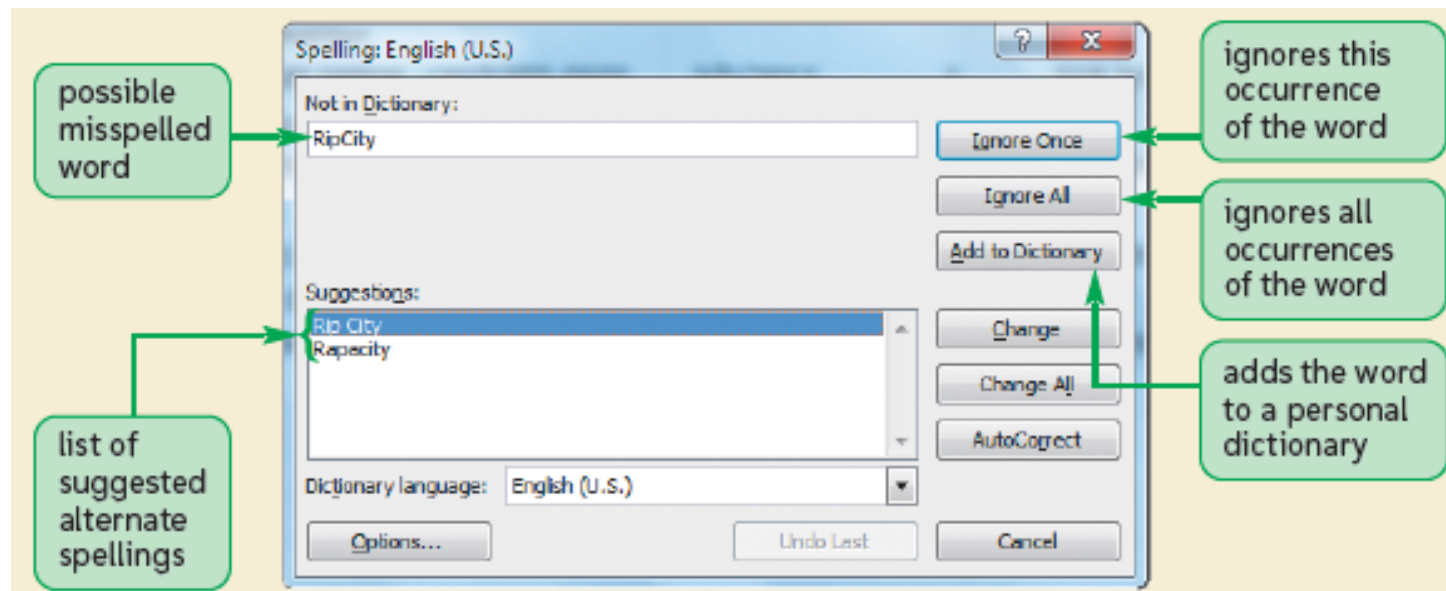
Editing Worksheet Content

- Using find and replace



Editing Worksheet Content

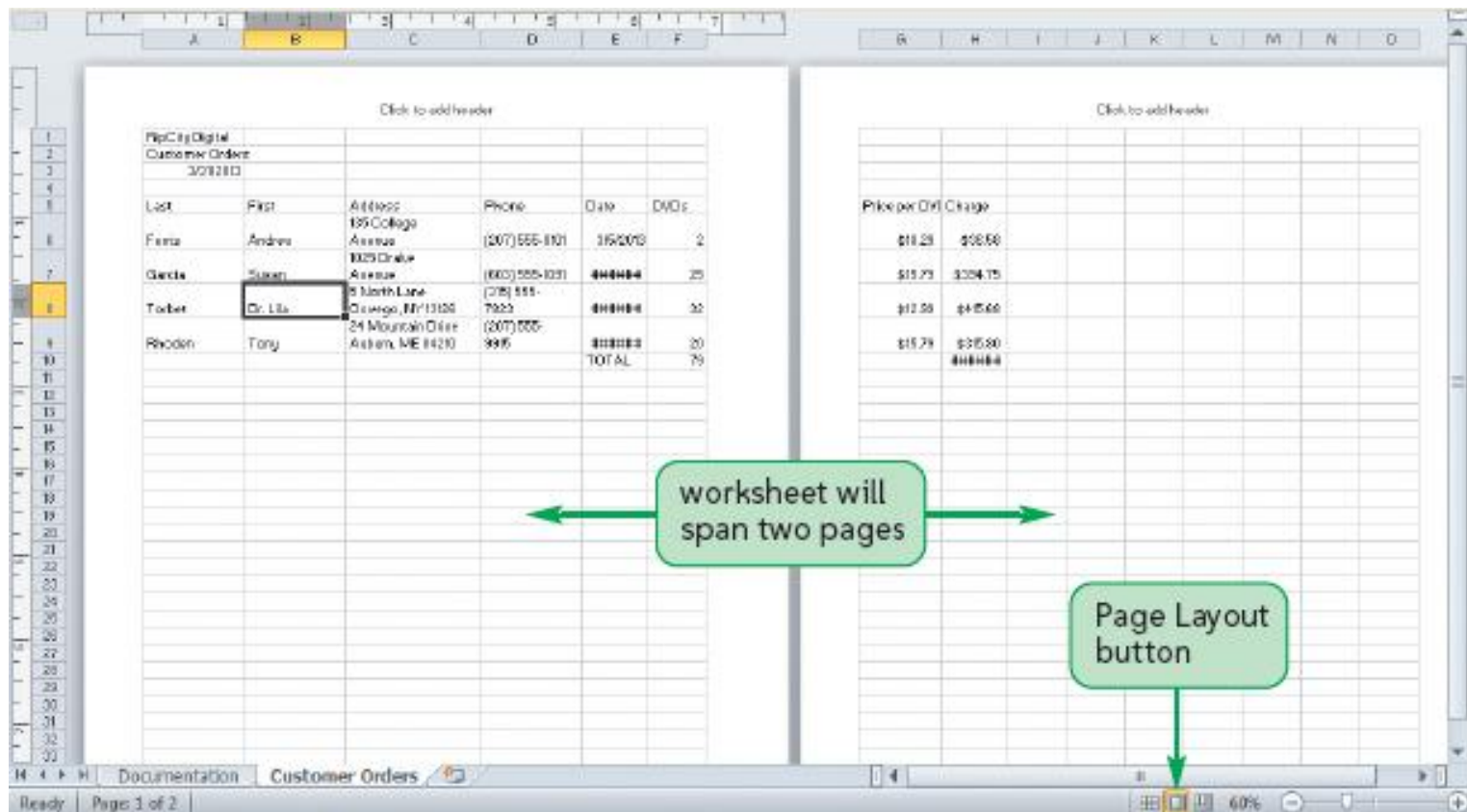
- Using the spelling checker



Previewing a Workbook

- Changing worksheet views
 - **Normal view**
 - **Page Layout view**
 - **Page Break Preview**

Page Layout View



Page Break Preview

solid blue line surrounds section to be printed

dotted line indicates a page break

Page Break Preview button

	A	B	C	D	E	F	G	H	I
1	RipCity Digital								
2	Customer Orders								
3	3/31/2013								
4									
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge	
6	Ferris	Andrew	135 College Avenue Ber Harbor, ME 04609	(207) 555-0101	3/5/2013	2	\$18.29	\$36.58	
7	Garcia	Susan	1025 Drake Avenue Exeter, NH 03833	(603) 555-1091	3/14/2013	25	\$15.79	\$394.75	
8	Torbet	Dr. Lila	5 North Lane Oswego, NY 13126	(315) 555-7823	3/17/2013	32	\$12.99	\$415.68	
9	Rhoden	Tony	24 Mountain Drive Auburn, ME 04210	(207) 555-9915	3/24/2013	20	\$15.79	\$315.80	
10					TOTAL	79		\$1,162.81	
11									
12									
13									
14									
15									
16									
17									

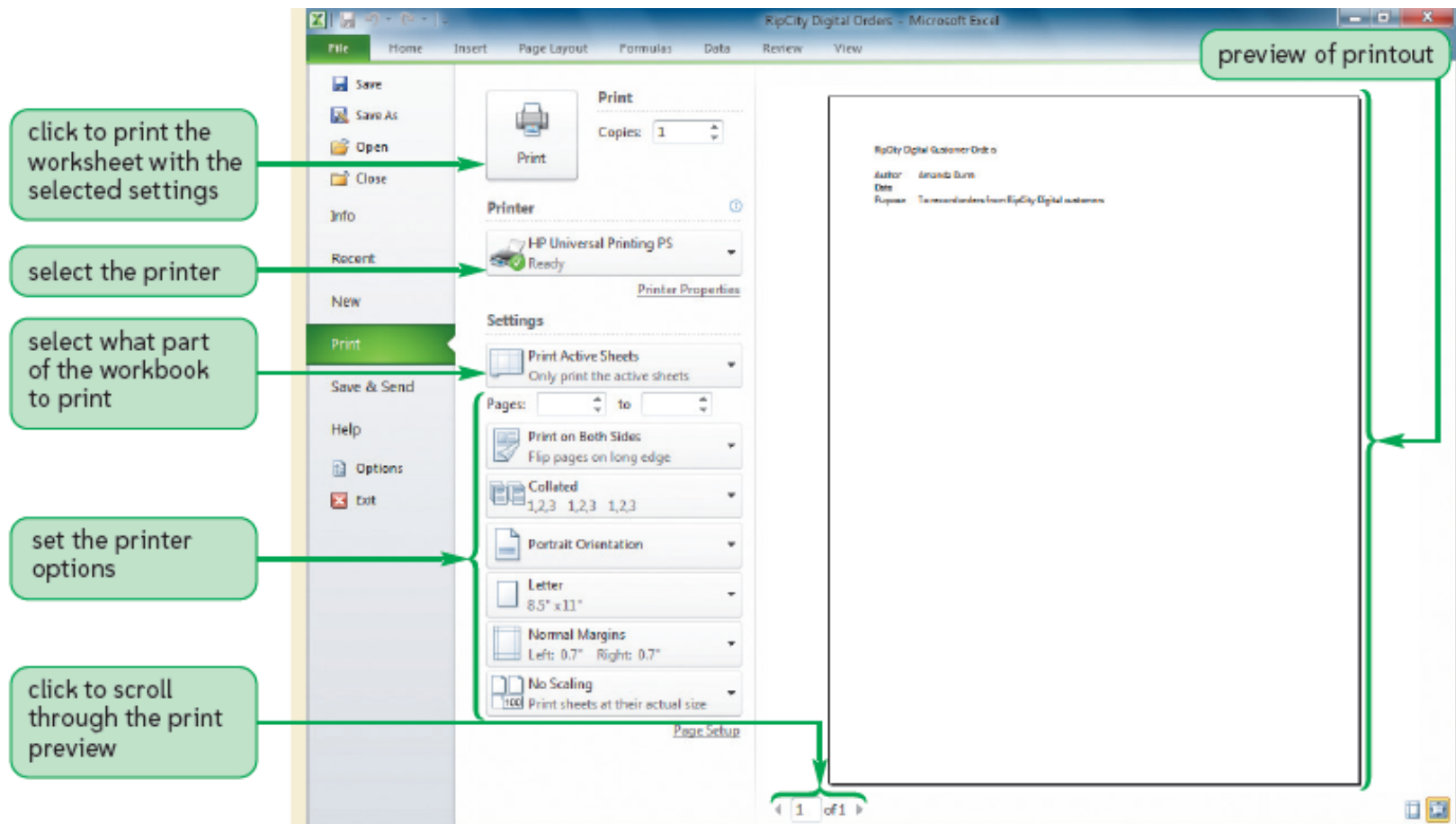
Previewing a Workbook

- Working with page orientation
 - **Portrait orientation** (default)
 - Page is taller than wide
 - **Landscape orientation**
 - Page is wider than tall

Printing a Workbook

- Print tab provides options for choosing what to print and how to print
 - Printout includes only the data in the worksheet
 - Other elements (e.g., row/column headings, gridlines) will not print by default
- Good practice: Review print preview before printing to ensure that printout looks exactly as you intended and avoid unnecessary reprinting

Printing a Workbook



Viewing and Printing Worksheet Formulas

- Switch to **formula view**
 - Useful when you encounter unexpected results and want to examine underlying formulas or to discuss your formulas with a colleague

The screenshot shows Microsoft Excel in Formula View. The worksheet has columns D through H and rows 1 through 11. The data is as follows:

	D	E	F	G	H
1					
2					
3					
4					
5	Phone	Date	DVDs	Price per DVD	Charge
6	(207) 555-0101	41338	2	18.29	=F6*G6
7	(603) 555-1091	41347	25	15.79	=F7*G7
8	(315) 555-7823	41350	32	12.99	=F8*G8
9	(207) 555-9915	41357	20	15.79	=F9*G9
10		TOTAL	=SUM(F6:F9)		=SUM(H6:H9)
11					

Annotations in the image:

- A green box labeled "text and numbers remain unchanged" points to the data in column D (Phone numbers).
- A green box labeled "numeric date values are displayed" points to the data in column E (Dates).
- A green box labeled "formulas are displayed rather than values" points to the formulas in columns F and H.

Viewing and Printing Worksheet Formulas

- **Scaling** the printout of a worksheet forces contents to fit on a single page

