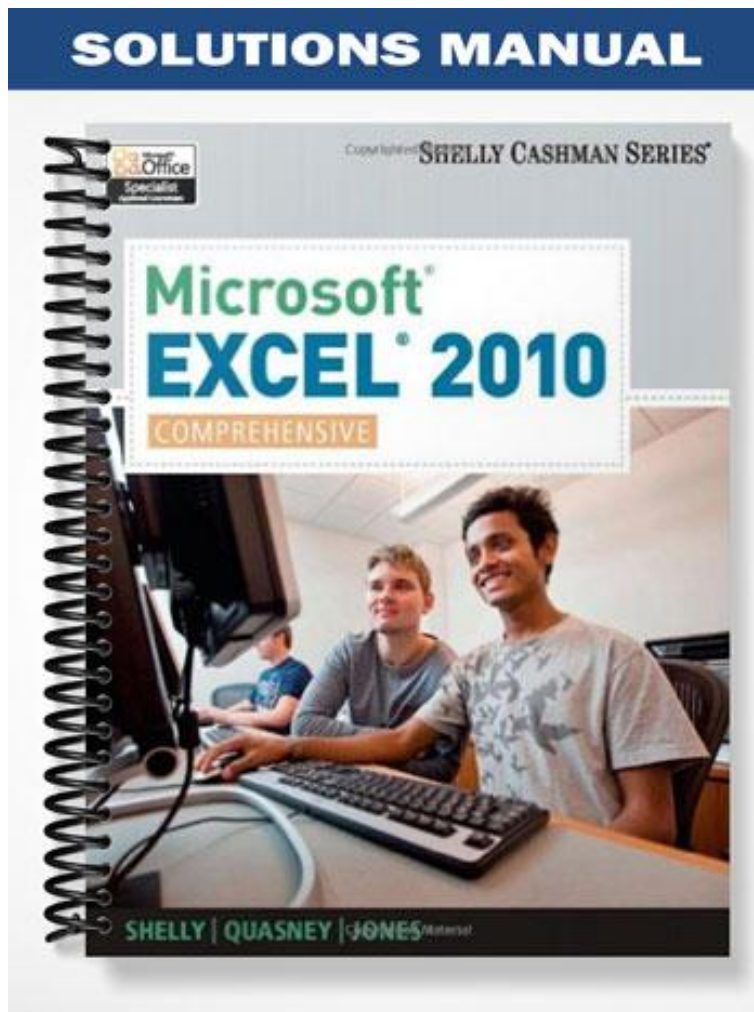


SOLUTIONS MANUAL



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Microsoft Excel 2010

Chapter Two: Formulas, Functions, and Formatting

A Guide to this Instructor's Manual:

We have designed this Instructor's Manual to supplement and enhance your teaching experience through classroom activities and a cohesive chapter summary.

This document is organized chronologically, using the same heading in **red** that you see in the textbook. Under each heading you will find (in order): Lecture Notes that summarize the section, Figures and Boxes found in the section, if any, Teacher Tips, Classroom Activities, and Lab Activities. Pay special attention to teaching Tips, and activities geared towards quizzing your students, enhancing their critical thinking skills, and encouraging experimentation within the software.

In addition to this Instructor's Manual, our Instructor's Resources CD also contains PowerPoint Presentations, Test Banks, and other supplements to aid in your teaching experience.

For your students:

Our latest online feature, CourseCasts, is a library of weekly podcasts designed to keep your students up to date with the latest in technology news. Direct your students to <http://coursecasts.course.com>, where they can download the most recent CourseCast onto their mp3 player. Ken Baldauf, host of CourseCasts, is a faculty member of the Florida State University Computer Science Department where he is responsible for teaching technology classes to thousands of FSU students each year. Ken is an expert in the latest technology and sorts through and aggregates the most pertinent news and information for CourseCasts so your students can spend their time enjoying technology, rather than trying to figure it out. Open or close your lecture with a discussion based on the latest CourseCast.

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Chapter Objectives

Students will have mastered the material in Chapter Two when they can:

- Enter formulas using the keyboard
- Enter formulas using Point mode
- Apply the AVERAGE, MAX, and MIN functions
- Verify a formula using Range Finder
- Apply a theme to a workbook
- Apply a date format to a cell or range
- Add conditional formatting to cells
- Change column width and row height
- Check the spelling in a worksheet
- Set margins, headers, and footers in Page Layout view
- Preview and print versions of a worksheet

EX 66: Introduction

LECTURE NOTES

- Define the term function
- Discuss the topics in this chapter, including:
 - Using Option buttons
 - Verifying formulas
 - Applying a theme
 - Formatting numbers and text
 - Changing column width and row height
 - Checking spelling
 - Adding page headers and footers
 - Switching between display of worksheet values and formulas

CLASSROOM ACTIVITIES

1. Critical Thinking: Based on what you have learned so far about working with Excel, list two business activities and two non-business activities in which using Excel to analyze and chart data could be helpful.
2. Quick Quiz:
 - 1) What is a function? (Answer: A prewritten formula built into Excel)

EX 66: Project — Worksheet with Formulas and Functions

LECTURE NOTES

- Use Figure 2-1 to describe the project
- Use the bulleted list Overview on page EX 68 to discuss the tasks students perform in this project

- Use Figures 2-2 and 2-3, the requirements document and sketch, to review requirements for the worksheet
- Review the steps to start Excel

FIGURES and TABLES: Figures — 2-1, 2-2, 2-3

BOXES:

1. BTW: *Aesthetics versus Function*. Differentiate between function and appearance and note that functional considerations should come first, before visual aesthetics. The user wants to “know” the information. Emphasize not using graphics that interfere with the purpose of the worksheet.
2. Yellow Box: You should direct students to the Office 2010 and Windows 7 chapter at the beginning of this book for an introduction to Windows 7 and for instruction on how to perform basic Windows 7 tasks.

TEACHER TIP

A formula can be defined as an equation with more than one variable that is used to solve practical problems. Students probably have worked with formulas in mathematics, science, and business classes. Perhaps surprisingly, however, formulas also are used in psychology, anthropology, sports, art, music, the language arts, and other areas. Formulas can ascertain abstract possibilities, such as an object's length as its speed approaches the speed of light. Worksheets make formulas even more powerful.

CLASSROOM ACTIVITIES

1. Group Activity: Divide the class into small groups. Ask each group to refer to the requirements document and the sketch in Figures 2-2 and 2-3 on pages EX 68 and EX 70 and discuss the requirements document and the sketch, making certain students understand the needs, source of data, required calculations, and formatting for this project.
2. Critical Thinking: What are the aesthetics and functional issues to be resolved in implementing the information in the requirements document and sketch? Refer to Figures 2-2 and 2-3, if necessary, in your answer.
3. Critical Thinking: Why is a payroll a good choice to illustrate the power of Excel to produce timely and accurate data analyses? Refer to Figure 2-1 in your answer.
4. Critical Thinking: When designing and developing a worksheet, which comes first, function or aesthetics? Why?
5. Quick Quiz:
 - 1) What is an appropriate use of a visual element on a worksheet? (Answer: To draw user attention to a specific area of the worksheet)

EX 69: Plan Ahead Box (Critical Thinking): General Project Decisions

LECTURE NOTES

- Review the decisions necessary to determine appearance and characteristics of a finished worksheet
- Use Figure 2-3 on page EX 70 to discuss how creating a predevelopment sketch helps you decide on a worksheet's visual layout and design

CLASSROOM ACTIVITIES

1. Class Discussion: Have the class brainstorm about the circumstances in which they would choose to have a cell stand out from similar cells and determine in what way the cell will stand out. For example, placing a different background color in cells that show losses could be an appropriate format for a column.
2. Critical Thinking: What are at least three decisions you must make as you determine the appearance and characteristics of a new worksheet?
3. Critical Thinking: When planning the layout of a worksheet, is the arrangement of the data significant to the development of the necessary calculations? Why or why not?
4. Critical Thinking: What is the relationship between worksheet layout and its hardcopy distribution?
5. Quick Quiz:
 - 1) The _____ of a worksheet is to provide a user with direct ways to accomplish tasks. (Answer: Function)
 - 2) The first step in creating an effective worksheet is to make sure you _____. (Answer: Understand what is required)

EX 71: Entering the Titles and Numbers into the Worksheet

LECTURE NOTES

- Remind students, if necessary, how to enter titles: worksheet title and subtitle, column and row titles, if necessary
- Remind students, if necessary, how to enter data in cells
- Use Table 2-1 to discuss entering the payroll data
- Ask students to refer to Figure 2-4 to verify their data entry
- Remind students, if necessary, how to change workbook properties
- Remind students, if necessary, how to rename the worksheet and save the workbook

FIGURES and TABLES: Figure — 2-4; Table — 2-1

BOXES:

1. BTW: *The Ribbon and Screen Resolution*. Describe how the display of the Ribbon groups and buttons on students' screens might vary from the illustrations in the text if their screen resolution is other than 1024 X 768.

2. BTW: *BTWs*. Direct students to visit the Excel 2010 BTW Web page (scsite.com/ex2010/btw) for a complete list of the BTWs found in the margins of the book.
3. BTW: *Q&As*. Direct students to visit the Excel 2010 Q&A Web page (scsite.com/ex2010/qa) for a complete list of the Q&As found in many of the step-by-step sequences in this book.
4. BTW: *Two-Digit Years*. Explain that Excel has internal calculations to convert a two-digit year to the correct four-digit year. Provide an example of a year from 19xx and a year from 20xx.
5. BTW: *Wrapping Text*. Mention how to wrap lengthy text within a cell and that Excel automatically increases the cell height to accommodate the text.
6. BTW: *Formatting Worksheets*. Explain that Excel allows the user to increase vertical white space to improve the appearance.
7. BTW: *Entering Numbers in a Range*. Describe how Excel automatically moves the active cell during entry of data in a selected range.
8. Yellow Box: You should direct students to the Office 2010 and Windows 7 chapter at the beginning of the book for an introduction to Office 2010 and instruction about how to perform basic tasks.

TEACHER TIP

You might choose to demonstrate how to enter numbers in a selected range. Point out that pressing the ENTER key activates the next cell down in the same column in the range; pressing the TAB key activates the next cell to the right in the same row in the range. Pressing the SHIFT+TAB keys activates the previous cell in the same row in the range. Warn students not to press an ARROW key to complete an entry as this will deselect the range. Note that this technique is particularly effective when you have a large amount of data to enter and you are using the numeric keypad to do so.

CLASSROOM ACTIVITIES

1. Group Activity: Excel offers multiple ways to perform most tasks. Group students into small teams and ask each team to start Excel and identify and list at least two ways to wrap text in a cell, change line height and column width, and delete cell contents.
2. Critical Thinking: What are the advantages and disadvantages of entering data in a selected range?
3. Critical Thinking: Why do most professionals prefer to see four-digit years in worksheet dates?
4. Critical Thinking: Why take the time to rename a worksheet if you are the only person using the workbook?
5. Quick Quiz:

- 1) If cell A3 contains a word that has 6 characters, such as "Stocks" and cell A8 contains 5 words causing the text to wrap within the cell, what effect does this have on cell A3?
(Answer: The height of cell A3 would be increased due to the height that cell A8 required for text.)

LAB ACTIVITIES

1. Have students research the Web for information about Excel tips for working with worksheets. Have them bring their most interesting tip to share with the class.

EX 74: Entering Formulas

LECTURE NOTES

- Define the terms formula, circular reference, functions, arguments, equal sign, asterisk, order of operations, Point mode, and relative cell references
- Use Figures 2-5 and 2-6 to illustrate how to enter a formula using the keyboard
- Use Table 2-2 to describe arithmetic operators
- Use Table 2-3 to illustrate examples of formulas
- Use Figures 2-7 through 2-11 to illustrate entering formulas using Point mode
- Use Figures 2-12 and 2-13 to illustrate how to copy formulas using the fill handle

FIGURES and TABLES: Figures — 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13; Tables — 2-2, 2-3

BOXES:

1. BTW: *Automatic Recalculation*. Indicate that Excel automatically recalculates all formulas affected by a changed number in the active cell. Explain that you can also perform manual recalculation of formulas when necessary.
2. BTW: *Troubling Formulas*. Explain how to work around and then resolve problems encountered when entering formulas.
3. Other Ways: Encourage your students to explore other ways of copying and pasting from source to destination areas.

TEACHER TIP

One common error is to create a formula with a circular reference. This occurs when a cell reference in a formula refers to the formula's result. For example, the formula = B1 + B2 + B3 in cell B3 is a circular reference because the result of the formula in cell B3 depends on the value in cell B3. Therefore, Excel is unable to determine the formula's result. When a formula with a circular reference is entered, Excel immediately points out the problem and offers Help.

TEACHER TIP

You might choose to use the following simple example to emphasize the importance of understanding the order of operations Excel follows when performing calculations and how to alter that order using parentheses.

Enter 5 in cell A1; enter 5 in cell B1; enter 2 in cell C1; and enter the following formula in cell D1: $=A1+B1/C1$. Intuitively students will expect the result to be 5 ($5+5=10/2=5$). However, following the order of operations, Excel first divides B1 by C1 and then adds the result of that calculation to A1 returning a result of 7.5 ($5/2=2.5+5=7.5$).

Next edit the formula in D1 to place the addition step in parentheses. The formula becomes $=(A1+B1)/C1$ and returns the expected result of 5.

CLASSROOM ACTIVITIES

1. Class Discussion: Explore the effect of parentheses by presenting an expression, such as $3 * 4 ^ 2 - 12 / 2 + 1$, evaluating it using the order of operations (43), then adding parentheses in one or more places, such as $(3 * 4) ^ 2 - 12 / (2 + 1)$, and reevaluating the expression (140), noting how the result has changed. Write the following expression on the board: $6 * 2 ^ 4 - 12 / 3 + 1$. Have students determine all of the different values that can be derived from this expression, depending on where pairs of parentheses are placed.
2. Class Discussion: Cell references are an integral part of a formula. When the value in a cell changes, the result of the formula used with that cell automatically changes. Therefore, specific numbers should be used in formulas *only* if they are constants (i.e., if they will not change). What are some examples in which entering specific numbers in formulas would be appropriate?
3. Critical Thinking: How does the automatic recalculation of formulas make Excel a powerful tool for analyzing data?
4. Critical Thinking: Why is it important to understand the order of operations Excel follows in performing calculations before you begin to construct your formulas?
5. Critical Thinking: What are the advantages or disadvantages of building a formula in Point mode (selecting cell references using the mouse) over entering a formula manually using the keyboard?
6. Quick Quiz:
 - 1) Most Excel formulas are the result of _____ calculations. (Answer: Algebraic)
 - 2) A(n) _____ is created by a formula that contains a reference to the cell that contains the formula. (Answer: Circular reference)
 - 3) Excel reads a formula from _____ and performs each calculation following a strict _____. (Answer: Left to right; order of operations)

LAB ACTIVITIES

1. Have students create a new blank workbook and add column titles, row titles, and numbers of their choice to cells. Then explore using the keyboard and the mouse to build formulas for a variety of calculations.

EX 74: Plan Ahead Box (Critical Thinking): Determine the Formulas and Functions Needed

LECTURE NOTES

- Review the guidelines for constructing formulas

CLASSROOM ACTIVITIES

1. Critical Thinking: How can you integrate the guidelines for constructing formulas into the planning and development phase for a worksheet?
2. Quick Quiz:
 - 1) When possible, avoid _____ a formula. (Answer: Retyping)
 - 2) A solid understanding of _____ and the order of operations is important to writing sound formulas. (Answer: Algebraic operators)

LAB ACTIVITIES

1. Have students use Excel Help to research the types of error messages they might encounter when building formulas. Students should be prepared to list the error messages and explain what causes the error.

EX 82: Option Buttons

LECTURE NOTES

- Define the term blank cell
- Use Table 2-4 to explain the circumstances in which Excel displays an Option button while students are working in a worksheet
- Use Figure 2-13 on page EX 81 to point out the Auto Fill Options button example
- Use Figure 2-14 to remind students how to use the SUM function to calculate totals
- Use Figure 2-15 to remind students how to copy a formula to an adjacent cell using the fill handle

FIGURES and TABLES: Figures —2-14, 2-15; Tables — 2-4

BOXES:

1. BTW: *The Paste Options Button*. Describe how to use the Paste Options button to specify exactly what to paste from the copied cell contents.
2. BTW: *Selecting a Range*. Describe how to use the keyboard to select a range and how to toggle on or off the selection of a range using the keyboard.

CLASSROOM ACTIVITIES

1. Critical Thinking: Compare completing a formula entry by 1) clicking the Enter box or 2) pressing the ENTER key. Which method do you prefer? Why? Does one method have any advantages or disadvantages over the other method? If yes, what are they?
2. Critical Thinking: Compare selecting a range using the keyboard, using the mouse pointer, or using the SHIFT+click and CTRL+click keyboard/mouse combination. Under what circumstances would you choose each method? Why is it important to be familiar with and use all three selection methods?

3. Critical Thinking: A blank cell in Excel has a numerical value of zero. Why does this affect how you copy and paste formulas?
4. Quick Quiz:
 - 1) You can turn on or off keyboard selection by pressing the _____ key. (Answer: F8)
 - 2) The Paste Options button allows you to _____. (Answer: Specify exactly how copied cell contents will be pasted)

EX 84: Using the AVERAGE, MAX, and MIN Functions

LECTURE NOTES

- Define the terms AVERAGE function, MAX function, and MIN function
- Discuss the five methods for entering a function in a formula
- Describe the syntax and arguments for the AVERAGE, MAX, and MIN functions
- Use Figures 2-16 through 2-18 to determine the average of a range of numbers using the AVERAGE function and the Formula AutoComplete list
- Use Figures 2-19 through 2-21 to illustrate how to determine the highest number in a range of numbers using the MAX function and the Insert Function box
- Use Figures 2-22 through 2-25 to determine the lowest number in a range of numbers using the MIN function and the Sum button menu
- Demonstrate the fill handle to copy a range to another range
- Use Figures 2-26 through 2-28 to copy a range of cells across columns to an adjacent range using the fill handle
- Remind students, if necessary, how to save a workbook using the same file name

FIGURES and TABLES: Figures — 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28

BOXES:

1. BTW: *Statistical Functions*. Illustrate how the statistical functions ignore blank (value 0) cells in calculations.
2. Other Ways: Encourage your students to explore other ways of inserting the AVERAGE function in a formula.
3. Other Ways: Encourage your students to explore other ways of inserting the MAX function in a formula.
4. Other Ways: Encourage your students to explore other ways of inserting the MIN function in a formula.
5. Other Ways: Encourage your students to explore other ways of copying and pasting formulas in a range of cells to another range.

6. Break Point: If you wish to take a break, this is a good place to do so, after completing the Using the AVERAGE, MAX, and MIN Functions section and before beginning the Verifying Formulas Using Range Finder section. Remind students to save The Mobile Masses Biweekly Payroll Report file again before quitting Excel; then start Excel and open the file to continue.

TEACHER TIP

Function arguments vary by function and can be numbers, text, logical values (such as TRUE or FALSE), constants, arrays (specially arranged groups of constants or areas of cells), error values (such as #N/A), cell references, formulas, or other functions. The argument designated must produce a valid value for that function.

CLASSROOM ACTIVITIES

1. Critical Thinking: Sometimes, it is just as easy simply to scan a list and pick out the highest value as it is to use the MAX function. Consider various numerical lists, such as a list of the ages of family members, a list of class grades, a list of city populations, and so on. When would it make more sense to use the MAX function than simply to scan the list to determine the highest value? Why? Does the answer depend on the amount of data, the type of data, or both? Why?
2. Critical Thinking: You can use the keyboard/mouse, Insert Function box, and Sum button menu to insert functions in a formula. Which method do you prefer? Why? Does it depend on the circumstances, for example the function you choose to use?
3. Critical Thinking: Which method of inserting a function into a formula would you use if you were not certain which function is needed to perform the calculation? Why?
4. Quick Quiz:
 - 1) The _____ function is used to determine the smallest value in a range. (Answer: MIN)
 - 2) The _____ function is used to calculate the average of values in a range. (Answer: AVERAGE)
 - 3) The _____ function is used to determine the largest value in a range. (Answer: MAX)

LAB ACTIVITIES

1. Have the students work in small groups. Have each group select six stocks — two technology stocks, two retail stocks, and two bank stocks — this can be done using online research. Each student should submit the stock names, their symbols, and a stock price. Have each group create a sketch for a worksheet that lists the stock names, symbols, price, and number of shares for each stock (500 shares as the number of shares for all stocks). Then create a requirements document and sketch necessary to produce a useful and appropriately formatted worksheet.

EX 91: Verifying Formulas Using Range Finder**LECTURE NOTES**

- Define the term Range Finder
- Use Figure 2-29 to illustrate how to verify a formula using Range Finder

FIGURES and TABLES: Figure — 2-29

BOXES:

1. BTW: *Entering Functions*. Refer students to the previous section and then describe how to drag the Function Arguments dialog box out of the way or collapse it in order to select a range for the function's argument.

CLASSROOM ACTIVITIES

1. Class Discussion: Ask students to refer to Figure 2-29 to define the Range Finder feature and explain how it is used. How do you turn on Range Finder? How do you turn it off? What does Range Finder illustrate?
2. Critical Thinking: Ask students to consider the following scenario: "Your classmate Jimmy comments that because Excel automatically calculates formulas they must be correct; so why bother with a feature like Range Finder." How would you respond to Jimmy?
3. Quick Quiz:
 - 1) You can use _____ to verify the cell references contained in a formula. (Answer: Range Finder)

EX 92: Formatting the Worksheet

LECTURE NOTES

- Define the terms pixel, best fit, and hiding cells
- Use Figures 2-30a and 2-30b to illustrate the unformatted and formatted worksheets
- Use the outline on pages EX 93 and 94 to review the formatting suggested in the sketch (Figure 2-3) on page EX 70
- Use Figures 2-31 and 2-32 to illustrate changing workbook's theme
- Use Figure 2-33 to remind students how to format worksheet titles
- Use Figures 2-34 through 2-37 to illustrate changing the background color and applying a box border to the worksheet title and subtitle
- Use Figure 2-38 to discuss cell styles and applying them to headings
- Use Figures 2-39 and 2-40 to remind students how to enter dates and center cell contents
- Describe the Accounting number format and the Comma style format
- Use Figures 2-41 through 2-43 to illustrate applying the Accounting number format and the Comma style format
- Use Figures 2-44 through 2-46 to illustrate applying a Currency style
- Use Figure 2-47 to illustrate applying a Percent style format and using the Increase Decimal button
- Use Figures 2-48 through 2-52 to illustrate applying conditional formatting
- Refer to Table 2-5 to summarize conditional formatting relational operators
- Use Figures 2-53 through 2-57 to discuss changing the widths of columns
- Use Figures 2-58 through 2-60 to describe changing the heights of rows

FIGURES and TABLES: Figures — 2-30a, 2-30b, 2-31, 2-32, 2-33, 2-34, 2-35, 2-36, 2-37, 2-38, 2-39, 2-40, 2-41, 2-42, 2-43, 2-44, 2-45, 2-46, 2-47, 2-48, 2-49, 2-50, 2-51, 2-52, 2-53, 2-54, 2-55, 2-56, 2-57, 2-58, 2-59, 2-60; Table — 2-5

BOXES:

1. BTW: *Color Selection*. Discuss how colors have different effects on people's moods and feelings. Knowing this information can help the students determine what colors to use in a worksheet.
2. BTW: *Background Colors*. State again how color can affect mood and feeling and explain why blue is the most popular background color.
3. BTW: *Conditional Formatting*. Discuss how Excel suppresses conditional formatting if the contents of the cell changes and no longer meets the specified conditions.
4. BTW: *Hidden Rows and Columns*. Explain how to hide/unhide a range of rows or columns.
5. Other Ways: Encourage your students to explore other ways of formatting a worksheet.
6. Other Ways: Encourage your students to explore other ways of opening the Format Cells dialog box.
7. Other Ways: Encourage your students to explore other ways of applying a Currency style.
8. Other Ways: Encourage your students to explore other ways of applying a Percent style.
9. Other Ways: Encourage your students to explore other ways of changing the column width.
10. Other Ways: Encourage your students to explore other ways of changing the row height.
11. Break Point: If you wish to take a break, this is a good place to do so, after completing the Formatting the Worksheet section and before beginning the Checking Spelling section. Remind students to save The Mobile Masses Biweekly Payroll Report file again before quitting Excel; then start Excel and open the file to continue.

TEACHER TIP

In many financial documents, such as this worksheet, dollar signs (\$) are displayed only in the first row where values appear and in the summary rows (e.g., total, average, highest, and lowest).

CLASSROOM ACTIVITIES

1. Class Discussion: Hold up various color chips (from the paint store, for example) or a color wheel, or point to a color in Excel's Theme or Standard Colors gallery). Ask the students to write down what mood this color puts them in, and what is the first thing they think of when they see this color. Do about four or five colors. Have the class share their results.

2. Critical Thinking: Think about background colors for text. Do they interfere with thinking? Do they really enhance a worksheet or detract from it? Think about borders. Do they feel too confining or do they help to group some idea or related group of data? Think about the position of text headings in a column. Do they look better centered within the cell or better left-aligned? How would their position affect the contents of the column they head? For example, would a centered heading look good at the top of a column of right-aligned numbers? Would a left-aligned heading look good over a right-aligned column of numbers?
3. Critical Thinking: Which of the following statements best represents your opinion?
 - (1) It is better to change fonts before any data is entered.
 - (2) It is better to change fonts as you enter data.
 - (3) It is better to change fonts after all the data is entered.
4. Critical Thinking: Ask students to consider the following scenario: "You have just finished a complex worksheet for an important meeting. Your co-worker, Lin, suggests that you give the worksheet a polished look by applying a theme." What factors should you consider when thinking about applying a theme to your worksheet?

LAB ACTIVITIES

1. Ask students to use online or offline resources to research color theory. Then prepare a list of suggestions for applying a colorful theme to a worksheet prepared for a school assignment, a worksheet prepared to complete a personal task, and a worksheet prepared to complete a professional project.

EX 93: Plan Ahead Box (Critical Thinking): Identify How to Format Various Elements of the Worksheet

LECTURE NOTES

- Define the term theme
- Discuss additional formatting considerations for a worksheet: cell borders and fill colors, centering text, applying a theme, and properly formatting dates

CLASSROOM ACTIVITIES

1. Critical Thinking: Does using an orange background and white font color for numbers in column D that are greater than 70 help the reader identify the numbers more easily? Would the effect be the same for hardcopy of the worksheet?
2. Quick Quiz:
 - 1) A(n) _____ is a predefined set of colors, fonts, chart styles, cell styles, and fill effects.
(Answer: Theme)

LAB ACTIVITIES

1. Ask students to open the workbook of their choice, save it with a new name, and then practice applying different themes to the workbook.

EX 100: Plan Ahead Box (Critical Thinking): Determine Proper Formatting for Cells that Include Currency and Other Numeric Amounts

LECTURE NOTES

- Define the terms Accounting number format, fixed dollar sign, floating dollar sign, Comma style format
- Describe circumstances when it is appropriate to apply different types of number formatting

CLASSROOM ACTIVITIES

1. Critical Thinking: Would the format you choose for numbers in a worksheet depend on the worksheet's purpose? Give specific examples to support your answer.
2. Quick Quiz:
 - 1) The ____ format displays numbers with a dollar sign to the left of the number, inserts a comma every three positions to the left of the decimal point, and displays numbers to the nearest cent. (Answer: Accounting number)
 - 2) To assign a floating dollar sign that appears immediately to the left of the first digit with no spaces, apply the ____ format. (Answer: Currency style)
 - 2) The ____ format applies a comma as a thousands separator and no dollar signs. (Answer: Comma style)

LAB ACTIVITIES

1. Ask students to create a new workbook and enter the numbers of their choice in a worksheet. Then practice applying different number formatting to the numbers.

EX 104: Plan Ahead Box (Critical Thinking): Establish Rules for Conditional Formatting

LECTURE NOTES

- Define the terms conditional formatting and condition
- Describe how to format cells by setting rules or conditions that must be met before the formatting is applied

CLASSROOM ACTIVITIES

1. Critical Thinking: What is the purpose of conditional formatting? When would you use it? What are the advantages and disadvantages, if any, to using conditional formatting?
2. Quick Quiz:
 - 1) ____ is formatting that appears only when the value in a cell meets conditions you specify. (Answer: Conditional formatting)
 - 2) A(n) ____, made up of two values and a relational operator, is true or false for each cell in a range. (Answer: Condition)

LAB ACTIVITIES

1. Ask students to create a new workbook and enter the numbers of their choice in a worksheet. Then practice applying conditional formatting to the numbers.

EX 112: Checking Spelling

LECTURE NOTES

- Define the term spell checker
- Use Figures 2-61 and 2-62 to show how to open the Spelling dialog box and check the spelling in the worksheet
- Use the bulleted list on page EX 113 to review additional spell checker considerations

FIGURES and TABLES: Figures — 2-61, 2-62

BOXES:

1. BTW: *Spell Checking*. Emphasize that students should always proofread their work because the automatic spell checking is not foolproof.
2. BTW: *Error Checking*. Discuss the importance of validating formulas using the Error Checking button and other methods.
3. Other Ways: Encourage your students to explore other ways of opening the Spelling dialog box.

TEACHER TIP

Stress to students that running a spell checker does not take the place of careful proofreading. One way to maximize the benefit of proofreading is to exchange a hardcopy of your worksheets with a classmate and proof his or her worksheet instead of your own.

CLASSROOM ACTIVITIES

1. Group Activity: Explain when spell checkers first became available, they did not recognize first names and suggested some very unusual alternatives such as “Dive” for the name “Dave” and “Start” for “Stewart.” Brainstorm with the class about types of spelling errors that could easily be undetected by a spell checker. Also think of funny spelling suggestions that the students have seen offered by Microsoft Excel or other spell check programs.
2. Critical Thinking: Why is it necessary to carefully proofread a worksheet even after you have spell-checked it?
3. Critical Thinking: “Always take the time to check the formulas in a worksheet before submitting the worksheet to your supervisor.” Why? What types of errors might occur with your formulas?
4. Critical Thinking: The AutoCorrect feature is a very valuable feature. Why? Can you think of ways to use the AutoCorrect feature to improve your productivity?
5. Quick Quiz:
 - 1) You can check the spelling of your worksheet by pressing the _____ key? (Answer: F7)

EX 114: Preparing to Print the Worksheet

LECTURE NOTES

- Define the terms Page Layout view, Normal view, and margins
- Use Figures 2-63 through 2-67 to illustrate changing the worksheet's margins, header, and orientation in Page Layout view

FIGURES and TABLES: Figures — 2-63, 2-64, 2-65, 2-66, 2-67

BOXES:

1. Other Ways: Encourage your students to explore other ways of changing page orientation.

TEACHER TIP

You might choose to point out the view buttons in the Workbook Views group on the View tab.

CLASSROOM ACTIVITIES

1. Critical Thinking: Compare working in Normal view with working in Page Layout view. How is working in these two views the same? How is it different? Why do you think Normal view, rather than Page Layout view, commonly is used to enter and edit cell contents?
2. Critical Thinking: Ask students to consider the following scenario: "Tonya, who works in the accounting department, wants to add the workbook's file name and the file path to the bottom of her worksheets; she asks if you can give her a tip on how to add this information." What can you tell Tonya?
3. Critical Thinking: Do you have to set a worksheet's page orientation each time you print it? If yes, why? If no, why not?
4. Quick Quiz:
 - 1) Do you need to change the orientation every time you want to print a worksheet? (Answer: No. Once you change the orientation and save the workbook, Excel saves the orientation setting until you change it.)

LAB ACTIVITIES

1. Visit the Excel 2010 MOS Certification Web page (scsite.com/ex2010/cert). Print out or list the requirements for becoming MOS certified.)

EX 114: Plan Ahead Box (Critical Thinking): Specify How the Printed Worksheet Should Appear

LECTURE NOTES

- Define the term header
- Explain the value of determining exactly how you want a printed worksheet to appear on a page as part of the planning process

CLASSROOM ACTIVITIES

1. Critical Thinking: What factors should you consider when determining how you want a printed worksheet to appear on the page? Why are headers and footers a good idea? Is landscape

orientation the only acceptable way to layout a worksheet on a printed page?

2. Quick Quiz:

- 1) What happens to a worksheet if more data is added to the page than fits on the page?
(Answer: Excel extends it to multiple pages)
- 2) A(n) _____ is common content that prints on every page of a worksheet. (Answer: Header)

EX 117: Printing the Worksheet

LECTURE NOTES

- Use Figure 2-68 to remind students how to print a worksheet
- Use Figures 2-69 and 2-70 to illustrate how to print a section of a worksheet

FIGURES and TABLES: Figures — 2-68, 2-69, 2-70

BOXES:

1. BTW: *Conserving Ink and Toner*. Explain how students can conserve ink or toner by printing draft quality worksheets.
2. BTW: *Printing Document Properties*. Describe how to print document properties.
3. Other Ways: Encourage your students to explore other ways of printing a section of the worksheet.

TEACHER TIP

You might choose to invite a guest speaker to discuss the importance of green computing and how students can participate in green computing.

CLASSROOM ACTIVITIES

1. Class Discussion: Ask students to refer to Figure 2-69 and then describe the print options in the Print gallery.
2. Critical Thinking: In what circumstances would you choose to print only a portion of a worksheet?
3. Critical Thinking: What benefits accrue (and to whom) by printing draft quality worksheets whenever possible?
4. Critical Thinking: Why would you want to print the document properties for a worksheet?
5. Quick Quiz:
 - 1) Print options are located in _____? (Answer: The Print gallery in Backstage view)

EX 119: Displaying and Printing the Formulas Version of the Worksheet

LECTURE NOTES

- Define the terms values version, formulas version, and debugging
- Use Figures 2-71 and 2-72 to illustrate displaying the formulas in the worksheet and then printing the worksheet scaled to fit on one page
- Review the steps to change the Print Scaling option back to 100%
- Remind students, if necessary, how to save the workbook and quit Excel

FIGURES and TABLES: Figures — 2-71, 2-72

BOXES:

1. BTW: *Values versus Formulas*. Tell students not to enter numbers in cells that should contain formulas; most instructors check both the values version and the formulas version to make certain formulas are entered.
2. BTW: *Certification*. The Microsoft Office Specialist (MOS) program provides an opportunity to obtain a valuable industry credential. For more information about MOS, visit the Excel 2010 Certification Web page (scsite.com/ex2010/cert).
3. BTW: *Quick Reference*. Point out the location for the Quick Reference Summary and the Excel 2010 Quick Reference Web page.

TEACHER TIP

The term “debugging” is said to have originated with famed computer programmer Grace Hopper (inventor of COBOL), who traced a computer malfunction to a bug (a moth) in the machine.

TEACHER TIP

You might choose to point out the Show Formulas button (Formulas tab | Formula Auditing group) to toggle between the formulas version and values version of a worksheet.

CLASSROOM ACTIVITIES

1. Critical Thinking: How does displaying the worksheet in formulas version make it easier to find and correct errors?
2. Critical Thinking: Ask students to consider the following scenario: “Jake, a classmate, tells you that he didn’t have time to enter the formulas in his worksheet and, instead, calculated the correct result using his calculator and entered the result of his calculations in the cells instead of the formulas.” Could any problems arise because of Jake’s actions? If so, what kinds of problems?
3. Quick Quiz:
 - 1) How do you use the keyboard toggle between the values version and the formulas version of a worksheet? (Answer: Press CTRL+` (ACCENT MARK))
 - 2) How does Excel make a worksheet fit on one page when you choose the Fit to option? (Answer: Excel automatically changes to the Fit to scaling percentage required to fit the printout on one page.)

End of Chapter Material

- **Chapter Summary** provides a brief review of key topics in the chapter and a list of key skills referenced by page number.
- **Learn It Online** is a series of online exercises that test students' knowledge of chapter content and key terms.
- **Apply Your Knowledge** is an assignment that helps students reinforce their skills and apply the concepts learned in this chapter.
- **Extend Your Knowledge** is an assignment that challenges students to extend the skills learned in this chapter and to experiment with new skills. Students may need to use Help to complete the assignment.
- **Make It Right** is an assignment that asks students to analyze a worksheet and correct all errors and/or improve the worksheet's design.
- **In the Lab** is a series of assignments that ask students to design and/or format a worksheet using the guidelines, concepts, and skills presented in this chapter. The labs are listed in order of increasing difficulty.
- **Cases and Places** is a series of assignments in which students apply creative thinking and problem-solving skills to design and implement solutions.

Glossary of Key Terms

- Accounting Number Format (EX 100)
- arguments (EX 75)
- asterisk (EX 75)
- AVERAGE function (EX 84)
- best fit (EX 107)
- blank cell (EX 83)
- circular reference (EX 75)
- Comma style format (EX 100)
- condition (EX 104)
- conditional formatting (EX 104)
- debugging (EX 119)
- equal sign (EX 75)
- fixed dollar sign (EX 100)
- floating dollar sign (EX 100)
- formula (EX 74)
- formulas version (EX 119)
- function(s) (EX 66, EX 75)
- header (EX 114)
- hiding cells (EX 108)
- margins (EX 114)
- MAX function (EX 86)
- MIN function (EX 87)
- Normal view (EX 114)
- order of operations (EX 77)
- Page Layout view (EX 114)
- pixel (EX 107)
- Point mode (EX 77)
- Range Finder (EX 91)
- relative cell references (EX 81)
- spell checker (EX 112)
- theme (EX 93)
- values version (EX 119)

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