Microsoft® Office 2013

First Course | Second Course | Third Course

Working with Formulas and Functions

Objectives

- Create a complex formula

- Insert a function

- Type a function

- Copy and move cell entries

- Understand relative and absolute cell references

Objectives

- Copy formulas with relative cell references

- Copy formulas with absolute cell references
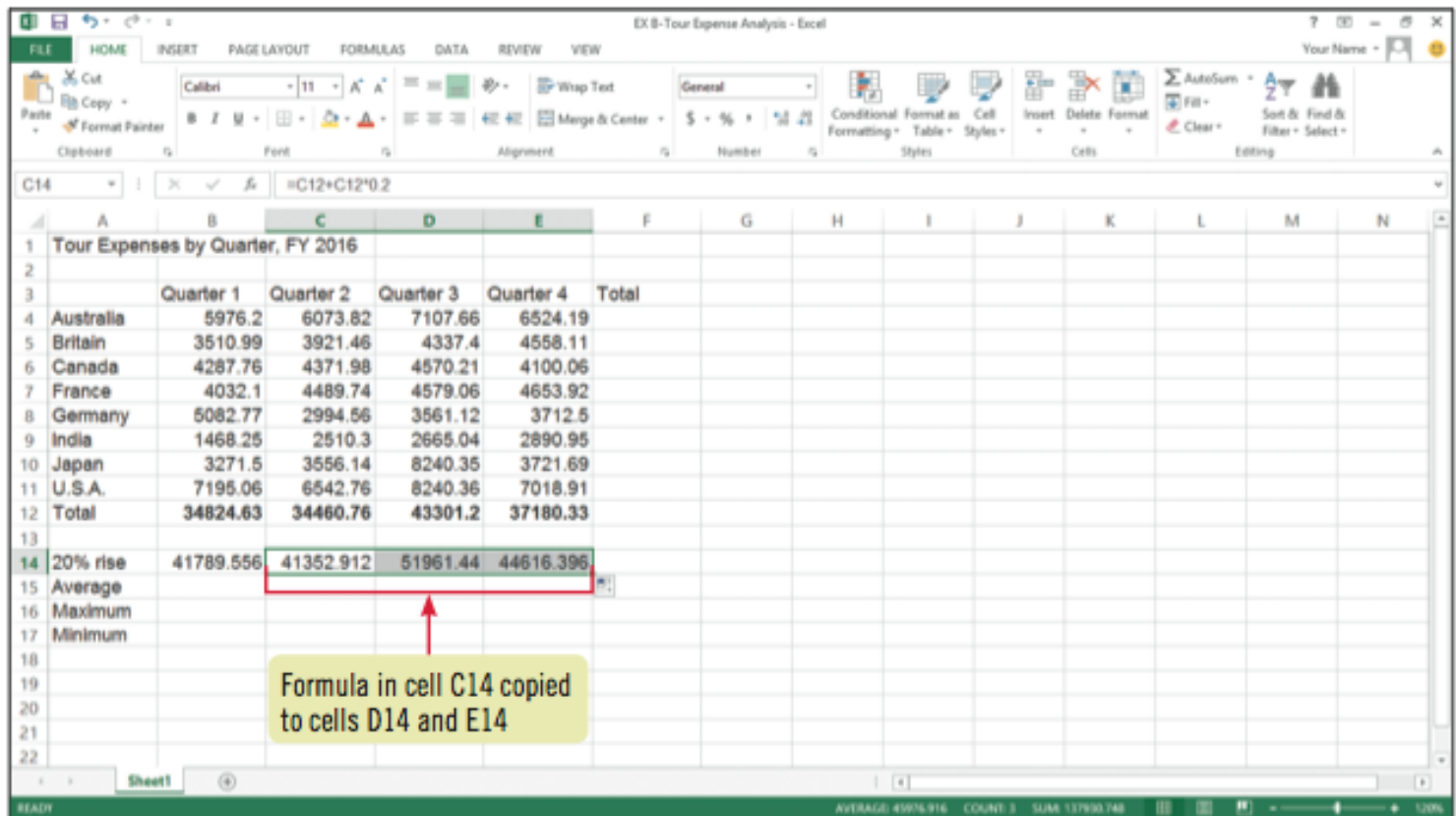
- Round a value with a function

Create a Complex Formula

- A complex formula is an equation that uses more than one type of arithmetic operator
  - Example: formula that uses both addition and multiplication
  - Arithmetic operations are performed according to the order of precedence

Create a Complex Formula

Complex formulas in worksheet

Create a Complex Formula

- Order of precedence in Excel formulas
  - Operations inside parentheses are calculated first
  - Exponents are calculated next
  - Multiplication and division are calculated next (from left to right)
  - Addition and subtraction are calculated next (from left to right)

Insert a Function

- A function is a predefined worksheet formula that makes it easy to perform a complex calculation
  - Can be used by itself or within a formula
  - If used alone, begins with the formula prefix (=)

Insert a Function

Expanded Function Arguments dialog box

Type a Function

- A function can be typed manually into a cell

  - You must know the name and initial characters of the function

  - Can be faster than using the Insert Function dialog box

  - Experienced Excel users often prefer this method

Type a Function

- While manually typing a function, it is necessary to begin with the equal sign (=)

- Once you type an equal sign, each letter you type activates the AutoComplete feature

Type a Function

MAX function in progress

13					
14	20% rise	41789.556	41352.912	51961.44	44616.396
15	Average	4353.0788	4307.595	5412.65	4647.5413
16	Maximum	=MAX(			
17	Minimum	MAX(number1, [number2], …)			

Copy and Move Cell Entries

- You can copy or move data within a worksheet or between worksheets using:
  - Cut, Copy, and Paste buttons
  - Fill handle in the lower-right corner of the active cell
  - Drag-and-drop feature
- Clipboard temporarily stores information that you copy or cut

Copy and Move Cell Entries

- Pasting an item from the Clipboard
  - Only need to specify the upper-left cell of the range where you want to paste the selection

Copy and Move Cell Entries

Copied data in Office Clipboard

Copy and Move Cell Entries

- Use a relative cell reference when you want to preserve the relationship to the formula location
  - Calculations are performed based on cell relationship
  - When a formula is copied, the cell reference changes to preserve the relationship of the formula to the referenced cells
  - The Excel default

Understand Relative and Absolute Cell References

Formulas containing relative references

Formula containing relative references

Copied formulas adjust to preserve relationship of formula to referenced cells

Understand Relative and Absolute Cell References

- Use an absolute cell reference when you want to preserve the exact cell address in a formula

  - Reference does not change even if the formula is copied to another location

  - Created by placing a dollar sign ($) before both the column letter and the row number for the cell's address

Understanding Relative and Absolute Cell References

Formulas containing absolute and relative references

Understand Relative and Absolute Cell References

- Using a mixed reference
  - A mixed cell reference combines both relative and absolute cell referencing
    - Example: When you copy a formula, you may want to change the row reference but keep the column reference
  - Created using the [F4] function key

Copy Formulas with Relative Cell References

- Reuse formulas you have created
- Use Copy and Paste commands or the fill handle to copy formulas
- Copying a formula to a new cell
  - Excel substitutes new cell references so that the relationship of the cells to the formula remains unchanged

Copy Formulas with Relative Cell References

Formula pasted in a range

Copy Formulas with Relative Cell References

- Auto Fill feature can be used for filling cells with sequential text or values
  - Months of the year; days of the week; or text plus a number (Quarter 1, Quarter 2, etc.)
  - Drag the fill handle to extend an existing sequence

Copy Formulas with Absolute Cell References

- Apply absolute cell reference before copying a formula if you want one or more cell references to remain unchanged in relation to the formula

Copy Formulas with Absolute Cell References

Absolute reference created in formula

Round a Value with a Function

- Cells containing financial data are often easier to read if they contain fewer decimals

- Use the ROUND function to round down your results

Round a Value with a Function

ROUND function added to an existing formula

Summary

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- Round a value with a function