

Office 365 (v. 2021): In Practice—Text Overview

The focus of the *Office 365: In Practice* text is **transferability of skills**. We structure these texts to help student transfer the Office skills they are learning to other contexts: educational, professional, and personal. We use the **T.I.P.** approach to promote **transferability of skills**.

Topic—Each application begins with foundational skills and builds upon these to introduce more complex topics. The chapter text briefly describes the Office feature and why it's used.

Instruction—How To guided instructions about chapter topics provide transferable and adaptable instructions. Because How To instructions are not locked into single projects, this textbook functions as a reference text, not just a point-and-click textbook.

Practice—Within each chapter, integrated Pause & Practice projects (3 to 5 per chapter) reinforce learning and provide hands-on guided practice. In addition to Pause & Practice projects, each chapter has 10 comprehensive and practical end-of-chapter practice projects.

STUDENT LEARNING OUTCOMES

Student Learning Outcomes (SLOs) are listed at the beginning of each chapter and all learning and practice exercises are tied to the chapter SLOs.

CHAPTER
2

Working with Formulas and Functions

CHAPTER OVERVIEW

With its capabilities in mathematical, scientific, engineering, and other calculations, Excel is a valuable tool for business, government, education, and you. Use Excel to create a simple addition formula or a sophisticated calculation with layers of arithmetic. In this chapter, you learn how to build a basic formula and how to use mathematical rules. You also explore Excel function categories.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- SLO 2.1** Build and edit basic formulas (p. E2-106).
- SLO 2.2** Set mathematical order of operations in a formula (p. E2-109).
- SLO 2.3** Use absolute, mixed, relative, and 3D references in a formula (p. E2-111).
- SLO 2.4** Use formula auditing tools in a worksheet (p. E2-120).
- SLO 2.5** Work with *Statistical* and *Date & Time* functions (p. E2-127).
- SLO 2.6** Use functions from the *Financial*, *Logical*, and *Lookup & Reference* categories (p. E2-135).
- SLO 2.7** Work with *Text* functions (p. E2-150).
- SLO 2.8** Build functions from the *Math & Trig* category (p. E2-152).

HOW TO INSTRUCTIONS

How To instructions provide students clear and specific instruction on how to use an Office feature. How To instructions are not embedded into projects so learning is more easily transferred to different contexts. Many screen shots are used to guide student learning. **Show Me, Guide Me,** and **Let Me Try** interactive activities are built into many How To's within the SIMbook.

HOW TO: Edit a Formula

- Double-click the formula cell.
 - The **Range Finder** highlights and color codes the cells.
- Edit the formula in the cell (Figure 2-4).
 - Edit the cell address or type a different operator.
 - Select a cell address and click a different cell to replace the reference.
 - Use the **Formula bar** to edit a formula.
- Press **Enter**.
 - Click the **Enter** button in the **Formula bar** or press **Ctrl+Enter** to complete a formula.

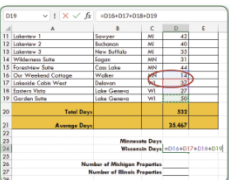


Figure 2-4 Delete the reference to cell D16 to correct the formula for Wisconsin

show me

guide me

let me try

PAUSE & PRACTICE PROJECTS

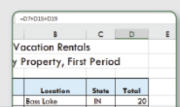
Each chapter contains 3-5 Pause & Practice Projects, which provide an opportunity for students to practice Office skills after every 2-3 SLOs. These projects build upon each other throughout the chapter.

PAUSE & PRACTICE: EXCEL 2-1

For this project, you build formulas in the Perfect Vacation Rentals workbook. You use relative, mixed, and absolute references, 3D references, and set order of precedence. You also name cell ranges and use auditing tools.

File Needed: [PerfectRentals-02.xlsx](#) (Student data files are available in the Library of your SIMnet account.)
Completed Project File Name: [\[your initials\] PP E2-1.xlsx](#)

- Open the [PerfectRentals-02.xlsx](#) workbook from your student data files. (If the workbook opens in *Protected View*, click **Enable Editing**.)
- Save the workbook as [\[your initials\] PP E2-1](#).
- Enter addition formulas.
 - Select the **Rental Days** sheet and click cell **D23**.
 - Type **=** to start a formula.
 - Click cell **D7** to insert the first value for Minnesota.
 - Type **+** as the mathematical operator.
 - Click cell **D15** to add the next value.
 - Type **+** and click cell **D19**. The formula is **=D7+D15+D19** (Figure 2-21).
 - Press **Enter** or click the **Enter** button in the **Formula bar**. The result is 89.
 - Select cell **D24** and complete the addition formula for Wisconsin. The result is 114.
- Create and copy a 3D formula with relative cell references.



CHAPTER SUMMARY

The Chapter Summary provides a review of Office topics covered organized by SLOs.

Chapter Summary

2.1 Build and edit basic formulas (p. E2-106).

- A **formula** is a calculation that uses arithmetic operators, worksheet cells, and constant values. Basic arithmetic operations are addition, subtraction, multiplication, and division.
- Type a formula in the cell or point and click to select cells.
- When you type a formula, **Formula AutoComplete** displays suggestions for completing the formula.
- Formulas are edited in the **Formula bar** or in the cell to change cell addresses, use a different operator, or add cells to the calculation.

END-OF-CHAPTER PROJECTS (10 PER CHAPTER)

A variety of realistic and relevant end-of-chapter projects are available for reinforcement of Office skills. End-of-chapter projects are tied to SLOs and have a list of skills covered in the project. Many figures and solution screen shots display in projects.

GUIDED PROJECTS (3 PER CHAPTER)

Formative projects that provide students with detailed instructions on what to do and how to do it.

Guided Project 2-1

Courtyard Medical Plaza (CMP) has doctor offices, a pharmacy, X-ray and lab services, insurance and billing support, optometry and dental facilities, and more. You will complete an inventory worksheet for the pharmacy as well as insurance and payment data for the optometry group.
[Student Learning Outcomes 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8]

File Needed: **CourtyardMedical-02.xlsx** (Student data files are available in the Library of your SIMnet account.)
Completed Project File Name: **[your initials] Excel 2-1.xlsx**

Skills Covered in This Project

- Build and copy formulas.
- Name cell ranges and use them in formulas.
- Use the XLOOKUP function.
- Use relative, mixed, and absolute cell references in formulas.
- Use formula auditing tools.
- Use the PMT and SUMPRODUCT functions.
- Use MEDIAN, MODE, and COUNTA.
- Display data using TEXTJOIN.
- Use SUMIF.
- Check results with AutoCalculate.
- Set mathematical order of operations.
- Use the TODAY function in a formula.

1. Open the **CourtyardMedical-02.xlsx** workbook from your student data files and save it as **[your initials] Excel 2-1**.
2. Enter and copy a subtraction formula.
 - a. Verify or click cell **E2** on the **Lookup_Data** worksheet. To calculate the dollar amount of the margin, subtract the cost from the retail price.
 - b. Type an equals sign (=) to start the formula.
 - c. Click cell **D2**, the retail price.
 - d. Type a minus sign or hyphen (-) to subtract and click cell **C2**, the cost.
 - e. Click the **Enter** button (check mark) in the **Formula** bar. The pointer stays in the formula cell. The margin for acetaminophen is \$1.49.
 - f. Double-click the **Fill pointer** to copy the formula in cell **E2** to cells **E3:E16**. The **Auto Fill Options** button appears near cell **E16**.
 - g. Click the **Auto Fill Options** button and choose **Fill Without Formatting** (Figure 2-70). This option copies the formula without the single bottom border from cell **E1** and removes the currency symbols.
 - h. Format cells **E2:E16** as **Currency** from the **Number Format** drop-down list.
3. Enter and copy a division formula.
 - a. Click cell **F2**. The margin percentage is the dollar margin divided by the cost.
 - b. Type an equals sign (=) to start the formula.
 - c. Click cell **E2**, the dollar amount of the margin.
 - d. Type a forward slash or diagonal (/) to divide and click cell **C2**, the cost.

Cost	Retail	Margin	Markup %
\$2.50	\$3.99	\$1.49	
\$0.55	\$1.99	\$1.44	
\$0.85	\$1.25	\$0.40	
\$3.45	\$5.99	\$2.54	
\$2.75	\$4.99	\$2.24	
\$1.25	\$3.99	\$2.74	
\$2.25	\$3.99	\$2.74	
\$1.25	\$3.99	\$2.74	
\$1.25	\$4.99	\$3.74	
\$2.50	\$3.99	\$1.49	
\$2.25	\$4.99	\$2.74	
\$2.25	\$5.99	\$3.74	
\$1.55	\$4.99	\$3.44	
\$2.75	\$5.99	\$3.24	
\$3.55	\$6.99	\$3.44	

Figure 2-70 Copy without formatting to preserve borders

INDEPENDENT PROJECTS (3 PER CHAPTER)

Summative projects that provide detailed instruction on what to do, but these projects provide less details on how to perform specific skills.

Independent Project 2-5

San Diego Sailing maintains a fleet of rental and charter boats. Your task is to fix a circular reference error, calculate projected rental rates, and calculate statistics about past rentals.
[Student Learning Outcomes 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8]

File Needed: **SanDiegoSailing-02.xlsx** (Student data files are available in the Library of your SIMnet account.)
Completed Project File Name: **[your initials] Excel 2-5.xlsx**

Skills Covered in This Project

- Use formula auditing tools.
- Create and copy formulas.
- Use relative, mixed, and 3D cell references.
- Set mathematical order of operations.
- Build an IF formula.
- Use the COUNTIF function.
- Use the SUMIF function.
- Fill a date series with the TODAY function.

1. Open the **SanDiegoSailing-02.xlsx** workbook from your student data files. When a workbook has a circular reference, a message box appears as you open it (Figure 2-110).

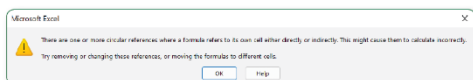


Figure 2-110 Circular reference message

ADVANCED PROJECT (1 PER CHAPTER)

Similar to *Independent Projects* but instructions are even less prescriptive, and more skills are covered.

Advanced Project 2-7

Mary's Equipment Rentals serves the light-to-heavy equipment needs of contractors and the general public. Data has been imported from an Access database and needs to be transformed for better management in Excel. Once that is done, you calculate several statistics for the company.
[Student Learning Outcomes 2.1, 2.3, 2.4, 2.6, 2.8]

File Needed: **MarysRentals-02.xlsx** (Student data files are available in the Library of your SIMnet account.)
Completed Project File Name: **[your initials] Excel 2-7.xlsx**

Skills Covered in This Project

- Create, copy, and edit formulas.
 - Name cell ranges.
 - Use formula auditing tools.
 - Use relative references and range names in formulas.
 - Build an XLOOKUP function.
 - Use SUMIF and COUNTIF functions.
1. Open the **MarysRentals-02.xlsx** workbook from your student data files and save it as **[your initials] Excel 2-7**. The **Inventory** sheet is a list of equipment available for rental.
 2. Calculate weekly and monthly rates.
 - a. Click cell **E2** on the **Inventory** sheet. The weekly rental rate is 96% of the daily rate for a 4% discount times 5 for a five-day week.
 - b. Enter a formula in cell **E2** to multiply the daily rate by 96% times five days and copy it down the column.

CHALLENGE PROJECTS (3 PER CHAPTER)

Open ended projects that provide students the opportunity to apply their Office skills to a creative and challenging project.

Challenge Project 2-8

For this project, you create a workbook for your business that displays current salaries and increased salaries at two proposed percentages. You order the arithmetic with parentheses to calculate new salaries and display average and median values.
[Student Learning Outcomes 2.1, 2.2, 2.3, 2.5, 2.6]

File Needed: None
Completed Project File Name: **[your initials] Excel 2-8.xlsx**

Create and save a workbook as **[your initials] Excel 2-8**. Modify your workbook according to the following guidelines:

- In cells **A3:D3**, type the following labels: **Staff ID**, **Current Salary**, **10% Increase**, and **15% Increase**.
- Select cell **A4** and type an ID number for the first employee that can be autofilled. Use an alphanumeric identifier such as **AB001** or **EX200**. In cell **A5**, type the next ID in the series such as **AB002** or **EX201**. Fill the IDs to reach row **15**.
- In cells **B4:B15**, type a yearly salary for each staff member. Format these values as **Currency** with no decimal places.
- Calculate the new salary with a 10% increase in column **C**.
- Calculate the new salary with a 15% increase in column **D**.
- Calculate total salaries at each level in row **16** and type **Total** in cell **A16**.
- In cells **A18:A19**, type **Average** and **Median**.
- Calculate the average and median salary for each column in cells **B18:D19**.
- Select cell **B21** and type this sentence: **Type ID in cell B22**. Including the period. Type one of the staff IDs from column **A** in cell **B22**.
- Select cell **C22**. Build an **XLOOKUP** (or **VLOOKUP**) function to display the salary with a 10% increase for the staff ID shown in cell **B22**. Format the results as **Currency** with no decimals.

ADDITIONAL INSTRUCTOR RESOURCES

- Chapter PowerPoints and instructor manual
- Check for Understanding and test bank questions
- Mac instructions and data files
- Student data and solution files
- Student tutorial videos
- Application and integrated capstone projects
- MOS content mapping