

Concepts Review

True/False Questions

Each of the following statements is either true or false. Indicate your choice by circling T or F.

- T F 1. To complete a function, you must include its arguments.
- T F 2. Icon sets display an image in the cell based on the value.
- T F 3. You can create your own addition and subtraction formulas in the Insert Function dialog box.
- T F 4. Multiple arguments in a function are separated by a semicolon (;).
- T F 5. *123GO* is an acceptable range name for a group of cells.
- T F 6. COUNT and COUNTA always give the same results.
- T F 7. Many functions ignore text in their calculations.
- T F 8. If you delete a range name used in a formula, you will see #NAME? in the formula cell.

Short Answer Questions

Write the correct answer in the space provided.

1. What is listed in a Formula AutoComplete list?

2. Name the command that allows you to copy a range of cells to one or many grouped sheets.

3. Name the function that adds cell values only if they meet your criteria.

4. What function would count the number of empty cells in a range?

5. What is the difference between a constant and a named range?

6. How can you limit a specific range name to a particular worksheet in the workbook?

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7. Which dialog box provides access to all built-in functions?

8. What elements or attributes for an icon set can you change?

Critical Thinking

Answer these questions on a separate page. There are no right or wrong answers. Support your answers with examples from your own experience, if possible.



1. What might be some problems or issues with using named ranges and constants in a workbook?
2. Discuss the pros and cons of using the Insert Function and the Function Arguments dialog boxes versus keying a function.

Skills Review

Exercise 5-23

Use **Insert Function**. Key and point to enter functions.

AllAround Vision Care has three new sunglass frames that are top sellers. It has kept the numbers sold in each city as well as those sold at an exhibition in Las Vegas. Now it wants to calculate averages and revenues.

1. Open **Excel_SR5-23**. Save it as *[your initials]5-23*.
2. Use Insert Function by following these steps:
 - a. Click cell G3. Click the **Formulas** command tab.
 - b. Click the Insert Function button . In the **Or select a category** list, choose **Statistical** and **AVERAGE**. Click **OK**.
 - c. Select cells C4:C8. Click **OK**. Read the Error Checking Options ScreenTip, but do not ignore the error yet. It refers to the cells below the range used in the function.
 - d. Click cell G4 and click the Recently Used button . Choose **AVERAGE**.
 - e. Select cells C9:C13 and click **OK**.
3. Key and point to enter a function by following these steps:
 - a. Click cell G5.
 - b. Key **=aver** and press **Tab**.
 - c. Select cells C14:C18. Press **Enter**.
 - d. Click cell G9 and key **=sum(**.
 - e. Select cells G6:G8. Press **Enter**. The result is 0 at this point.



NOTE

The Most Recently Used list shows the functions you have used during the work session.

4. Key, point, and use Insert Function by following these steps:
 - a. Click cell G6.
 - b. Key = and click cell A5. Press **F4** to make it an absolute reference.
 - c. Key * to multiply.
 - d. Click the Insert Function button **fx**. In the **Or select a category** list, choose **Math & Trig** and **SUM**. Click **OK**.
 - e. Select cells C4:C8. Click **OK**. The result is \$25,550.00.
 - f. Click cell G7 and key =. Click cell A10 and press **F4**.
 - g. Key ***sum(**.
 - h. Select cells C9:C13. Press **Enter**. An error message about the missing right parenthesis opens.
 - i. Click **Yes** to accept the correction.
 - j. Complete the formula for cell G8 using the method you prefer.
5. Select the cells with money amounts and apply the Currency format to reset the alignment. You need not do anything about the error triangles; the formulas are correct, and the triangles do not print.
6. Press **Ctrl+Home**. Prepare and submit your work.

**NOTE**

Follow your usual course procedures for submitting your work. Add a header and/or footer if required.

Exercise 5-24

Navigate with and create range names. Use range names in functions.

In a workbook concerning the top-selling sunglass frames, the assignment of range names is incomplete. After you determine how they were started, you are to complete the names. Then you will be able to use the range names to complete the sales profile information on a separate worksheet in the workbook.

1. Open **Excel_SR5-24**. Save it as *[your initials]5-24*.
2. Navigate with and create range names by following these steps:
 - a. Click the Name Box arrow and choose **Boston**.
 - b. Click the Name Box arrow and choose **Chicago**.
 - c. Click the Name Box arrow and choose **JetSetter**.
 - d. Select cell C6. Hold down **Ctrl** and select cell C11. Hold down **Ctrl** and select cell C16.
 - e. Click the **Formulas** command tab. Click the Define Name button Check that the suggested **Name** is **Dallas**. Click **OK**.
 - f. Select cell C7. Hold down **Ctrl** and select cell C12. Hold down **Ctrl** and select cell C17.
 - g. Click the Name Box (not the arrow) and key **Seattle**. Press **Enter**.
 - h. Name cells C8, C13, and C18 **LasVegas** or **Las_Vegas**. Then name cells C9:C13 as **Jazzy**.

**REVIEW**

You cannot use spaces in a range name. Be sure to press **Enter** after keying a new name in the Name Box.


3. Use defined names in a function by following these steps:
 - a. Click the **SalesProfile** worksheet tab. Click cell B2.
 - b. Click the **Formulas** command tab. Click the arrow with the AutoSum button Σ . Choose **SUM**.
 - c. Press $F3$ and double-click **Vertigo**. Press Enter .
 - d. In cell B3, key **=sum** and press Tab . Press $F3$ and double-click **Jazzy**. Press Enter .
 - e. Sum the **JetSetter** range in cell B4.
 - f. In cell B6, key **=sum** and press Tab . Press $F3$ and double-click **Chicago**. Press Enter .
 - g. Drag the Fill handle for cell B6 to cell B7. In the formula bar for cell B7, double-click **Chicago** and press $F3$. Choose **Boston** and click **OK**. Press Enter .
 - h. Use your preferred method to complete the totals for the remaining cities.
4. Press $\text{Ctrl}+\text{Home}$. Prepare and submit your work.

Exercise 5-25

Use Insert Function. Explore function categories.

Temporary workers are those who help out at the offices when permanent workers are concentrating on WorldWide Campaign projects. Their pay records are updated on a monthly basis, and the work for the most recent month is ready for formulas. Three of the workers are eligible for a pay increase, so their data need to be presented on a separate sheet. On another worksheet, you need to calculate payments for several of these workers for their tuition loans from the company.

1. Open **Excel_SR5-25**. Save it as *[your initials]5-25*.
2. Click cell G6, and enter a formula to multiply the rate by the hours worked. Copy the formula without formatting. Then format all the results as Currency.
3. Use Insert Function and SUMIF by following these steps:
 - a. Click the **Summary** worksheet tab. Click cell B3.
 - b. Click the Insert Function button f_x in the formula bar.
 - c. Key **sumif** and press Enter . Click **OK**.
 - d. With the insertion point in the **Range** box, click the **TempWorkers** sheet tab. Select cells C6:C15.
 - e. Click in the **Criteria** box. Key ***john*** to find last names of "Johnson."
 - f. Click in the **Sum_range** box.
 - g. Click the **TempWorkers** worksheet tab. Select cells F6:F15. Click **OK**.
 - h. Click cell B4.

- i. Click the Insert Function button  in the formula bar. Choose **SUMIF** in the list and click **OK**.
- j. With the insertion point in the **Range** box, click the **TempWorkers** tab and select cells C6:C15.

**TIP**


You can copy the function and adjust the range and edit the criteria to calculate another worker's numbers.

- k. Click in the **Criteria** box. Key ***asa*** to find names that include "Asa."
- l. Click in the **Sum_range** box. Click the **TempWorkers** tab. Select cells F6:F15. Click **OK**.
- m. Calculate the total for Monica Chodha using the same procedures.

4. Use Insert Function and AVERAGEIF by following these steps:




**NOTE**

If the function you want to use appears in any recently used list, select it from there.

- a. Click cell C3 on the **Summary** sheet.
- b. Click the Insert Function button . In the **Or select a category** list, choose **Statistical**. Choose **AVERAGEIF** and click **OK**.
- c. With the insertion point in the **Range** box, click the **TempWorkers** worksheet tab. Select cells C6:C15.
- d. Click in the **Criteria** box. Key ***john***.
- e. Click in the **Average_range** box.
- f. Click the **TempWorkers** tab. Select cells F6:F15. Click **OK**.
- g. Calculate the average for the other two workers.
- h. Change the label in cell C2 to **Month** instead of "Week."


**REVIEW**

You can expand the formula bar to see a label that has a line break.

5. Select cells B3:C5 and click the Decrease Decimal button  once. Then click the Increase Decimal button  two times.
6. Use Insert Function and SUMIF by following these steps:
 - a. Click cell D3. Click the Insert Function button  and choose **SUMIF**.
 - b. With the insertion point in the **Range** box, click the **TempWorkers** sheet tab. Select cells C6:C15.
 - c. Click in the **Criteria** box. Key ***john***.
 - d. Click in the **Sum_range** box.
 - e. Click the **TempWorkers** tab. Select cells G6:G15. Click **OK**.
 - f. Calculate total pay for the other two workers. Format the values in column G as currency.
7. Use Insert Function and PMT by following these steps:
 - a. Click cell G8 on the **TuitionLoans** worksheet.

**NOTE**

The reference to cell D14 is absolute so that you can copy the PMT formula.

- b. Click the Insert Function button . In the **Or select a category** list, choose **Financial**. Choose **PMT** and click **OK**.
- c. With the insertion point in the **Rate** box, click cell D14 and press **[F4]**.
- d. Click after **\$D\$14** in the box and key **/12** to divide the yearly rate by 12.
- e. Click in the **Nper** box and key **36**. A 3-year loan payback period has 36 payments.
- f. Click in the **Pv** box and click cell E8.

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- g. Click in the **Type** box and key **1**. Click **OK**. The result is formatted in red with parentheses, a negative value.
 - h. Copy the formula in cell G8 to cells G9:G13.
 - i. Click cell G9 and press **F2**. Change **36** in the formula to **24** for a 2-year payback period as the **Nper** argument.
 - j. Edit the formulas in cells G10 and G13 to show the correct **Nper** argument.
8. Press **Ctrl+Home**. Prepare and submit your work.

Exercise 5-26


Create range names. Use range names in functions. Use a constant. Format data using icon sets.

During the insurance enrollment period, AllAround Vision Care determines how many employees are opting for each type of coverage, how many have dependents, and how many choose the dental plan. It also needs to recalculate deductible amounts. You are to assign range names so that the formulas are easier to understand and create a constant for each city for determining the new deductible. The icon sets will highlight those deductibles that are reaching ranges considered high.



NOTE

This exercise assumes that all error checking rules are active in Excel Options (Formulas pane).



1. Open **Excel_SR5-26**. Save it as *[your initials]5-26*.
2. Create range names by following these steps:
 - a. Select cells A3:D14.
 - b. Click the **Formulas** command tab. Click the Create Name from Selection button .
 - c. Click to remove the checkmark for **Left column** and click **OK**.





3. Use range names in a function by following these steps:



NOTE

The COUNT function counts cells that include a value.

- a. Click cell D17.
- b. Click the **Formulas** command tab. Click the More Functions . Choose **Statistical** and choose **COUNT**.
- c. Press **F3** and double-click **Dependents**. Click **OK**. The result is formatted with two decimals and has an error triangle.
- d. In cell D18, key **=sum** and press **Tab**. Press **F3** and double-click **Dependents**. Press **Enter**.
- e. Click cell D19. Click the More Functions . Choose **Statistical** and choose **COUNTA**.
- f. Press **F3** and double-click **Dental**. Click **OK**.
- g. In cell D20, use COUNTA with the **Name** range.

4. Select cells D17:D19 and click the Error Checking Options button . Ignore the errors. While the cells are selected, click the Decrease Decimal button  two times.
5. Use constants by following these steps:
 - a. Press **Ctrl+F3**.
 - b. Click **New**. In the **Name** box, key **Boston**.
 - c. In the **Refers to** box, delete the existing data and key **=25**. Click **OK**.
 - d. Click **New** again. In the **Name** box, key **Chicago**.
 - e. In the **Refers to** box, delete the existing data and key **=40**. Click **OK**.
 - f. Click **New** again. Create a constant named **Dallas** with a **Refers to** entry of **=30**.
 - g. Create a constant for Seattle that shows **=20**. Close the Name Manager dialog box.
 - h. Click cell F4. Key **=** and click cell E4. Key **+chi**. Press **Tab** and press **Enter**.
 - i. Click cell F4 and point at the cell edge. Hold down **Ctrl** and drag a copy to cell F7, and then drag another copy to cell F10. Select cells F7 and F10 and open the Format Cells dialog box to the Border tab. Set the top border to be a dotted line.
 - j. Click cell F5. Key **=** and click cell E5. Key **+d**. Press **Tab** and press **Enter**.
 - k. Click cell F5. Hold down **Ctrl** and drag copies to the appropriate rows. These copies will not have the top border issue.
 - l. Complete and copy the formulas using the constants for Boston and for Seattle. Check error triangles and ignore them if your formulas are correct.
6. Format data using icon sets by following these steps:
 - a. Select cells F4:F14 and click the Conditional Formatting button .
 - b. Choose **Icon Sets** and **3 Signs** in the **Shapes** group.
 - c. With cells F4:F14 selected, click the Conditional Formatting button .
 - d. Choose **Manage Rules**. Click **Edit Rule**.
 - e. Click the arrow with **Percent** for the first icon. Choose **Number**.
 - f. Change the **Type** for the second icon to **Number**.
 - g. Click **Reverse Icon Order**.
 - h. Key **2000** in the **Value** box for the first icon (red diamond).
 - i. Key **1000** in the **Value** box for the second icon (yellow triangle). Anything less than 1000 will show the green icon.
 - j. Click **OK**. Click **OK** again.
7. Press **Ctrl+Home**. Prepare and submit your work.

Lesson Applications

Exercise 5-27

Use Insert Function. Use range names in functions. Explore function categories.

In a patient insurance worksheet, AllAround Vision Care tracks the amount billed to a patient's insurance company and the amount actually paid by the insurer. The difference is due to the company and is calculated in the worksheet. The insurance summary is prepared on a separate sheet and shows the total and average amount billed by company. You are to complete that sheet too.

1. Open **Excel_LA5-27** and save it as *[your initials]5-27*.
2. In column L, create and copy a subtraction formula to determine the amount owed. Fix the borders and/or add currency format.
3. Create a range named **Insurance** for the labels in column H. Create a range named **Billed** for the values in column J. Create a range named **Due** for the formula results in column L. Do not include the column title in the range.
4. Key the following labels on the **Sheet2** worksheet. Do not split them as they appear in the figure.

Figure 5-22

	A	B	C
1	Insurance Data		
2		Total Billed	Average Still Owed
3	General Health		
4	Midwest Insurance Group		
5	White Cross		
6	UAB		

5. In cell B3, use the Function Arguments dialog box or key and point to create the following formula: =SUMIF(Insurance,"gen*",Billed)
6. Use SUMIF with appropriate range names and criteria to calculate totals billed for each insurance company. Then use AVERAGEIF with the same range names and criteria to calculate the average amount owed by insurer. Use AutoCalculate on **Sheet1** to verify your results.

- Format the values as currency. Use borders, cell alignment, styles, or other formatting commands to prepare **Sheet2**.
- Prepare and submit your work.

Exercise 5-28

Format data with icon sets.

AllAround Vision Care participates in research with the National Eye Institute to monitor various eye conditions. It has the number of diagnoses for this year and last year and can identify the trend. You have decided that icon sets without the values are all that is necessary for the worksheet.

- Open **Excel_LA5-28** and save it as **[your initials]5-28**.
- In column D, calculate the trend by subtracting the previous year's number from this year's value. A negative value means fewer diagnoses, which is good in this case.
- Apply the **3 Signs** icon set in the **Shapes** group to the formula results in column D.
- Edit the conditional formatting rule to use **Number** as the **Type**. Set the rule for the green sign to **>=0**. Set the rule for the yellow sign to **>0**.



NOTE

The yellow icon rule is impossible. A value cannot be less than and greater than zero at the same time.



TIP

You can change the alignment for the icon set.

- Click **Reverse Icon Order**. With this order, values greater than or equal to zero will display a red sign. Values less than or equal to zero will show a green sign. There will be no yellow signs; there are no zeros in the range either.
- Click to place a checkmark for **Show Icon Only**. Click **OK** to return to the worksheet.
- Use borders, cell alignment, styles, or other formatting commands to prepare the worksheet.
- Prepare and submit your work.

Exercise 5-29

Create range names.

The company's promotional pieces include a tip calculator, multiplication tables for schoolchildren, and sales tax tables. These pieces are designed as wallet cards, and each office can decide which ones to use and which suburban areas to target. The worksheet is completed, and you have to create and document range names so that the sheet is easier to use for all workers.

- Open **Excel_LA5-29** and save it as **[your initials]5-29**.
- On the **Chicago** sheet, select cells B7:B20 and name the range **Chicago_Tip**.

3. Select cells C7:C20 and name the range **Chicago_Multi**. Name cells D7:D20 as **Chicago_ST**.
4. On the other three sheets, follow the same pattern to name the ranges.
5. Insert a new worksheet and prepare documentation to display all range names and their references. Format the data for ease in reading and name the sheet **Documentation**.
6. Prepare and submit your work.

Exercise 5-30 ♦ Challenge Yourself

Create range names. Explore function categories.

Most of the work is completed regarding the three wallet-card promotional pieces. You have been asked to count how many suburbs in each major area were mailed the pieces. Although you have not used the COUNTIF function, you decide to try it since it follows the same syntax as SUMIF and AVERAGEIF. With the range names, you can easily choose the correct range and criteria for each occurrence of the function.

1. Open **Excel_LA5-30**. Save it as *[your initials]5-30*.
2. On the **Totals** sheet, use COUNTIF to count how many suburbs received the promotional pieces. Most of the range names have been created, but you will need to create some too.
3. Total the columns and complete the borders. Center the data horizontally on the page.
4. Make a copy of the **Totals** sheet and display the formulas. Turn off horizontal centering for this sheet and fit the formulas to one landscape page.
5. Prepare and submit your work.

On Your Own

In these exercises you work on your own, as you would in a real-life work environment. Use the skills you've learned to accomplish the task—and be creative.

Exercise 5-31

Create a new workbook and save it as *[your initials]5-31*. In cells A4:A8, key the names of five automobile models, five cell phone models, five athletic shoes models, five luggage sets, or five models of any product that you can compare. In cells B3:E3, key labels for four different criteria used to rate

these products. For an automobile, you might use mileage, price, reliability, and comfort. For shoes, you might use color, size, fit, and weatherproofing. After the basic data are developed, assign a value between 1 and 5 for each product in each category. Then apply various icon sets, and edit the rules to find one that fits the purpose. Format your work attractively. Prepare and submit your work.

Exercise 5-32

In a new workbook, key the first and last names for 20 people you know or create fictitious names. In the column to the right, key “Full-time” or “Part-time” to indicate work status. In the next column, key “Walk,” “Train or Bus,” or “Car” to indicate how the person gets to his or her job. Add labels, and format your work with borders and/or fill so that it looks professional. In a row below your data, key **Number of Persons with Full-time Jobs Who Walk to Work**. In a cell next to or below this label, use **COUNTIFS** to determine the answer after you look up this function in Microsoft Excel Help. One criterion range is job status; the second is the method of transportation. Edit your data to validate your work, too. Save the workbook as *[your initials]5-32*. Prepare and submit your work.

Exercise 5-33

Prepare a worksheet with labels and data to describe a car loan for yourself. Then use the PMT function to calculate what your payments would be for a 3-year loan, a 4-year loan, and a 5-year loan. Arrange and format the data so that they are easy to understand. Save the workbook as *[your initials]5-33*. Prepare and submit your work.