

EXCEL

2022

THE COMPLETE TUTORIAL

for Beginners and Expert with Useful Tips & Tricks to Master
All-New Features and Functions of Microsoft Excel for
2022-2023



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Excel 2022

The Complete Tutorial for Beginners and Expert with Useful Tips & Tricks to Master All-New
Features and Functions of Microsoft Excel for 2022-2023

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INTRODUCTION

Microsoft Excel is a spreadsheet tool that permits and enables people to organize and calculate their data through using mathematical formulas. Just like other Microsoft Office products, Microsoft Excel is now presented as a cloud-based subscription service through Office 365. Most top companies and organizations use Microsoft Excel and it is a very good way to simplify your organizational data.

The software can be used on Mac OS and Windows and it allows users to carry out operations including creating pivot tables, performing basic mathematical operations, writing data using the action pen, unhiding multiple worksheets, working with columns and rows, and so much more.

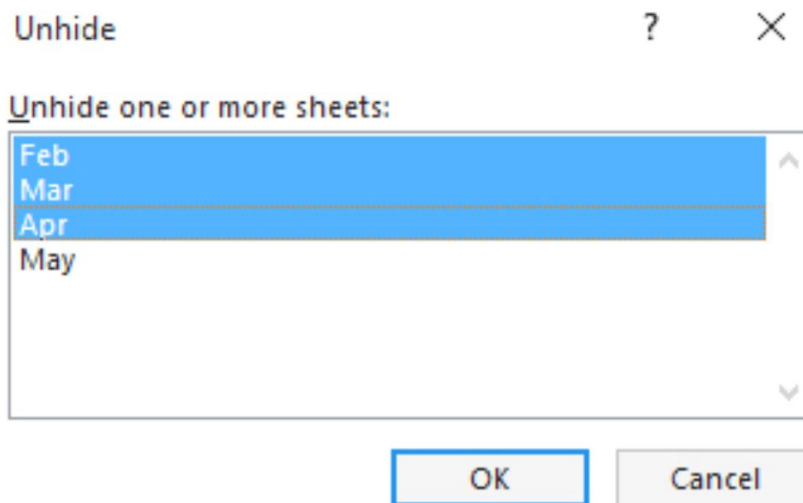
In addition, this guide will take you on a roller-coaster ride to discovering the new Microsoft Excel 2022, including how best to work with formulas and different functions. Get this guide and begin your Microsoft Excel journey.

CHAPTER ONE

What's new in Excel?



Unhide multiple worksheets



It was always possible to conceal many sheets with a single command. Unhiding sheets, on the other hand, had to be done one at a time. A new Unhide dialog box lets you to use **Ctrl or Shift** to select numerous worksheets and unhide them all at once.

Browse during Save As

When you execute a **Save As command**, a folder path is now shown at the top of the center part of the backstage view. (***NB: This folder is clickable and opens the File Explorer instantly***).

Clicking this item at the top will take you directly to the File Explorer. Yes, clicking the Browse symbol at the bottom of the left panel does the same thing. However, you will discover that selecting the route at the top of the screen is more convenient and efficient than searching for Browse at the bottom of a lengthy list of file locations.

Searching while opening workbooks

When you choose **File > Open** to launch a workbook, Excel displays the workbooks you've pinned to the list, followed by the latest 10 to 50 workbooks. It may be a workbook that you used every other week, but when you open dozens of files on a given day, such workbooks get moved to the bottom of the list.

The new Search bar at the top of the screen performs well. If you type a word or two from the workbook name, Excel will give it to you if you've recently opened the workbook.

Excel opens quicker

Microsoft unveiled a new design for Office. While the rounded edges may not seem interesting, the reality is that Excel is now loading significantly quicker than it was before. The new splash screen displays for a few seconds before the grid shows.

Smooth scrolling for tall or wide cells

In Excel, a single cell may carry almost 32 thousand characters. Some individuals keep paragraphs in a cell. The row height may be increased to 409.5 and the column width to 254.9.

Assume you have a spreadsheet with 50 rows of paragraphs with a height of 400. When you scroll with the wheel mouse, Excel will advance three rows at a time even if only one or two rows are displayed on the screen.

People who store this much info in a cell have been asking for a method to scroll slowly. In You can scroll one character left or right at a time by pressing **Ctrl+Shift+Wheel Mouse**.

Another notable enhancement is that if you let off of the scroll wheel or scroll bar, Excel will remain **“parked”** in the current view, even if you are halfway through a cell. Previously, if you scrolled halfway through a cell, Excel would redraw the screen such that the window began at the top of that cell or the top of the following cell.

Show changes from last 60 days

Excel begins recording every modification made to a worksheet as soon as you save a workbook to OneDrive or SharePoint Online.

These modifications are accessible for 60 days. This gives an excellent audit trail for determining who updated a cell, when they changed it, and what the new value was.

- Open the worksheet in Excel Online to view the changes.
- Select Show Changes from the Review tab.

However, if someone modifies one of the formulae, such as modifying the calculation for June, the change will be recorded.

Image transparency

Images in Excel are shown on a drawing layer above the grid. This implies that any picture will obscure the data behind it. On the Picture Format tab of the ribbon, a new Transparency icon emerges. Increase the transparency of the image so that you can see the info behind it.

Write data using the Action Pen

This is one of Excel's strange features. Sometimes a new feature is added to Excel because the PowerPoint developers created something that was simple to convert to Word and Excel. The Action Pen seems to fall under that group.

First, in the ribbon, there is a **Drawing tab**. A few years back, they made a big fuss about introducing new pens to the Drawing tab—glitter pens, pens of all kinds. In 2020, they will include an Action Pen.

When you use an Action Pen, you may utilize a mouse or a touchscreen to handwrite your data. The handwriting is transformed to data as if you had

typed it a few seconds later.

Cut-out people

On the Insert tab, choose the **Icons command**. There are several new icons, as well as stickers and a vast collection of cut-out individuals. Excel provides 20-30 postures for each of 40 stock individuals. They have a translucent backdrop, as the name implies, so you may place the individuals next to or on top of your data.

Cutout People may be searched by mood or trait, such as Smiling, Happy, Angry, Pointing, Holding a Sign, and so forth.

The ribbon has rounded edges

When Microsoft revealed a new design for the ribbon and then sent it out to no one for a week, there was a lot of social media enthusiasm. Everyone who was eager to view the new ribbon was attempting to update their Microsoft 365 hourly in order to see the new ribbon.

When it eventually came, the big deal was the rounded corners. Everything now has a circular curve to the edge, rather than squared-off tab titles.

Undo and Redo have been relocated from the Quick Access Toolbar to the left side of the Home tab. This implies that if you use the Insert, Draw, Page Layout, or other tabs, you should have no problems.

When you drag the Quick Access Toolbar below the ribbon, you can see the name of each icon. This is really very helpful. It does, however, imply that Microsoft renamed all 2,500+ icons to improve their appearance in the Quick Access Toolbar. *(NB: This makes customizing the ribbon or the Quick Access Toolbar more difficult. Previously, all five Speak Cells commands were housed in the “S” section).*

New Lambda helper functions

LAMBDA functionalities is another new feature added to Excel. As they began to roll out to more users, Microsoft discovered that they required a set of auxiliary functions to make Lambda functions simpler to utilize.

However, these brand-new auxiliary functions are only detailed here. They will most likely not be available to the broader Microsoft 365 audience until 2022.

Each of these new functions will loop over a range, passing each cell, row, or column to a LAMBDA function written as the helper function’s last parameter.

Your objective is to create a rectangle array with 12 rows and 5 columns. =MAKEARRAY(12,5,LAMBDA(...)) is the first line of the formula. In this scenario, the LAMBDA function takes three arguments:

- The first parameter is a variable that stores the row number of each array item.
- The second parameter is a variable that stores the column number of each array item.

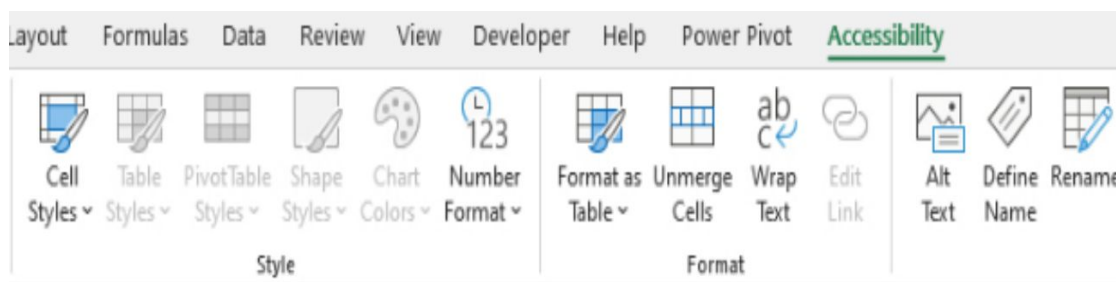
- The third parameter is formula logic, which converts the row and column into the value for that array member.

This group also includes the following functions:

- **MAP:** Call the MAP function with a range or an array and a LAMBDA. Excel will apply the LAMBDA function to each element in the input range and generate an array of the same size as the incoming array.
- **REDUCE:** To the MAP function, provide a range or an array as well as a LAMBDA. An accumulator variable is required by the LAMBDA to keep the final outcome, the incoming array, and finally the logic. Each element in the incoming data is subjected to the logic, and the results are added to the accumulator. For example, the logic may count the number of components that fall between 3 and 9. REDUCE always yields a single result.
- SCAN is identical to REDUCE, except it provides an array of all intermediate responses instead of a single answer. REDUCE delivers a single result if the entering array has four rows and three columns. SCAN will yield 4 rows and 3 columns, with interim findings shown after each phase.
- BYROW and BYCOL apply a LAMBDA to each row and column of an input array, respectively. BYROW is ideal for finding the MAX value in each row of a rectangular array.

Accessibility tab in ribbon and the navigation pane

Excel has an accessibility checker and clearly shows “**Check Accessibility**” on the left side of the Status Bar. When you launch the Accessibility Checker, a new tab called Accessibility appears on the ribbon. The tab provides a variety of options that may be used to resolve issues discovered in the Accessibility pane.



Consider navigating a workbook with little eyesight. Microsoft spoke with users who use a screen reader with Excel and discovered that it is tough to gain your bearings to find out where the data and pivot tables are situated.

Microsoft has now brought the Navigation pane to Excel. Worksheets, named ranges, charts, contiguous data ranges, and pivot tables will be shown on the pane. Select **View, Show, Navigation** to bring up the Navigation window. The concept is that a screen reader user may utilize the navigation pane to discover important parts of the worksheet and go to the appropriate one.

CHAPTER TWO

How to customize Excel

Sharing customizations with others

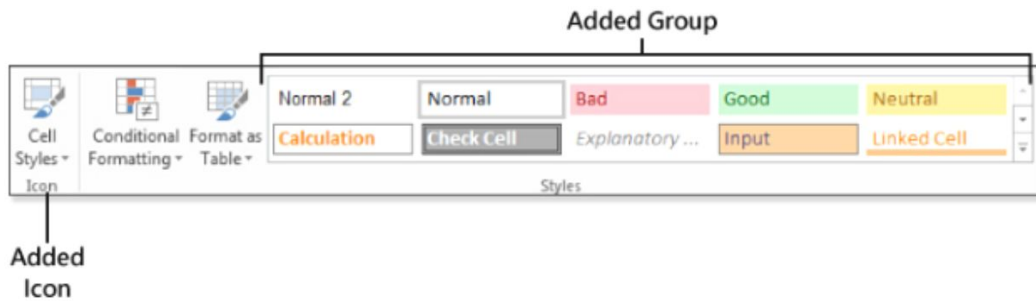
You can export all ribbon modifications if you've created the ideal ribbon customization and want everybody in your team have the same one.

Follow these procedures to export the changes:

1. Right-click the ribbon and choose **Customize The Ribbon** from the menu that appears.
2. Choose **Import/Export > Export All Customizations** from the list box on the right.
3. Navigate to a folder and name the customization file. *(NB: The file extension will be.exportedUI. Click the OK button).*
4. Locate the.exportedUI file in Windows Explorer. Transfer it to a coworker's PC.
5. Repeat step 1 on the coworker's PC - Choose **Import Customization File**. Locate the screen and select OK.

(NB: You can't export modifications to a single custom tab without also exporting changes to the Data and Home tabs).

Adding a new ribbon tab



Follow these simple steps to install a new ribbon tab:

1. Right-click the ribbon and choose **Customize The Ribbon** from the menu that appears.
2. Select **New Tab** and rename it.
3. Insert **New Group(s)** into the new tab.
4. Add commands to the newly created groups.

(NB: While you go through the processes to create a new ribbon tab, you'll see how severely limited the ribbon modifications are).

Also, you have no influence on which goods have huge icons and which have tiny ones. This is true even for galleries. When you add the **Cell Styles gallery** to a ribbon group, it always displays as an icon rather than a gallery, even if it is the only object on the whole ribbon tab. Add a complete built-in group to the tab as a workaround. The complete Styles group was added to the right of.

Furthermore, you cannot decide which icons seem big and which appear tiny on the ribbon when modifying it using this interface.

The Excel ribbon is organized logically, with big icons for key functions and little icons for lesser ones. When you establish a new group, you have no choice over which icons are little and which are huge.

To design custom ribbon tabs, you may either learn RibbonML or utilize a third-party application like Ribbon Commander.

Options to consider

Although there are hundreds of Excel choices available, this section gives a fast overview of several that may be useful to you:

1. Select Save Files In This Format from the Save menu. If you often develop macros, make Excel Macro-Enabled Workbook your default format type.
2. On the Save tab, change your **Default Local File Location**. Excel will always save new documents to your My Documents folder. However, if you usually work in the C:AccountingFiles folder, change the default location to match.
3. This option “Show This Number Of Recent Workbooks” has been significantly improved since Excel 2003. Unlike previous versions of Excel, which displayed up to nine recent workbooks at the bottom of the File menu, Excel now displays up to 50 recent workbooks in the Open category of the File menu. *(NB: You may alter this option by going to the Advanced category’s Display section).*
4. Edit Custom Lists has been relocated to the Advanced category’s General section. Custom lists extend the capability of the fill handle, allow for custom sort orders, and govern how fields are

presented in a pivot table's label area. In a worksheet, type a list in the right order. Click Import after editing Custom Lists. Excel can now extend items from that list automatically, just as it can extend January into February, March, and so on.

5. Make Excel appear less like Excel by hiding interface components in the Advanced category's three Display sections. The formula bar, scrollbars, sheet tabs, row and column headers, and gridlines may all be disabled. Except for the File menu, you may configure the ribbon to eliminate all primary tabs. The objective is that if you create a model for someone who has never used Excel, that person can open the model, enter a few numbers, and obtain the result without having to view the complete Excel interface.
6. Show a Zero under Cells with No Value is in the advanced category's Display Options for This Worksheet section. People sometimes request that zeros be shown as blanks. Although a custom number format of **0;-0;** will do this, you can modify the setting worldwide by unchecking this box.
7. Group Dates in the AutoFilter Menu appears under the Advanced category's Display Options For This Workbook section. Beginning with Excel 2007, date columns in the AutoFilter drop-down menu display a hierarchical view of years, months, and days. Turn off this feature if you prefer the former habit of displaying each date.

8. Make a trusted location out of a folder on your local hard disk. Files saved at a trustworthy place have macros enabled and external links updated automatically. If you are certain that you will not create harmful code, set up a trusted place on your hard drive. Pick the Trust Center category and then **Trust Center Settings** from the Excel Options menu. Select **Trusted Locations**, **Add New Location** from the Trust Center.

Using the Excel Options dialog box

| Category | Types of Settings |
|----------|---|
| General | The most commonly used settings, such as user interface settings, the default font for new workbooks, number of sheets in a new workbook, customer name, and Start screen. |
| Formulas | All options for controlling calculation, error-checking rules, and formula settings. Note that options for multithreaded calculations are currently considered obscure enough to be on the Advanced tab rather than on the Formulas Tab. |
| Data | The data category is new in 2017. It offers the new Edit Default Layout for pivot tables, several other pivot table options, and then a series of checkboxes to bring back the legacy Get Data categories. When Power Query replaced Get Data on the Data tab of the ribbon, the old legacy icons were removed. |
| Proofing | Spell-check options and a link to the AutoCorrect dialog box. |

| | |
|----------------------|---|
| Save | The default method for saving, AutoRecovery settings, legacy colors, and web server options. |
| Language | Choose the editing language, ToolTip language, and Help language. |
| Ease of Access | Options available are Provide Feedback With Sound, Provide Feedback With Animation, Screen Tip Style, and the default document font size. |
| Advanced | All options that Microsoft considers advanced, spread among 15 headings. |
| Customize Ribbon | Icons to customize the ribbon. |
| Quick Access Toolbar | Icons to customize the Quick Access Toolbar (QAT). |

To launch the **Excel Options dialog box**, open the **File menu** and pick **Options** from the left navigation pane. General, Formulas, Data, Proofing, Save, Language, Ease Of Access, Advanced, Customize Ribbon, Quick Access Toolbar, Add-Ins, and Trust Center are the categories in the dialog box. The Trust Center provides access to an additional 13 categories.

To their credit, the Excel team attempted to relocate the top selections to the General category. Beyond those 19 options, there are hundreds more distributed throughout 24 categories in the Excel Options and Trust Center.

Excel's most recent new features

Excel now has numerous additional options:

1. **Multiple Displays** is now seen in category General. Excel now accepts newer High DPI screens, although many users still use two monitors, one with a High DPI display and the other with an older display. *(NB: If you're having trouble transferring Excel between screens, choose **Optimize for Compatibility** from this menu).*
2. Excel included data types for stocks, currencies, and geography, among other things. If you add city names into a few cells, Excel will propose to convert those cells to a Geography Data Type in an attempt to make the feature more discoverable. This is fantastic at first, but if it annoys you, uncheck the box next to **Show Convert To Data Types When Typing** in the General category.
3. In the title bar of Excel, there is a **Search box**. This is used for locating instructions that are not shown on the ribbon. Select **Collapse the Microsoft Search Box** by Default if you believe the Search box is taking up too much space.
4. Excel now has a dark mode, thanks to Microsoft. In the General category, choose the **Office Theme drop-down option**.
5. Near the bottom of the General category, you may choose which file extensions will open in Excel and request that Excel alert you if it is not the default software for.XLSX and.XLSM files.

6. The Implicit Intersection behavior has changed after the introduction of Dynamic Arrays. If you try to create a formula with @ in the incorrect locations, Excel will notify you that the formula is incompatible with previous versions of Excel. It proposes changing the formula to make it backward compatible. To test any random formula, type =@(the formula) into Excel and see whether a dialog box appears. To disable this behavior, uncheck Suggest Formula Variations That Are Supported By Older Versions of Excel in the Formulas category.

In the Formulas category, there are two new error-checking options. If your formula leads to a numeric cell but is represented as a date, a warning about a Misleading Number Format occurs. The number format from the source cell will be replicated to the formula cell if you choose Update Format. Cells Containing **Data Types That Couldn't Refresh** is another new error-checking option. *(NB: If the associated data type cell could not be updated, you will be warned).*

Other options include:

1. The new Data category has the Default PivotTable Layout. Make this the default layout for all future pivot tables. Several items in the new Data category were transferred from the **Advanced category** to the **Data category**.
2. **Demonstrate Legacy Data Import Wizards** is a set of seven options under the newly created Data category. Excel 2016 saw the introduction of the Power Query capabilities on the Data tab of the ribbon. Because these tools were so popular, Microsoft chose to

remove the old Get External Data category from the ribbon, although some customers preferred the old symbols for special reasons. Choose **From Access**, From Web, From Text, From SQL Server, From OData Data Feed, From XML Data Import, or From Data Connection to re-add those old icons. If you choose an item from this section, it will appear concealed on the ribbon. Look in Data, Get Data, and Legacy Wizards are all options.

3. **Display a Data Loss Warning when Comma Delimited Files (*.csv)** are detected in the Save category. Excel used to annoy you every time you opened a CSV file. If you did not save the file as XLSX, it would alert you that your formulae and formatting are going to be lost. Many people were fed up with the pestering, so Microsoft disabled it by default. You may reactivate it here if you need to be nagged.
4. A new Cache Settings option in the Save category governs how long files are kept in the Office document cache and allows you to delete it.
5. Excel 2019 introduces a new area called **Ease of Access**. You have the option of providing feedback with sound and selecting a Modern or Classic sound design. The Modern sound design is the new addition. Previously, the only option in the Advanced category was the irritating Classic Sound Scheme. The option to decide whether Screen Tips are shown is replicated from the General

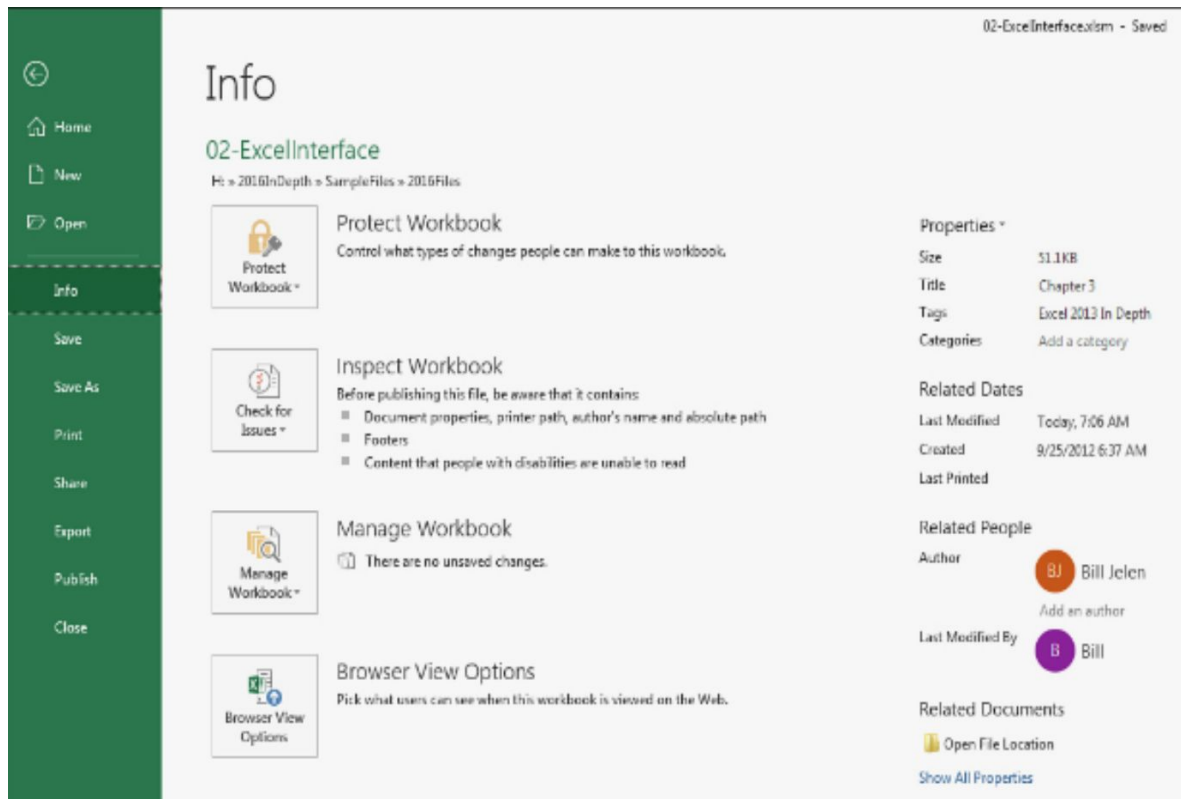
category here. You may change the Default Font Size used in the document and turn off the Calculation Function Screen Tips.

6. Select and interact with the pen By Default is a new category in the Advanced section. If you want to use a touchscreen, you may modify the default touch behavior.
7. Hyperlinks to cloud-based Excel files can open in Excel Online. There is a new feature that allows you to open them in the desktop edition of Excel. The Link Handling subcategory is the Advanced category's third subsection. Select **Open Supported Hyperlinks To Office Files In Desktop Apps** from the menu.
8. Excel allows you to choose how many recent files display when you select **File > Open**. *(NB: The new **Find Show This Number Of Recent Unpinned Folders** option determines how many recent folders are shown).*

CHAPTER THREE

How to use the Excel Interface

How to use the full-screen File menu



To access the Backstage view, go to the **File menu** and choose **Backstage**. Here's how it works: You are working in your document when you work on most ribbon tabs. When you are ready to alter the font or anything similar, you want to check how the change will affect your work.

As a result, Microsoft refers to them as “**in**” instructions. The Excel team, on the other hand, believes that when you go to the File menu, you are finished working in your document and are going to do anything with the whole document, such as transmit the workbook, print the workbook,

export to PDF, and so on. These are referred to as “**out**” instructions by Microsoft. Because the “out” instructions do not require seeing the worksheet, Microsoft covers the full screen with the File menu.

- Click the **File menu** to get the Backstage view. The Backstage view takes up the whole screen. Backstage is divided into three areas: the tiny left navigation panel and two broader information sections.

The following commands are available in the left navigation panel:

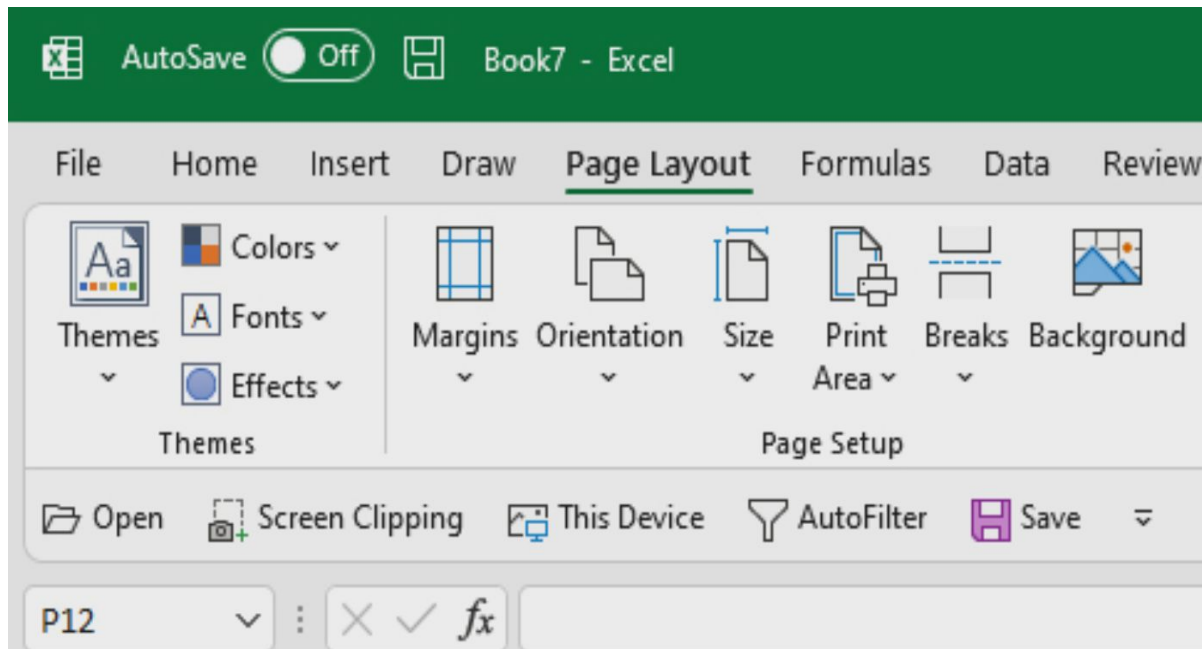
- **Home:** A new update to the File menu, Home joins **New and Open** features. At the top, you’ll find Microsoft lessons and popular templates. In the center, you’ll see recent files, pinned files, and files that others have shared with you.
- **Info:** This section contains information on the current workbook.
- **New:** Used to start a new workbook or workbook from a template.
- **Open:** This command is used to access a file on your computer or in OneDrive.
- **Save:** This option saves the file in the same folder where it was previously saved. (***NB: In Backstage, Save is a command rather than a panel.***)
- **Save As:** This option saves the file to your PC or to OneDrive.
- **Print:** Used to select and print settings. Print Preview is included.
- **Share:** This is now the place where you may share a workbook with your colleagues.
- **Export:** This function is used to produce a PDF or to alter the file format.
- **Publish:** This option is used to publish your worksheet to Power BI.

- **Close:** This command closes the current worksheet. This item, like Save, is only a command.
- **Account:** Log in to the Office. Select a color scheme and a backdrop. Check to see if there are any updates available. Learn how to use your specific version of Excel. This and the following two items have been relocated to the bottom left of the screen, under the area.
- **Options:** This section has pages of Excel settings.
- **Recent File List:** This list displays only if a default option in Excel Options has been altered. Select **Quickly Access This Number Of Recent Workbooks** from the File, Options, Advanced Display menu.

Pressing the Esc key to close Backstage view

To exit **Backstage** and return to your worksheet, hit **Esc** or select the back arrow in the top-left corner of Backstage.

Using the ribbon



Excel’s primary user interface is the ribbon. It is divided into tabs such as Home, Insert, and so on. Each tab is divided into sections that include a range of icons, drop-down menus, and galleries.

Following a controversial debut in 2007, the ribbon is now a part of our everyday life, and the notion has even been adopted by other products. After Excel 2019, Microsoft redesigned the ribbon for Microsoft 365 subscribers.

Contextual ribbon titles that were formerly two lines long, such as “**Chart Tools Design**,” are now condensed to “**Chart Design**” on a single line. A single thick line is visible underneath the chosen ribbon. They added rounded edges to the formula bar and ribbon in the summer of 2021, as well as labels to the Quick Access Toolbar when it is shown below the ribbon.

Using flyout menus and galleries

The gallery control is one of the ribbon's elements. Galleries are employed when there are hundreds of selections to pick from. The gallery displays a visual thumbnail of each option. A gallery begins with a row or two of options in the ribbon. The Up, Down, and Open icons are located on the right side of the gallery. When you select **Up or Down**, you will scroll through the options one row at a time.

When you click the **Open control** in the bottom-right corner of the gallery, the gallery expands to offer all options at once.

Rolling through the ribbon tabs

With Excel open, drag the mouse anywhere on the ribbon and spin the scroll wheel on top of the mouse. Excel swiftly moves from one tab to the next on the ribbon. Scroll away from you to the left, toward the Home tab. To go to the right, scroll toward you.

Using dialog box launchers, task panes, and “Extra” commands, you can reveal more commands

The ribbon contains about 20% of the possible commands. The collection of instructions and settings accessible in the ribbon will suffice for the most of the time, but you may sometimes need to go beyond the commands in the ribbon. This is possible using dialog box launchers, **More commands**, and the task pane.

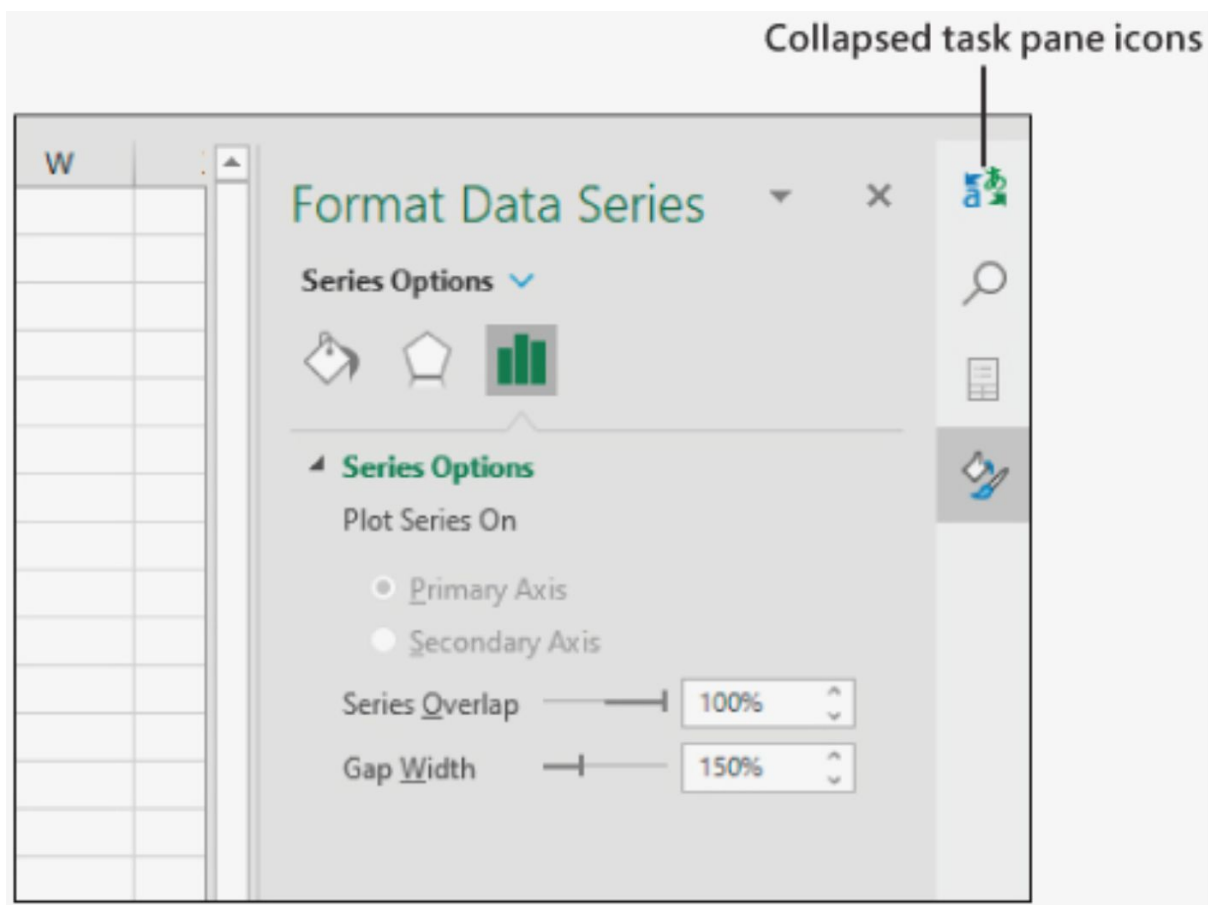
A dialog box launcher is a specific symbol that may be seen in the lower-right corner of various ribbon groups. Click the dialog box launcher to open

a related dialog box with many more options than are available on the ribbon.

When you touch the dialog box launcher, you are sent to a dialog box with much more options than those accessible on the ribbon.

Many menus on the ribbon conclude with a link to locate more rules and options; these links are denoted by an ellipsis (...). When you click an **Additional item**, you will be sent to a dialog box or task pane with more options than those provided in the ribbon.

Using task collapsing task panes



Many of Excel's newest components are structured in a task pane that shows on the right side of the screen. Previously, you could have two, three, or four task windows open at the same time. Today, Excel compresses the task panes so that you only see one. *(NB: The remaining task panes have been consolidated into a short strip on the right side of Excel).*

By clicking any of the icons on the collapsible task pane strip, you may switch between task panes.

What if you wanted to view all the task panes? Drag the task pane off the left side of the screen by clicking and dragging its title. When task windows are docked on the left side of the screen, they do not collapse.

Resizing Excel changes the ribbon

As the size of the Excel program window changes, so does the ribbon. When counseling a colleague over the phone, you should be mindful of this. You may point to your screen and instruct them to “**look at the huge Insert drop-down menu to the right of the orange phrase ‘Calculation.’**” Although this makes great sense on your widescreen display, it may not on theirs. The Cell Styles gallery has 10 thumbnails, and the Insert, Delete, and Format buttons are shown side by side.

Enabling the Developer tab

If you record or create macros on a frequent basis, you may be seeking for the VBA tools on the ribbon. They're all under the Developer tab, which is by default hidden. It is, however, simple to make the Developer tab visible.

Take the following steps:

1. Select **Customize the Ribbon** from the menu that appears when you right-click the ribbon.
2. On the right side of the screen, a lengthy list box of ribbon tabs is shown. Except for Developer, all of them are checked. Select **Developer** by checking the box next to it.
3. Select **OK**.

Activating contextual ribbon tabs

The primary tabs are the ribbon tabs that you see all the time. Depending on what is chosen in Excel, further 23 tabs appear and disappear. Two contextual tabs are shown only when a chart is chosen.

Finding lost commands on the ribbon

Time and again, the command you want is right in the middle of the Home tab, and everything is good. However, there are occasions when you are unable to locate an obscure command that you are certain exists someplace in Excel.

Above the ribbon, Microsoft provides a Microsoft Search box. The search is intended to locate commands in Excel.

Additionally, there is a fly-out menu with additional validation options. They offer to look in the workbook for the term “**validation.**” (***NB: They also provide recently opened files with validation in the title.***)

The results of a search for “**choose from a list**” do not include Data Validation, Select Objects, Lasso Select, Save As, Select Element, Show Field List, Get Help On “Select from a List,” and Smart Lookup On “Select From A List” are all available.

Shrinking the ribbon

Four vertical rows of space are taken up by the ribbon. This won't be a problem on a large display, but it may be on a little laptop.

You can reduce the ribbon by right-clicking it and selecting **Collapse the Ribbon**. Alternatively, click the **carat () symbol** on the far right side of the ribbon. The ribbon folds down to reveal simply the ribbon tabs. The ribbon briefly grows when you click a tab. Choose a command or hit **Esc** to close the ribbon.

To restore the ribbon to its original size, right-click a ribbon tab and deselect **Collapse The Ribbon**. On the other hand, click any tab, then the pushpin symbol in the lower-right corner of the ribbon. By double-clicking any ribbon tab, you may easily switch between minimized and full-screen mode.

How to use the new Home Screen

When you launch Excel or enter the File menu, a new Home screen emerges. Home, New, and Open are the first three commands on the left navigation bar. You will be in the File menu's Home screen without having to do anything. *(NB: The Home screen contains aspects from both the New and Open screens).*

Also, you will see a notification at the top of the Home screen that says **“Good Morning,” “Good Afternoon,” or “Good Evening.”**

Beneath that message are the tiles that are typically shown when you pick New. Blank Workbook is the initial tile. Following that are a few tiles with Excel lessons and then several tiles with popular templates. In the New screen, a hyperlink on the far right provides access to more templates.

The next section is titled **Recommended for You**. This will be six enormous tiles of files that you have recently updated, files that others have shared with you, or files where you were referenced in a comment.

Following that, three tabs provide **Recent Files, Pinned, and Shared With Me**. This is a subset of the Open screen’s choices. *(NB: It’s worth noting that if you’ve just accessed a pinned file, it’ll appear in both the Recent and Pinned tabs).*

Recovering unsaved workbooks

The AutoRecover tool, as in earlier versions of Excel, make copies of your workbook every n minutes. If you close the workbook without saving it, you may be able to recover the file if it was open long enough to go through AutoRecover.

If the workbook was created recently but never saved, go to the bottom of the Recent Workbooks List and choose **Recover Unsaved Workbooks**.

If the workbook has already been saved, open the most recently saved version. Go to the File menu, and you’ll see the most recent AutoSave version from before you closed the file.

Delete the Recent Workbooks list

If you want to clear the Recent Workbooks list, go to **File, Options, Advanced, Display**. Set the number of recent documents to zero in the **Show This Number of Documents list**. After then, you may reset it to a positive value, such as 10.

Getting information about the current workbook

When you open a workbook and go to File, Info, you'll see the Info gallery for that file. The Info pane displays a variety of information about the current worksheet, including:

1. The route of the workbook is visible at the top of the middle panel.
2. The file size is shown.
3. You can see when the document was last edited as well as who made the changes.
4. If there are any exceptional states, they will be shown at the top of the center pane.

The following are examples of special states:

- No Macros Enabled
- No Updated Links
- Retrieved from SharePoint
- You may check to see whether the file has been AutoRecovered and recover any versions that have been recovered. You could also label the document as final, causing those who access it to see a read-only version of the file at first.
- You can change the connections to other papers.
- Tags and categories can be added to the file.
- You can run a compatibility checks using the **Check for Issues drop-down option** to determine whether the worksheet is compatible with older versions of Excel.

- Also, you may use an accessibility checker to discover if there are any portions of the document that will be difficult for people with disabilities to understand.
- Finally, you can use a **Document Inspector** to determine whether the file contains any private information.

Marking a workbook as final to avoid editing

To access the **Mark as Final setting**, open the **Protect Workbook icon** in the Info gallery. This indicates that the workbook is read-only. It prevents others from making modifications to your final worksheet.

If the other person goes to the Info gallery, he or she may re-enable editing. This feature is intended to notify others that you have declared it as final and that no more modifications should be made.

You can utilize the **Restrict Permission By People option** if you can persuade everyone in your workgroup to sign up for a Windows Live ID. Also, specify who can view, change, and/or print the document using this layer of protection.

Using the Document Inspector to find hidden material

The Document Inspector can detect a significant amount of concealed material, although it is not flawless. Nonetheless, locating 95 percent of the different sorts of hidden material might help you a lot of the time.

Take note: The Document Inspector is not impenetrable. Do you frequently conceal settings by changing the font color to white or employing the ;;; custom number format? The Document Inspector will not detect such things. The Document Inspector will also ignore the fact that you navigated beyond the print area and scribbled your post-work shopping list in column X.

Select **File, Info, Check For Issues, Inspect Document, then OK** to launch the Document Inspector. *(NB: The Document Inspector findings*

suggest that the document contains personal information (author's name) in the file properties and maybe a hidden worksheet).

Getting rid of the nagging regarding CSV files

The use of Comma Separated Values (CSV) is a typical method for moving data across systems. CSV files are natively supported by Excel. CSV files are excellent for storing data and text, but they are incapable of storing formulae, formatting, charts, or pivot tables.

If you open a CSV file, the Excel team is scared you could add some formulae and formatting and then forget to save as an Excel file. Excel would constantly warn you that you were going to lose formulae and formatting if you saved as CSV. Even if you accepted the warning and chose to save the file as CSV, Excel would nag you again when you closed it.

Someone who had to deal with CSV files all day made an impassioned request on Excel.UserVoice.Com. This individual said that she was aware that CSV files do not allow formulae, but her work required her to create CSV files all day, every day, and she did not enjoy the continual nagging. This concept received 1,196 votes. Nagging is now optional in Excel.

When you first attempt to save as a CSV file, the following notice shows in the information bar above the formula bar:

- **POSSIBLE DATA LOSS:** If you save this worksheet in the comma-delimited (*.csv) format, certain functionalities may be lost. To keep these features, save it as an Excel file.

You can simply disregard the notice since it displays in the information bar rather than a dialog box. The information bar still has the **Save As option**, but it now includes the Don't Show Again button, which, when pressed, ensures that you are never reminded about CSV files again.

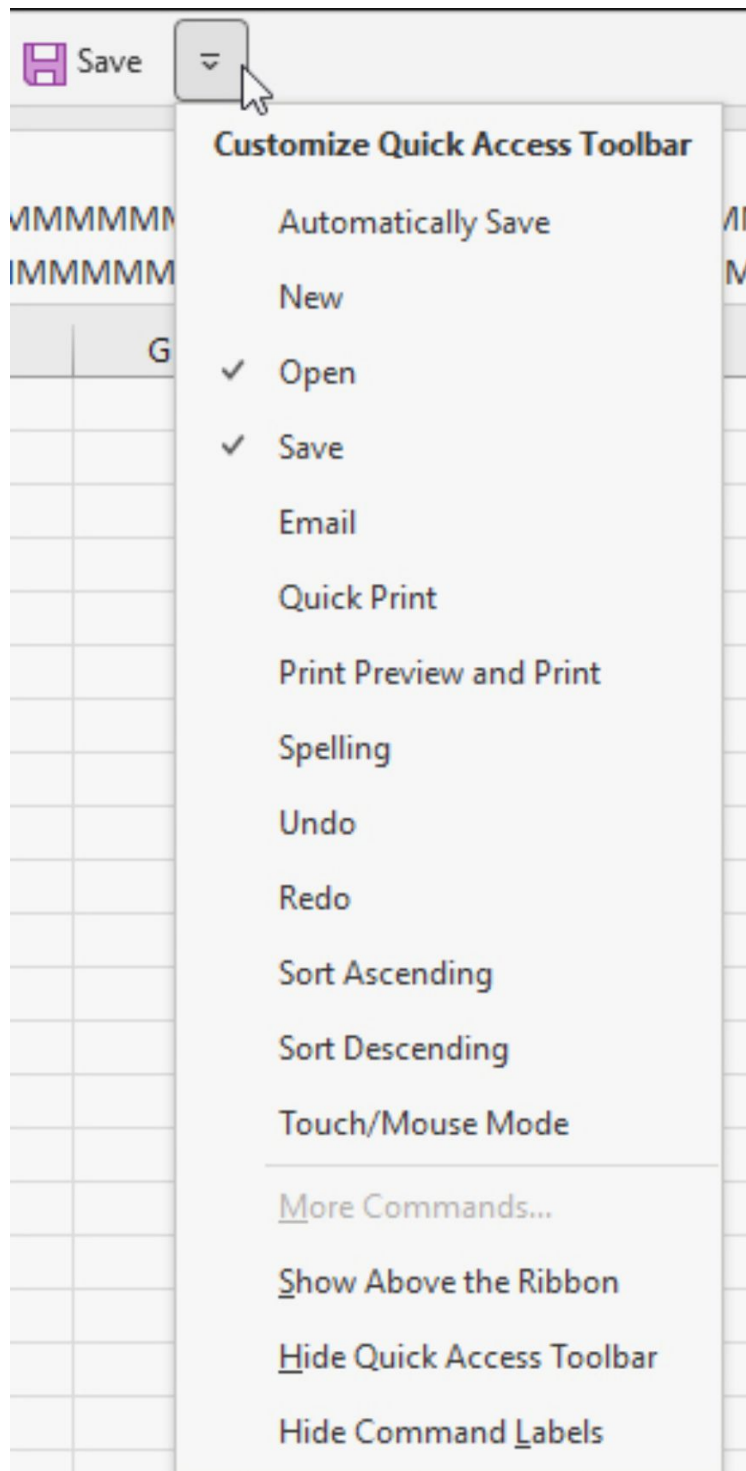
If you choose **Don't Show Again** and then decide you want to be alerted about CSV files, go to **File, Options, Save, and then select Show Data Loss Warning When Editing Comma Delimited Files (*.csv)**.

Using Touch mode to provide spacing around icons

If you're using Excel on a tablet or a touchscreen, you should attempt Touch mode. Take the following steps:

1. Navigate to the right side of the QAT and choose an option from the drop-down menu that displays.
2. Touch/Mouse Mode is the eleventh command. The icon is a blue dot surrounded by a ring of whitespace and dashed lines. Select this command to include it in the QAT.
3. Select the QAT icon by clicking on it. *(NB: From there, Whitespace has been added around all the icons).*

Using the Quick Access Toolbar



The ribbon has a flaw in that only one-tenth of the instructions are shown at any one moment. You'll find yourself switching between tabs. You can also utilize the Quick Access Toolbar (QAT) to save your favorite commands.

The QAT begins as a little toolbar with AutoSave, Save, Undo, and Redo buttons. It is first situated in the ribbon above the File tab.

If you find yourself utilizing the QAT often, you may have to right-click it and choose **Show Quick Access Toolbar below the Ribbon** to bring it closer to the grid.

Including Icons in the QAT

The drop-down box on the right side of the QAT has a list of 12 common commands that you can add to the Quick Access Toolbar. To add a command to the QAT, choose it from the list.

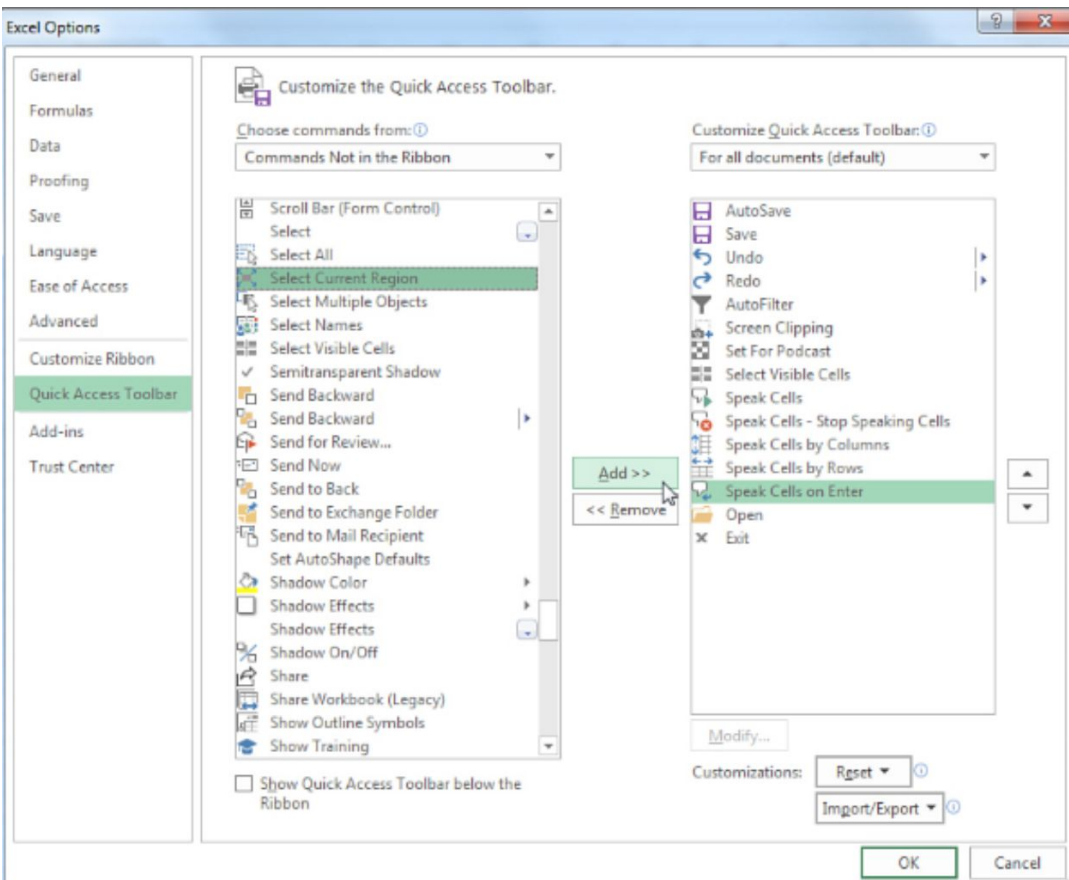
When you identify a command in the ribbon that you are likely to use often, you can quickly add it to the QAT. To do so, right-click any command on the ribbon and choose **Add to Quick Access Toolbar** from the context menu. *(NB: Items added to the Quick Access Toolbar through the right-click approach appear on the QAT's right side).*

The right-click approach is useful for many instructions, but it does not work for specific objects inside commands. For example, you can place the Font Size drop-down menu on the QAT, but you can't put a font on the QAT that is exactly size 16.

Removing commands from the QAT

By right-clicking an icon and choosing **Remove from Quick Access Toolbar**, you may remove it from the QAT.

Customizing the QAT



The context menus allow you to make modest modifications to the QAT, but the Customize command gives you significantly greater power over the QAT. To open the **Quick Access Toolbar** portion of the Excel Options dialog box, right-click the QAT and choose **Customize Quick Access Toolbar**.

It's worth noting that the dialog begins with a short list of Popular Commands. To see additional options, open the top-left drop-down menu and choose **All Commands**.

The Excel Options dialog box has a plethora of options for modifying the Quick Access Toolbar:

1. Using the top-right drop-down menu, you can modify the QAT for all documents on your computer or only the current workbook.
2. You can add separators between icons to properly organize them. At the top of the left menu, there is a divider icon. In the left list box, click the separator icon, and then in the middle of the screen, click the **Add icon**.
3. You can also rearrange the arrangement of the toolbar icons. Click the up/down arrow icons on the right side of the dialog box after selecting an icon from the right list box.
4. You have access to over 2,000 commands, including those from each tab and those not accessible in the ribbon. Despite the fact that the dialog box opens with just 53 common commands in the left list box, utilize the left drop-down menu to choose **All Commands or Commands Not In The Ribbon**. When you discover a command in the left list box, pick it and then click **Add** in the dialog box's center to add it to the QAT.
5. Use the **Reset button** in the bottom right to restore the QAT to its original default setting.
6. You can export your personalized QAT icons from one computer and import them onto another.

7. Using the check box on the bottom left, you may position the QAT above or below the ribbon.

When the QAT is shown below the ribbon, you can choose **Show Command Labels**. This functionality is presently in beta, and Microsoft can add **Command Labels** when the QAT is above the ribbon as well.

Expanding the formula bar



The complexity of formulas ranges from extremely basic to highly sophisticated. As individuals continued to write longer and longer formulae in Excel, an annoyance began to emerge: if the formula for a chosen cell was longer than the formula bar, the formula bar would wrap and stretch over the worksheet. The formula would often conceal the first few rows of the spreadsheet. This was particularly aggravating if the chosen cell was in the first few rows of the spreadsheet.

Excel now features a formula bar to prevent formulas from obscuring the document. Take note of the down-arrow symbol at the far right of the formula bar. The formula bar is expanded when you click this button.

To enlarge the formula bar, use **Ctrl+Shift+U** or click the down-arrow icon on the right side of the formula bar. The formula bar increases to the height

that was previously manually adjusted, and the whole worksheet slides down to fit the bigger formula bar.

Using the new Sheet icon to add worksheets

The **Insert Worksheet icon** appears to the right of the final sheet tab as a circle with a + sign.

When you click this symbol, a new worksheet appears to the right of the current sheet. *(NB: This is preferable to Excel 2010, when the new worksheet was created as the final worksheet in the workbook and had to be moved to its proper location).*

Navigating through many worksheets using the controls in the lower left

In previous versions of Excel, there were four controls for scrolling over the list of worksheet tabs. The worksheet navigation icons are now arrowheads to the left and right in the bottom left.

When you have more tabs than what is shown at the bottom of the Excel window, the controls become active. To navigate the tabs one at a time, click the left or right icon. To navigate to the first or final tab, use **Ctrl+click** on any arrow. *(NB: It is important to note that scrolling the tabs does not alter the active sheet. It just brings additional tabs into view, allowing you to click on the desired one).*

You can view a full list of worksheets by right-clicking the worksheet navigation arrows, just as you could in previous versions of Excel. To get to

a specific worksheet, click any item in the list. Shift-clicking will scroll the tabs one “**page**” at a time.

An ellipsis (...) symbol displays to the left of the worksheet navigation arrows in certain instances. The worksheet to the left of the current sheet is selected by this icon.

Zooming in and out on a worksheet

A zoom slider in the lower-right corner of the Excel window allows you to zoom from 400% to 10% with lightning speed. Simply use the slider to the right to zoom in and the slider to the left to zoom out. The Zoom Out and Zoom In buttons on each end of the slider allow you to zoom in and out in 10% increments.

The traditional Zoom dialog box is opened by clicking the percent indication to the right of the zoom slider.

If you reduce the zoom to less than 40%, Microsoft believes you want an overview of the full spreadsheet. More so, when you reduce the magnification to 39% or less, an unusual feature shows. Any areas that have been given a name will be represented by boxes with the name superimposed. This is useful for gaining an overview of someone else’s named ranges. Names that only reflect one cell will not display the name of that cell.

Using the status bar to add numbers

| | | | |
|-----|-----|-----|-----|
| 270 | 229 | 242 | 236 |
| 294 | 228 | 247 | 224 |
| 282 | 263 | 232 | 266 |
| 278 | 226 | 235 | 289 |
| 222 | 221 | 262 | 267 |
| 280 | 258 | 254 | 224 |
| 241 | 295 | 247 | 269 |
| 291 | 261 | 260 | 265 |
| 258 | 280 | 302 | 267 |

Average: 257.3611111 Count: 36 Max: 302 Sum: 9265

If you select many cells with numeric data and then check at the status bar at the bottom of the Excel window, you will see that the status bar provides the average, count, and sum of the chosen cells.

If you need to rapidly add the contents of numerous cells, select the cells and check in the status bar for the total. This function has been in Excel for a decade, but few people are aware of its existence. In previous versions of Excel, just the total was shown, but you could right-click it to view additional values such as the average, count, minimum, and maximum.

You can choose which statistics appear in the status bar. Select any or all of Min, Max, Numerical Count, Count, Sum, and Average from the status bar's right-click menu.

Sorting data

In Excel, sorting is accomplished using the Sort dialog box or by using the AZ and ZA buttons on the Data tab.

There are six input points for sorting in total:

1. Go to the **Home tab, then Editing, Sort & Filter, Custom Sort**.
2. Select Sort from the menu that appears when you right-click any cell.
3. Choose **Sort** from the filter drop-down option.
4. Click the Data tab, then **Sort & Filter, AZ or Sort & Filter, ZA**.
5. Go to the Data tab and click **Sort & Filter, Sort** to launch the Sort dialog box.

Excel's Sort dialog box supports up to 64 distinct sorting levels. When it comes to color sorting, you often have to provide numerous criteria for one column, thus the theoretical number of columns you may sort by is probably less than 64.

Sorting by color or icon

Data may be sorted in Excel by fill color, font color, or icon set. This also works with color applied via conditional formatting or color applied via cell format icons.

There is no preset color sequence since color is subjective. To sort by a single column with 17 colors, you must configure 17 rules in the Sort dialog box.

To sort by color, do the following:

1. Choose a cell from your data set.
2. On the Data tab, click the **Sort icon**.
3. From the Sort By drop-down menu, choose the desired field.

4. Select **Cell Color** from the Sort On drop-down box.
5. In the Order drop-down box, choose the color that should be shown first.
6. Select **On Top** from the last drop-down option.
7. At the top of the Sort dialog box, click the **Copy Level button** to pick the next color.
8. In the Order drop-down menu for the copied rule, select the next color.
9. Steps 7 and 8 should be repeated for each subsequent color.
10. To indicate that values from another column should be used to break ties in the color column, click the **Add Level button** and enter the extra columns.
11. To sort the data, click **OK**.

Factoring case into a sort

Usually, an Excel sort ignores the text's case. In a sort, values that are lowercase uppercase, or any mix of the two are considered identical.

Instead, in Excel, use a case-sensitive sort to arrange lowercase items before uppercase ones. ABC, for example, is sorted before abc. Likewise, ABc comes before ABC.

If you want Excel to consider case when sorting, do the following:

1. Choose a cell from your data set.
2. On the Data tab, click the Sort icon.
3. From the Sort By drop-down menu, choose the column.

4. Select the Options tab.
5. Check the **Case Sensitive box**.
6. To exit the Sort Options dialog box, select OK.
7. To sort, select OK.

Using a left-to-right sort to reorder columns

If you get a data collection from a colleague with the columns in the incorrect order, you can either cut and paste them into the correct order or use a left-to-right sort to repair them all in one pass.

To do this, take these steps:

1. Add a blank row above the headers.
2. In the new row, enter the numbers that match to the proper column sequence.
3. Check that just one cell in the range is picked.
4. On the Data tab, click the Sort icon.
5. Select the **Options tab**.
6. Choose **Sort Left to Right**. To exit the **Sort Options dialog box**, click **OK**.
7. The **Classification a list** of row numbers is now available through the drop-down menu. Select the first row.
8. Values and Smallest to Largest should already be available in the remaining drop-down choices.
9. Click OK to complete the sort.

10. Remove the temporary additional row from the top of the data collection. The columns are then reordered as required.

(NB: The initial column widths are not changed by Excel. Ctrl+A selects all cells, and then use Home, Format, AutoFit Column Width to resize all columns).

Using custom lists to sort into a distinct sequence

Sometimes corporate tradition mandates that regions or goods be presented in a non-alphabetic sequence. Geographically, the order East, Central, West makes more sense than the alphabetic sequence Central, East, West.

It is feasible to create a custom list in Excel to inform it that the region sequence is East, Central, and West. This sequence may then be used to sort your data. You just need to configure the custom list once per machine.

To do so, follow these steps:

1. Open any worksheet and find a blank spot. Fill in the blanks with the right order for the values in a column.
2. Choose this range.
3. Go to **File > Options**.
4. Navigate to the Advanced Group. Scroll down to the General section and click **Edit Custom Lists**.
5. The bottom area of the Custom Lists dialog box displays the range of cells you specified in step 2. If everything is in order, click the Import button. Your new list gets added to the default custom lists in the right order.

6. To exit the Custom Lists dialog box, click OK. To exit the Options dialog box, click OK.
7. Delete the temporary data range created in step 1.

Follow these steps to utilize the list with custom sorting:

1. Choose one cell from your data set.
2. On the Data tab, click the **Sort icon**.
3. In the Sorting Select the area with the specified sort sequence from the drop-down menu.
4. Select **Custom List** from the Order drop-down box. You should be returned to the Custom Lists dialog box.
5. Select your own list, then click **OK**. (***NB: The Sort dialog box indicates that the order is determined by your own list***).
6. Press the OK button to sort into the specified sequence.

Sorting with one click

The Sort dialog box, which is necessary for left-to-right sorting, custom sorting and case-sensitive sorting, has been utilized in all of the examples presented thus far in this chapter. It also facilitates color sorting. You can do anything else by using the AZ buttons on the various tabs.

It is critical to select only one cell in the column to be sorted. When you select a single cell in Excel, the selection is expanded to include the entire current region. If you select two cells or the entire column, Excel warns you that it is about to sort a portion of your data while ignoring the adjacent data. This is almost never what you want.

The one-click sorting options are available on the **Home and Data tabs**. They're hidden under the Sort & Filter drop-down menu on the Home tab. Also they are readily visible as AZ and ZA buttons on the Data tab.

Sorting options can also be found by right-clicking a cell in the column you wish to sort and choosing Sort. This menu's options allow you to sort in ascending or descending order. You may also choose to have the cell color, font color, or icon appear on top.

The Filter drop-down menus include additional quick-sorting choices. (***NB: These choices allow you to sort in ascending, descending, and color order***).

Cleaning data with Flash Fill

Assume you have a set of data with first names in column A and last names in column B. The names are all capitalized. You want to restructure the data such that the entire names are in correct case.

In column C, add a header. In cell C2, enter the first and last names from A2 and B2. Excel comes into action and offers to complete the remainder of the column for you as soon as you write the first letter in the second cell. If the preview seems correct, or even near, hit Enter.

Excel gives two bits of feedback in addition to populating the column. To begin, the status bar in the lower-left corner of the screen shows that Flash Fill modified a certain number of cells.

Second, adjacent to the first altered cell, a little on-grid Flash Fill drop-down menu symbol appears. The drop-down menu includes options like

Undo and Accept. You may also opt to choose just altered cells or only cells that have not changed.

Flash Fill does not automatically fill in numbers

With just 10 digits (as opposed to 26 letters), Excel is much too likely to discover patterns that aren't the one you're looking for. When Flash Fill detects a possible pattern, it momentarily “**grays in**” the suggestion before removing it. To enable Flash Fill, press **Ctrl+E** or select the **Flash Fill button** on the Data tab.

Mathematical transformations are not understood by Flash Fill. Excel does not know how to Flash Fill the remaining cells if the original number is 477 and you input 479 (add 2 to each cell) or 500 (round to the closest hundred).

Using formatting with dates

Dates are especially difficult. Assume you have a date of birth in column E that is formatted as YYYYMMDD. When you input 3/5/1970 in G2 and then hit the Flash Fill button, Excel does not identify the pattern properly.

In each row, you get 3/5/ and the first four numbers from E, which is an intriguing outcome. You can see how Excel was duped into perceiving the incorrect pattern.

(NB: To remedy the date issue, format the column to display MM/DD/YYYYY first).

CHAPTER FOUR

Calculating with Excel and Keyboard Shortcuts

About formulas

Because spreadsheets are record-oriented, you can create a formula once and then copy it to hundreds or thousands of cells without changing anything in the formula.

Formulas versus values

When viewing an Excel grid, it is impossible to tell the difference between a cell containing a formula and one containing numbers. Select the cell to see if it contains a number or a formula. Examine the formula bar. If you see a number in the formula bar, you know it's a static value. If the formula bar contains a formula, you can be certain that the number displayed in the grid is the result of a formula calculation. Remember that formulas begin with an equal sign.

How to enter your first formula

Your initial formula was most likely an SUM function, which you input using the AutoSum button. This debate, on the other hand, is about a pure mathematical formula that employs a value in a cell that is added, subtracted, divided, or multiplied by a number or another cell.

Troubleshooting

Although your initial formula most certainly had an SUM function, many individuals wrongly think that all formulas must have an SUM function.

If you need to multiply A2 by B2 and remove C2, use the formula =A2*B2-C2. It is not necessary to encapsulate this formula in the SUM function as follows: =SUM(A2*B2-C2).

Formulas may be utilized in billions of different ways. Everyday life presents you with circumstances that can be handled with a formula. Keep the following considerations in mind when you begin experimenting with your own formulas:

- Each formula begins with an equal sign.
- Entering formulae is similar to entering equations into a calculator, with one exception (see the next point).
- If one of the words in your formula is already saved in an Excel cell, you may point to the address of that cell rather than putting the number into that cell. Using this approach, you can alter the value in a single cell and then see all the formulae recalculate.

Creating a formula

You will want to input a formula to determine a desired sales price. Cell D2 displays the product price. You want to compute the list price in column E as two times the cost + \$3.

| | | E2 | | fx | | =2*D2+3 | |
|---|---|----|-----|----------|------------|---------|--|
| | A | B | C | D | E | | |
| 1 | | | SKU | Mfg Cost | List Price | | |
| 2 | | | J41 | 16.4 | 35.8 | | |
| 3 | | | J20 | 14.47 | | | |

To input a formula, do the following:

1. Choose **cell E2**.
2. Enter an equal sign. The equal sign indicates to Excel that you are beginning a formula.
3. Enter **2*D2** to indicate that you wish to multiply the value in cell D2 by two.
4. Enter **+3** to multiply the result by three. Proceed to step 5 if your formula is =2*D2+3. Otherwise, use the backspace key to make any necessary changes to the formula.
5. Enter your password. (***NB: Excel will then compute the formula***).

After you complete inputting a formula, Excel normally shifts the cell cursor down or to the right. To examine the formula, return the cell reference to cell E2. Excel displays a number on the grid, but the formula bar exposes the formula behind the number.

Formulas' relative nature

| | | | | E3 | |
|---|---|---|-----|----------|------------|
| | | | | =2*D3+3 | |
| | A | B | C | D | E |
| 1 | | | SKU | Mfg Cost | List Price |
| 2 | | | J41 | 16.4 | 35.8 |
| 3 | | | J20 | 14.47 | 31.94 |
| 4 | | | I51 | 16.14 | 35.28 |

The formula $=2*D2+3$ literally means “**multiply two by the cell to my left and then add three.**” You do not need to re-type the formula 997 times if you need to input it in cells E3 to E999. Rather, duplicate the formula and paste it into each cell. When you do this, Excel replicates the formula’s essence: “Multiply two by the cell to the left of me and add three.” When you duplicate the formula to cell E3, it gets $=2*D3+3$.

The ability of Excel to modify D2 to D3 in a calculation is known as relative referencing. This is a reference’s default behavior. When detailed in the next section, you may not want Excel to update a reference as the formula is copied.

Absolute cell references override relative behavior

The flexibility of Excel to update a formula as it is copied, known as relative referencing, is what makes spreadsheets so helpful. However, there are situations when you require a component of a formula to always point to a certain cell. When you have a setting at the top of the worksheet, such as a growth rate or a tax rate, this occurs often. It would be ideal if we could modify this cell once and have the new rate used by all of the formulae.

Using the F4 key to simplify dollar sign entry

The good news is that you are not required to input the dollar signs. Instead, immediately after entering a reference, while the cell is still in edit mode, hit the **F4 key** to switch the reference from a relative to an absolute reference, which includes the dollar signs before the row and column. When you hit F4 one again, the reference changes to a mixed reference with a dollar sign before the row number.

Once you hit F4 again, the reference changes to a mixed reference with a dollar symbol in front of the column letter. Pressing F4 again changes the reference to a relative reference. Looking at the many reference possibilities provided by the F4 key may help you pick the proper reference.

The following sequence demonstrates how the F4 key works when inputting a formula. This example was included because it necessitates the usage of two different forms of mixed references.

The key point is that you begin hitting F4 after inputting a cell reference but before typing a mathematical operator:

1. Enter A6 type.
2. Press the **F4 key** before entering the asterisk to signify multiplication. When you hit F4, the reference changes to **= $\$A\6** .
3. Press the F4 key once again. The reference is changed to A\$6 in order to fix the reference to row 6. This is still incorrect since freezing the reference to row 6 will have no effect.
4. Press F4 one more. Excel just locks the column and changes the reference to **= $\$A6$** . This is the version of the reference you're looking for. The formula always refers back to column A when you

duplicate it across. As you replicate the formula, the row number in this reference might vary to point to other rows.

5. To continue the calculation, insert an asterisk to indicate multiplication and then use the mouse to click cell C5.
6. To accept the formula, press **Enter**.
7. Copying the formula from cell C6 to the range C6:G28 automatically multiplies the rate in column A by the number of days in row 5. The calculation appropriately multiplies the ten-dollar rate in column A9 by the twenty-four-hour value in cell E5.

Ways to enter formulas

In the preceding sections, you input a formula by entering it. In most cases, you must begin a formula by entering the equal sign (or the plus sign); following that, you have three options:

- Enter the whole formula as explained in the preceding sections.
- Use the mouse to touch cell references rather than typing the operator keys.
- Enter the operator keys, then use the arrow keys to go to the cells to provide the cell references. This strategy is known as the arrow key method in this book.

Enter formulas using the mouse method

If you've been using computers since 1993, you've probably used the mouse technique to input formulae. This approach is simple, but it needs

you to switch your hand between the keyboard and the mouse multiple times, as seen below:

1. Enter = or +.
2. Select cell B2.
3. Enter *.
4. Select cell F1.
5. Hit F4 to insert the dollar signs.
6. Enter your password. The cell pointer is normally moved to cell C3.

This approach involves just four keystrokes, but you must move your mouse twice. Moving the mouse is the most time-consuming component of inputting formulae, but if you are not a touch typist, this approach is faster than typing the complete calculation.

Using the arrow keys to enter formulas

The arrow key approach is common among spreadsheet users who began using Lotus 1-2-3 version 2.2. Learning this strategy is valuable since it is really quick. Almost all formulas may be entered using the keys on the right side of the keyboard. This is how it works:

1. In cell C2, use the numeric keypad if you have one to enter +. If you don't have a numeric keypad, use your keyboard's equal sign.
2. Move the flashing cell boundary to cell B2 by using the left arrow key. It is worth noting that the active cell, which has a green solid border, is still cell C2. The flashing border functions as a second cell pointer, allowing you to point to the right cell for the formula.

3. To accept cell B2 as the proper reference in the formula, use an operator key (such as * or +), a parenthesis, or Enter. In this instance, enter the character *.
4. Notice that the dashed cell pointer has vanished, and the attention has returned to the original cell, C2.
5. For three times, press the right arrow key. The flashing cell boundary progresses to D2, E2, and finally F2. The temporary formula in the formula bar displays an erroneous formula with the first two key strokes (+B2*D2 and +B2*E2).
6. Use the up arrow key to shift the flashing cell border to its proper place, cell F1. The temporary formula in the formula bar has been changed to +**B2*F1**.
7. To add dollar signs to the F1 reference, use the F4 key.
8. To accept the formula and maintain the cell cursor in cell C2, hit **Ctrl+Enter**.

Entering one formula and splitting many results

In cell C5, a formula of =A2:A9 is entered. Excel dumps the results into C5:C12. When you choose a cell in C5:C12, the formula is shown in the

formula bar, and a blue outline appears around the results range. Consider the blue outline to be an indication that this single formula is returning all the answers contained inside the outline.

Here's a crucial distinction: The formula can only be found in one cell: C5. When you pick C6, C7, or C12, the formula shows in a light gray font in the formula bar. However, you can only alter the formula if you choose C5. It is sufficient to use the formula =FORMULATEXT(C5). A =FORMULATEXT(C6) formula will fail.

If A1:A9 is a table, and you add more rows to it, the results of this single formula will automatically grow. Alternatively, if row 4 is removed, the results will be reduced.

Referring to an entire array with the # operator

In Excel, the hash sign (#) represents a new operator called the Spilled Range Operator. To refer to all the cells returned by the formula in the reference, add a # after the reference.

A2 formulas, for example, yield the integers 2, 6, 10, 14, 18, and 22. If you merely say A2, you are pointing to the number two in A2. However, if you refer to A2#, you are referring to all six numerals. The result of =SUM(A2#) is 72.

If the formula in A2 changes and begins yielding a smaller or bigger array, the A2# reference will continue to link to all array results.

Use the Table tool to copy a formula

| | A | B | C | D | E |
|---|-----|----------|------------|-----------|---|
| 1 | SKU | Mfg Cost | List Price | Sales Tax | |
| 2 | A38 | 22.30 | 44.95 | | |
| 3 | A44 | 18.56 | 37.95 | | |
| 4 | A48 | 15.04 | 30.95 | | |
| 5 | A59 | 9.02 | 18.95 | | |
| 6 | A73 | 8.25 | 16.95 | | |

When you declare your current data set as a table, Excel automatically transfers new formulae to the table's remaining cells.

- To create a table from a range, choose a cell in the data set and click **Ctrl+T**. Excel's IntelliSense algorithm is used to predict the table's edges. If the program's prediction is right, click OK in the **Create Table dialog box**.
- **Ctrl+T** is one of four options for starting a table. On the Home tab, choose **Format as Table**. From the **Insert tab**, choose the **Table icon**.

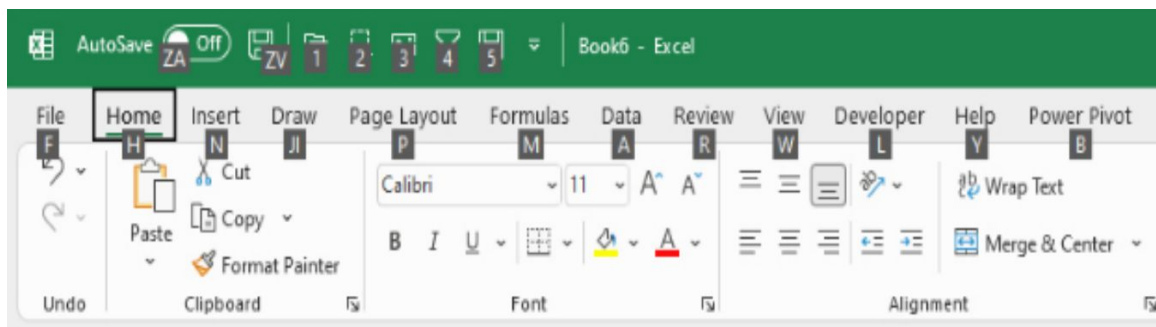
More than a few changes occur when Excel identifies the range as a table:

- The table is prepared using the standard formatting. (**NB: This might contain banded rows or columns, depending on your preferences**).
- Drop-down menus for AutoFilter have been added to the headers.

- Any formulae you input by using the mouse or arrow keys relate to cells in the table by utilize the headers.

When you put a formula in the table, Excel automatically copies it down to all the table's rows.

Keyboard Shortcuts



If you type a lot, accessing instructions from the keyboard is quicker than shifting your hand to the mouse. Many of the old Alt keyboard shortcuts from Excel 2003 are still in use. All the old Ctrl shortcut keys still work. **Ctrl+C**, for example, still copies a selection; **Ctrl+X**, cuts a selection; and **Ctrl+V**, pastes a selection.

Using the shortcut keys

If you resolve to learn and use one new shortcut key each week, you will rapidly become an Excel expert.

Using keyboard accelerators

The Excel keyboard accelerators' objective is to allow you to access any command by using just the keyboard. Many common actions had keyboard accelerators in previous versions of Excel, while some did not. Excel now strives to guarantee that every command can be accessed using the keyboard.

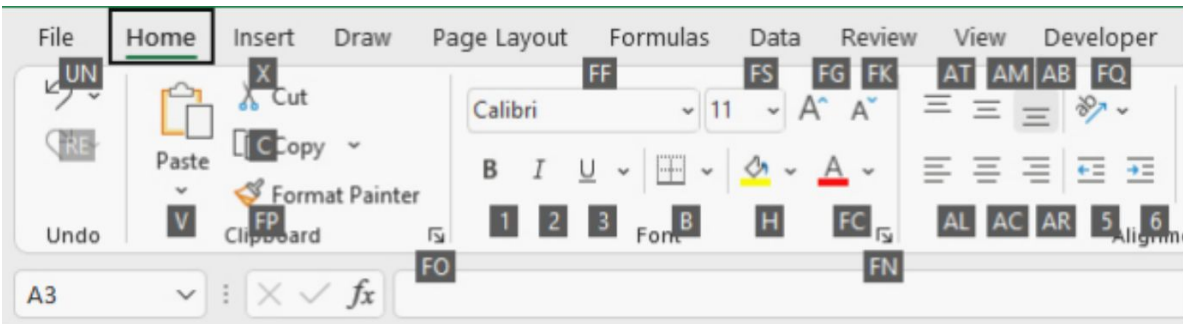
Press and release the Alt key or a forward slash (/) to access the new accelerators. Excel displays a KeyTip above each command. In addition, numeric KeyTips are shown above each item in the Quick Access Toolbar. To show or conceal the KeyTips, use the **F10 key**.

The KeyTips for the ribbon tabs can be memorized. In all Office apps, pressing Alt+F brings up the File menu. In all Office apps, pressing **Alt+H** brings up the **Home tab**. The keyboard shortcut **Alt+Q** places the cursor within the **Tell Me What You Want To Do box**. Even if additional ribbon tabs are displayed, the accelerator definitions for each tab stay unchanged. The original KeyTip letters are retained when you activate a pivot table.

Unfortunately, the Quick Access Toolbar KeyTips change every time you add or rearrange items on the Quick Access Toolbar. If you want to remember those KeyTips, make sure you don't add a new Quick Access Toolbar icon at the start of the list.

Choosing icons from the ribbon

After pressing the Alt key, you will bring up the relevant tab by pressing one of the KeyTip letters. *(NB: Additionally, you will notice that each symbol on the ribbon now includes a KeyTip).*



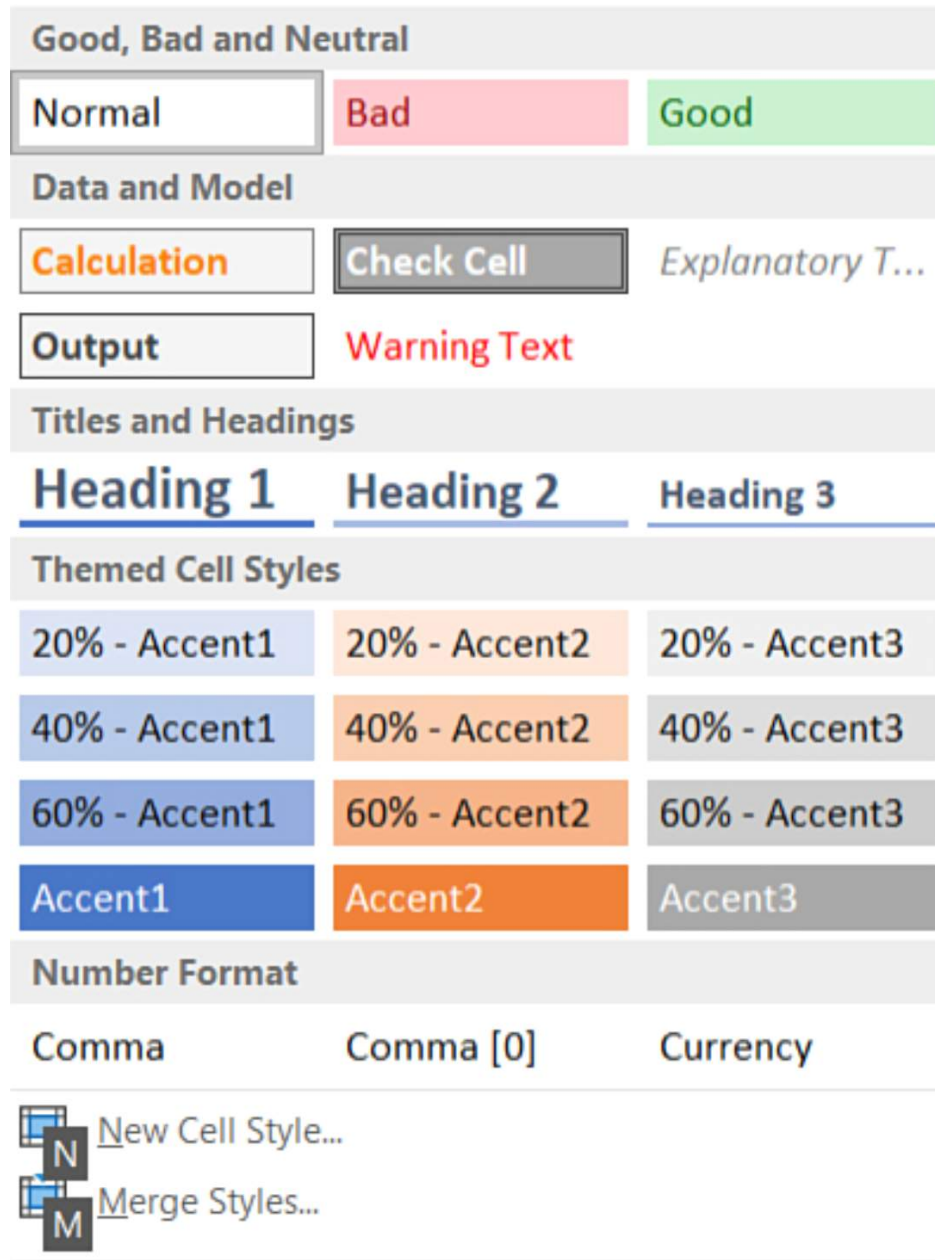
When you choose a Ribbon tab, the KeyTips on the Quick Access Toolbar vanish, allowing Microsoft to utilize the letters A–Z and digits 0–9.

Some instructions take two keystrokes on particularly crowded ribbon tabs, like as A+C for Align Center in the Alignments group of the Home tab. It's worth noting that you don't have to keep holding down the Alt key after displaying the accelerators in the ToolTips.

AT for Align Top, AM for Align Middle, AB for Align Bottom, and AL for Align Left seem to be useful shortcut keys. Other shortcut keys seem to be allocated haphazardly. Some people think that using FN for the dialog box launcher is a good idea since it opens the old Format dialog box and proceeds to the Number tab. Others can be traced back in time.

Similarly, under the **Home tab**, pressing **O** brings up the Format drop-down menu. However, since Microsoft no longer emphasizes the accelerator key in the menu name, O will never make sense to a novice Excel user. Most people are unaware of the esoteric, logical reason why 5 and 6 are utilized for increase and decrease indent.

Selecting options from a gallery



Excel demonstrates the consequences of hitting **Alt+H+J**, which is equal to choosing Home, Cell Styles. This displays a collection of cell styles. By hitting **N** and **M** at the bottom of the gallery, you can access the **New Cell Style** and **Merge Styles** commands. In the gallery, however, there are no letters on the table style options.

Using drop-down menus to navigate

The font size in the drop-down menu is chosen if you press **Alt+H+F+S**, which is comparable to picking Home, Font Size. You may either input a font size or hit **Enter**, or you can activate the drop-down menu by using the down-arrow key. Then, to go through the list, use the down arrow, up arrow, Page Down, Page Up, Home, and End keys. When you have highlighted the desired item, click **Enter to choose it**.

Backing up one level through a menu

Assume you hit **Alt+H** to get to the **Home tab** and then find you're at the incorrect one. You may return to the ToolTips for the main menu options by using the **Esc key**. If you wish to entirely clear the ToolTips, hit **Alt again**.

Dealing with Keyboard Accelerator Confusion

You may be irritated if you wish to pick anything on the Home tab since you can see the menu options but no ToolTips display for most tasks. The main KeyTips appear to apply to menu items for icons at the top of the ribbon. For instance, you might believe that the H KeyTip applies to Cut. Even if you are already on the Home tab, you must hit the H key to compel Excel to display the ToolTips for the Home tab's individual menu items.

Using my favorite shortcut keys

A list of hundreds of shortcut keys might be daunting. You can't possible learn 238 new shortcut keys and start using them right now. The parts that

follow go through some of my favorite shortcuts. Every week, try to include one new shortcut key into your Excel habit.

Quickly move between worksheets

The shortcut **Ctrl+Page Down** takes you to the next worksheet. **Ctrl+Page Up** takes you back to the previous worksheet. Assume you have 12 spreadsheets labeled January, February, March,..., December. If you are presently on the Jan worksheet, hold Ctrl and hit Page Down five times to go to the Jun worksheet.

Using Ctrl+arrow to navigate to the bottom of a data set

If your data does not include any blank cells, use **Ctrl+down arrow** to advance to the final row in the data set. To navigate to the first row of the data set, use **Ctrl+up arrow**.

To select from the current cell to the bottom, hold down the **Shift key**. If you have data in A2:J987654 and are in A2, you may select all the data rows but omit the headers in row 1 by holding down **Ctrl+Shift** while hitting the down arrow and then the right arrow.

Using Ctrl+* to select the current region

To choose the current range, use **Ctrl+***. The current range is the whole data set, extending from the current cell in all directions until Excel reaches the boundary of the worksheet or a fully blank row and column. On a

desktop computer, hold down Ctrl and press the asterisk on the numeric keypad.

Advancing to the next part of a selection

You just chose A2:J987654, yet you're looking at the bottom-right corner of your data. To move to the next corner of your data, press **Ctrl+period**. Because you are in the bottom-right corner, you must press **Ctrl+period** twice to move to the top-left corner. Despite the fact that this moves the active cell, it does not undo your selection.

Using Shift+F10, open the right-click menu

Shift+F10 bring up the right-click menu. To navigate through the menu options, use the up/down arrow keys, and the right arrow key to launch a fly-out menu. When you've found the item you're looking for, hit **Enter** to select it.

Using Ctrl+5 to cross activities off your list

To apply a strikethrough to a cell, select it and press **Ctrl+5**.

Time stamp or date stamp using Ctrl+: or Ctrl+;

Here's a simple method for remembering this shortcut. What is the current time? It's 11:21 a.m. here. In the time, there is a colon. To enter the current time in the active cell, use Ctrl+colon.

Do you need the current date? The same keystroke, but without the Shift key. The current time is entered by pressing **Ctrl+semicolon**.

It should be noted that this is not the same as using **=NOW() or =TODAY()**. These functions evolve with time. These shortcuts record the time or date you pushed the key, and the value remains unchanged.

Repeating the last task with F4

Assume you just chose a cell and pressed the Home button, OK, Delete, Delete Cells, Delete Entire Row. You must eliminate 24 additional rows from your data collection at different points.

Select a cell in the next row to remove and hit F4, which repeats the same instruction but on the current cell.

F4 selects a cell in the following row to remove. Without your needing to hit Home, all 24 rows are removed before you realize it. Delete, Delete Cells, Delete Row, OK 24 times

The F4 key is compatible with 92% of the commands you will use. Give it a shot. *(NB: You will enjoy it. When you try to use one of the unusual commands that cannot be redone with F4, it will be obvious).*

Using F4 to add dollar signs to a reference

That's right—F4 is used by two of my favorites in a row. When you're typing a formula and need to convert A1 to \$A\$1, press F4 when the insertion point is near A1. If you hit F4 again, just the row containing A\$1

will be frozen. F4 once again to freeze the column containing \$A1. To return to A1, press once again.

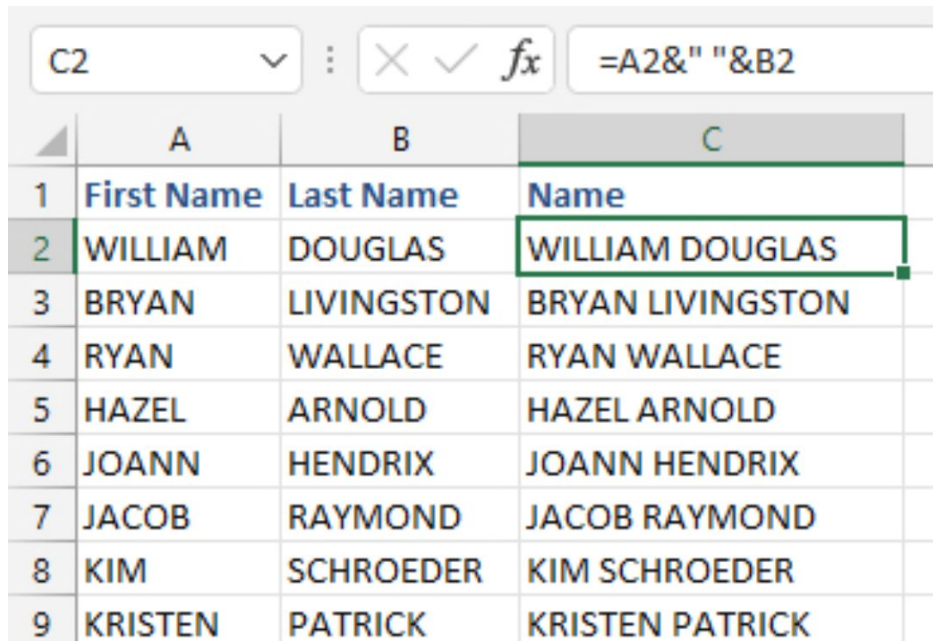
Using a slicer to choose items

It's a little strange, but you can now enter a slicer using shortcut keys. You may then choose or deselect items in the slicer by using the new Multi-Select icon. To access the slicer, use Ctrl+G to bring up the **Go To dialog box**.

To access Go To Special, press **S**. To choose the first item on the worksheet, type **B** for Objects and hit **Enter**. You may need to hit Tab to access the slicer, but you can browse through it using the arrow keys. When you press Enter or the spacebar on an item, it toggles. To quit the slicer, use **Ctrl+G**, then enter a cell address, such as A1.

CHAPTER FIVE

How to use formulas to join text



| | A | B | C |
|---|------------|------------|------------------|
| 1 | First Name | Last Name | Name |
| 2 | WILLIAM | DOUGLAS | WILLIAM DOUGLAS |
| 3 | BRYAN | LIVINGSTON | BRYAN LIVINGSTON |
| 4 | RYAN | WALLACE | RYAN WALLACE |
| 5 | HAZEL | ARNOLD | HAZEL ARNOLD |
| 6 | JOANN | HENDRIX | JOANN HENDRIX |
| 7 | JACOB | RAYMOND | JACOB RAYMOND |
| 8 | KIM | SCHROEDER | KIM SCHROEDER |
| 9 | KRISTEN | PATRICK | KRISTEN PATRICK |

When you need to join text, you use the ampersand (&) operator. The **& operator** in Excel is known as the concatenation operator.

To improve the appearance of the output when using the & operator, it is often necessary to include a space between the two items that are combined. For example, if the cells contain the first and last names, you should leave a space between them. To include a space between cells, use the & followed by a space enclosed in quotes, as in **&" "**.

Joining text and a number

| | A | B | C | D | E |
|----|---|----|---|-----------|--|
| 1 | | | Cost | Price | |
| 2 | | | 47.22 | 102.63 | The price is \$102.6342 |
| 3 | | | | 2/17/1965 | His birthday is 23790 |
| 4 | | | | | |
| 5 | | | Cost | Price | |
| 6 | | | 47.22 | 102.6342 | The price is \$102.63 |
| 7 | | | | 2/17/1965 | His birthday is Wednesday, February 17, 1965 |
| 8 | | | | | |
| 9 | | E2 | ="The price is \$"&D2 | | |
| 10 | | E3 | ="His birthday is "&D3 | | |
| 11 | | E6 | ="The price is \$"&TEXT(D6,"#,##0.00") | | |
| 12 | | E7 | ="His birthday is "&TEXT(D7,"DDDD, MMMM D, YYYY") | | |

In many cases, the **& operator** can be used to join text with a number or a date. Despite the fact that D2 is formatted to show only two decimal places, the underlying answer has more decimal places. The extra decimal places are shown by the regular concatenation formula in E2. To resolve the issue, insert the **TEXT() function** around D2 in the formula. As the second option, use quotes to provide any acceptable numeric formatting code. In E6, the updated formula use **TEXT(D6,"#,##0.00")**.

When you attach text to a date or time, instead of the date, you see the serial number that Excel saves behind the scenes. To format the date, use the **TEXT()** function around it, as illustrated in column E7. In E7, the formula is **="His birthday is "&TEXT (D7,"DDDD, MMMM D, YYYY")**.

How to understand error messages in formulas

Don't be disheartened if a formula produces an erroneous result. This occurs to everyone eventually. The goal is to grasp the distinctions between the different error numbers so that you can begin troubleshooting the issue.

| E17 | | fx | | =SUM(E8:E16) | | | | |
|-----|--------------------|-------------|------------|------------------------------------|--------------|---|--------|---|
| | A | B | C | D | E | F | G | H |
| 1 | Apple | 4 | #VALUE! | =A1+B1 | | | | |
| 2 | 4 | 0 | #DIV/0! | =A2/B2 | | | | |
| 3 | 4 | 3 | #REF! | =#REF!*A3 | | | | |
| 4 | | Dill | #N/A | =VLOOKUP(B4,\$G\$7:\$H\$9,2,FALSE) | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | Invoice | Item | Qty | Price | Total | | Apple | 1 |
| 8 | 101 | Apple | 11 | 1 | 11 | | Banana | 2 |
| 9 | 102 | Cherry | 11 | 4 | 44 | | Cherry | 4 |
| 10 | 103 | Banana | 9 | 2 | 18 | | | |
| 11 | 104 | Dill | 10 | #N/A | #N/A | | | |
| 12 | 105 | Apple | 9 | 1 | 9 | | | |
| 13 | 106 | Cherry | 10 | 4 | 40 | | | |
| 14 | 107 | Banana | 8 | 2 | 16 | | | |
| 15 | 108 | Cherry | 11 | 4 | 44 | | | |
| 16 | 109 | Banana | 9 | 2 | 18 | | | |
| 17 | GRAND TOTAL | | | | | | #N/A | |
| 18 | | | | | | | | |

When entering formulae, you may encounter several mistakes, such as those stated below:

- **#VALUE!:** This error indicates that you are attempting to do math on non-numerical data. For instance, the formula **=4+"apple"** yields a **#VALUE! error**. This issue also happens if you attempt to input an array formula but do not use **Ctrl+Shift+Enter**.
- **#DIV/0!:** This error occurs when a number is divided by zero, or when the denominator of a fraction evaluates to zero.
- **#REF!:** When a cell reference is invalid, this error occurs. This mistake may arise, for example, if one of the cells mentioned in the formula is removed. It may also happen if you copy and paste another cell above a cell mentioned in this formula. You may also

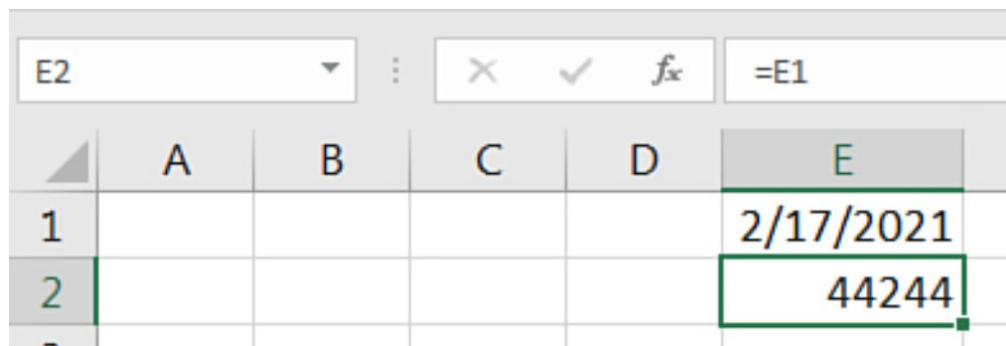
see this error if you use Dynamic Data Exchange (DDE) algorithms to connect to non-running external systems.

- **#N/A!:** This error happens when a function or formula does not have access to a value. #N/A! errors are most often caused by key values not being discovered during lookup routines. They may be caused by HLOOKUP, LOOKUP, MATCH, or VLOOKUP. They may also occur when one of the parameters in an array formula is not the same dimension as the other arguments, or when a function omits one or more essential inputs. Surprisingly, when a **#N/A! error** enters a range, all future computations that relate to the range have a **#N/A! value**.
- **#NULL!:** This error usually indicates that a formula's two cell references are separated by a space rather than a colon or comma. The intersection operator is the space operator. If the two references have no cells in common.
- **#SPILL!:** This mistake was introduced in Office 365. If you apply one of the new =A1:A100 formulae in cell C1 and some non-blank cells emerge among the 100 cells required for the answer, the cell containing the formula will display a **#SPILL!** error. Other reasons of the **#SPILL!** error include the formula overflowing over the edge of the page or the computer running out of memory.
- **#FIELD!:** This is a new error in 2018 that indicates an issue with a Linked Data Type. If the referred field is not accessible in a linked

data type, or if the formula references a cell that does not include a linked data type, the error occurs.

- **#CALC:** Your formula produces an empty array. The calculation engine is unable to resolve the formula at this time, although the syntax may be supported in the future. The Excel team intends to push out a number of additional functions across numerous releases, and the #CALC error is required if they want to roll out part of a two-function solution.
- **#####:** This is not a mistake. Instead, it signifies that the result is too large to show in the current column width, and you must expand the column to view the full result. Although ##### often indicates that the column is too narrow, it may also show if you subtract one date or time from another and end up with a negative total. Unless you use the 1904 Date System, Excel does not support negative dates or times.

How to use date math



The screenshot shows an Excel spreadsheet with the following data:

| | A | B | C | D | E |
|---|---|---|---|---|-----------|
| 1 | | | | | 2/17/2021 |
| 2 | | | | | 44244 |

The formula bar at the top shows the active cell is E2, containing the formula `=E1`. The spreadsheet grid shows columns A through E and rows 1 through 2. Cell E1 contains the date 2/17/2021, and cell E2 contains the serial number 44244.

Dates are kept in Excel as the number of days since January 1, 1900. Excel, for example, records the date February 17th, 2021 as 44244. The date is in cell E1. Cell E2 has the formula =E1 and is prepared to display a number.

This useful approach allows you to do some basic arithmetic. Column D contains the invoice's payment conditions. By combining cells B2 and D2, you may compute the due date.

What truly occurs in Excel's computation engine is as follows:

1. The date in cell B2 is recorded as 43132.
2. Excel multiplies that number by ten to obtain the result 43142.
3. Excel converts this number to a date, yielding 2/11/2018.
4. However, if the cell holding the formula has the incorrect numeric format, an irritating situation might ensue. It is vital to note that dates in 2019–2021 vary from 43,466 to 44,561. So, if you anticipate a date response from a formula and receive a number in this range, the answer most likely has to be formatted as a date.
5. To apply a date format, go to the Home page and choose the Date format from the Number drop-down box. The solution in column D is now accurate.
6. In general, most formulae that relate to a date column are represented as a date by default. The majority of formulae containing Date category functions are expressed as dates. (One vexing exception is the WORKDAY function.)

| | A | B | C | D | E |
|---|---------|----------|--------|-------|-----------|
| 1 | Invoice | Date | Amount | Terms | Due Date |
| 2 | 3011 | 2/1/2021 | 107.60 | 10 | 2/11/2021 |
| 3 | 3012 | 2/1/2021 | 172.99 | 20 | 2/21/2021 |
| 4 | 3013 | 2/1/2021 | 170.66 | 20 | 2/21/2021 |
| 5 | 3014 | 2/2/2021 | 193.29 | 30 | 3/4/2021 |

How to automatically format formula cells

The formatting standards for formula results seem to be inconsistent. Assume you have \$1.23 in cell A1. Except for cell A1, all of the cells in the worksheet follow the general pattern.

If you type `=A1+3` in another cell with general format, the result will immediately inherit cell A1's currency format.

When many cells are referenced in a formula, the resultant automated format does not seem to follow a pattern. When you begin a formula with an equal sign, the format is copied from either the first or last cell mentioned. When you use a `+` sign, the format may originate from the second, first, or last reference, or it may be a combination of two references.

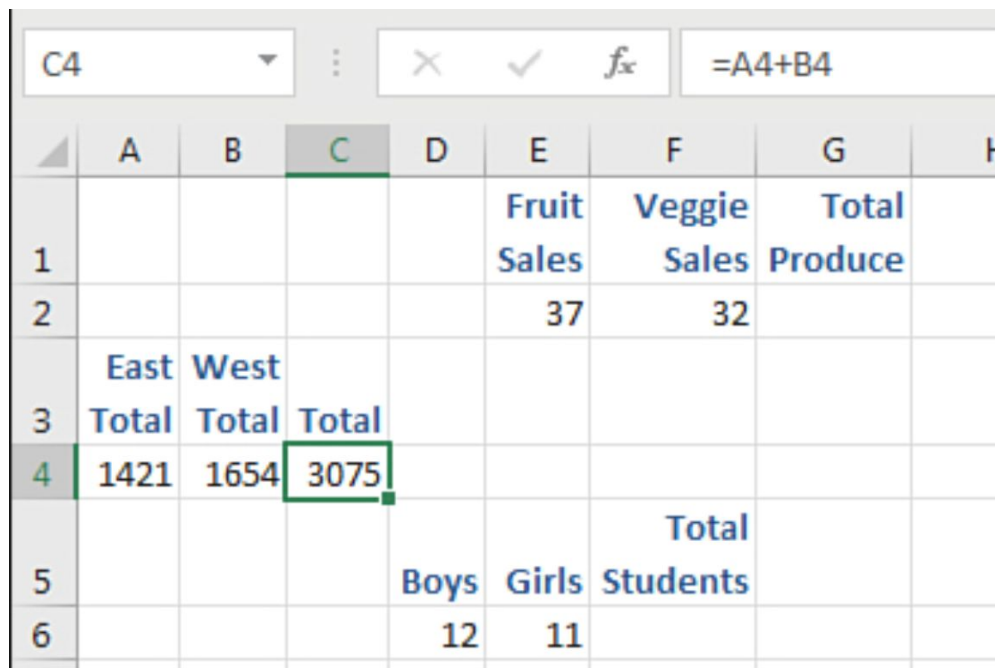
If your formula will refer to numerous cells with differing formatting, begin it with an equal sign. Refer to the cell with the desired cell format first, but be aware that the resultant cell may need to be explicitly formatted.

Using the @ operator to specify implicit intersection

Excel used to allow implicit intersection by default. If you typed A2:A10 into any cell in rows 2 through 10, Excel would only return the cell where the formula crossed.

To use **Dynamic Arrays** in Excel, use a formula like `=A2:A10`, which will now spill and return the values from all nine cells. To compel Excel to utilize implicit intersection, put a `@` symbol before the cell reference. By inserting a `@` before the reference, just Chris from A4 appears in cell C4. When you copy C4 to C8, the response “Chris” becomes “Gary” since C8 overlaps with the reference’s A8.

How to copy versus cutting a formula



| | A | B | C | D | E | F | G | H |
|---|------------|------------|-------|------|-------------|----------------|---------------|---|
| 1 | | | | | Fruit Sales | Veggie Sales | Total Produce | |
| 2 | | | | | 37 | 32 | | |
| 3 | East Total | West Total | Total | | | | | |
| 4 | 1421 | 1654 | 3075 | | | | | |
| 5 | | | | Boys | Girls | Total Students | | |
| 6 | | | | 12 | 11 | | | |

Because the formula has no dollar signs, they are relative references. If you copy cell C4 and paste it into cell G2, the formula adds the two integers to

the left of G2 properly. If you cut C4 and paste it to F6, the formula still points to cells A4+B4.

Whereas cutting and copying are comparable in apps like Word, they are extremely different in Excel. It is critical to grasp the difference between cutting and copying a formula in Excel. When you clip a formula, it remains to link to the original antecedents, regardless of where you paste it.

The references given in a formula follow a similar pattern. Cell C4's formula, for example, leads to A4 and B4. You can copy cell A4 and paste it wherever without modifying the formula in C4. However, if you cut A4 and paste it somewhere else, the formula in C4 would be updated to reflect the new position.

Sometimes a mix of a cut and a copy is required. The formulae must continue to point to the original cells, but they must be copied to a new location.

The most typical method is to convert the formulae to text, copy and paste them, and then convert the text back to formulas.

Take the following steps:

1. Determine the range of formulae to be cut/copied.
2. To open the Replace dialog, use **Ctrl+H**.
3. Substitute = **for each** =.
4. Duplicate the cells.
5. Copy and paste to a new location.
6. Use Replace to replace each = **with a** =.

Troubleshooting formulas

It is tough to decipher worksheets that were created by others. When you get a worksheet from a coworker, utilize the information in the sections below to locate and evaluate the formulae.

Selecting all formulas

For a long time, Excel has allowed consumers to view all of the formulae in a spreadsheet. Show Formulas mode is the mode that gives this capability.

To enter **Show Formulas mode** for a worksheet, go to the **Formulas tab**, then the Formula Auditing group, and finally the Show Formulas icon. Alternatively, you can enter this mode by using Ctrl+' (the grave accent). The grave accent is commonly located right below the Esc key, on the same key as the tilde (~).

Select the **Show Formulae icon** once again to conceal the formulas and return to regular mode.

Highlighting all formula cells

These steps colorize all formula cells in the worksheet:

1. Make sure you only have one cell chosen.
2. Choose **Home, Find & Select, and Formulas**.
3. In the Home tab, click the **Paint Bucket icon** to apply a color to all of the formula cells.

Changing a single formula to demonstrate direct precedents

It's useful to know which cells are utilized to compute a formula. These cells are referred to as cell precedents.

There might be several layers of antecedents in a cell. There are two direct predecessors in a formula like =D5+D7: D5 and D7. All the direct predecessors of D5 and D7, on the other hand, are second-level antecedents of the original formula.

If you want to visually examine a cell's immediate predecessors, perform these steps:

1. Choose a cell with a formula.
2. Press F2 to enter **Edit mode** in the cell. In this mode, each formula reference is highlighted in a distinct color.
3. Examine the formula visually to confirm that it is valid.

Using auditing arrows in formulas

If you have a difficult formula, you should look for direct precedents first, followed by second- or third-level precedents.

You can instruct Excel to create arrows from the current cells to all cells that comprise the precedents for the current cell. To have Excel draw arrows, do the following:

1. On the Formulas tab, choose **Trace Precedents** from the Formula Auditing category. Excel creates arrows connecting the current cell to all of the cells that are directly referenced in the calculation.

(NB: This means that at least one of the predecessors for this cell may be found on another worksheet).

2. Click **Trace Precedents** once again. Excel creates arrows connecting the precedent cells to their antecedents. These are the original cell's second-level predecessors. Continue to click Trace Precedents to view more levels. Almost every cell on the spreadsheet is an antecedent of cell D32 in this situation.
3. In the Formula Auditing group, click the **Remove Arrows button** to remove the arrows.

CHAPTER SIX

About Worksheets and Workbooks

How to connect two worksheets

The image shows two screenshots of an Excel spreadsheet. The top screenshot displays the 'Revenue' worksheet with columns A through G and rows 1 through 7. The bottom screenshot displays the 'Expense Summary' worksheet with columns A through J and rows 1 through 10. Both worksheets show financial data for 'Actual' and 'Budget' values across different categories.

| | A | B | C | D | E | F | G |
|---|---------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1 | | Actual | Actual | Actual | Actual | Actual | Budget |
| 2 | | Last Year | This Year | Next Year | Last Year | This Year | Next Year |
| 3 | Hardware | 1754 | 2017 | 2320 | 2668 | 3068 | 3625 |
| 4 | Software | 264 | 304 | 350 | 403 | 463 | 532 |
| 5 | Service | 246 | 283 | 325 | 374 | 430 | 495 |
| 6 | Total Revenue | 2264 | 2604 | 2995 | 3445 | 3961 | 4652 |
| 7 | | | | | | | |

| | A | E | F | G | H | I | J |
|----|-------------------|-----------|-----------|-----------|---|---|---|
| 1 | | Actual | Actual | Budget | | | |
| 2 | | Last Year | This Year | Next Year | | | |
| 3 | COGS | 1281 | 1473 | 1723 | | | |
| 4 | Selling Expense | 413 | 475 | 558 | | | |
| 5 | Marketing Expense | 207 | 238 | 279 | | | |
| 6 | R&D - Hardware | 125 | 125 | 125 | | | |
| 7 | R&D - Software | 75 | 75 | 75 | | | |
| 8 | Total Expenses | 2101 | 2386 | 2760 | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |

Despite the fact that Excel has 17 billion cells on each worksheet, it is extremely typical to split any model over many worksheets. You might have one worksheet for each month of the year or one worksheet for each functional area of a firm.

Because various departments may be in charge of distinct functional areas, it seems sensible to segregate them into separate spreadsheets. However, you will eventually want to combine information from the many worksheets into a single summary worksheet.

To view two worksheets from the same workbook side by side, follow these steps:

1. Open the first spreadsheet you want to look at.
2. Select **New Window** from the View menu. Nothing seems to have occurred if your workbook is in full-screen mode. However, when you check in the title bar, you will see that your workbook title has “ - 2” following it.
3. On the **View tab**, click **Arrange All**, and then choose **Vertical or Horizontal**. Check the Windows of Active Workbook box.
4. In the second window, select the second worksheet tab to view. *(NB: You may now see both worksheets from the same workbook at the same time. Each window in Excel now has its own ribbon and status bar).*

Note: Click the Close Window symbol, which is the X in the top-right corner of the second window, to return to a single window.

There are four options for achieving this goal:

- In cell B5, enter a formula, such as =**Revenue!F6**.
- Using the mouse, construct the formula. For example, enter an equal sign in cell B5 of the Summary sheet and then click on cell E6 of the Revenue sheet with the mouse. Then hit the **Enter key**.

- Right-click and drag cells F6:G6 from the Revenue tab to the appropriate spot on the Summary tab, then choose Link **Here**.
- Make a copy of cells F6–G6 on the Revenue tab. Copy and paste to cells B5:C5, then choose Link Here from the Paste Options fly-out menu.

Creating links to unsaved workbooks

You can create a formula that points to an un-saved source worksheet. This formula might link to Book 1, Book 3, or something similar. When you try to save the target workbook, Excel displays the **Save filename> With References To Unsaved Documents?** dialog box. In general, cancel the save, go to the unsaved source workbook, and then choose **File, Save As** to save the file with a permanent name. (***NB: From there, you can then return to save the linked worksheet.***)

Creating links between worksheets

There are many simple methods for connecting worksheets or even workbooks. Instead of inputting the same value many times, you may enter it once and have it roll over to other worksheets and workbooks.

Using the Paste Options menu to create links

To create a link using the new Paste Options fly-out menu, follow these steps:

1. Select the cells containing the figures you wish to duplicate.

2. To duplicate those cells, use **Ctrl+C**.
3. Right-click the cell where you want the link to appear. Paste Link is the sixth icon in the Paste Options menu that appears.
4. From the option that displays, choose **Paste Link**. On the Summary worksheet, Excel will put formulae in cells B5:C5.

Using the right-drag menu to create links

There is a simpler technique to build connections if you are skilled with the mouse. This is especially true if you put the two spreadsheets side by side.

The **Alternate Drag-And-Drop menu** is used in this manner. This incredible menu, which has been hidden in Excel for numerous editions, provides a quick method to copy cells, connect cells, transform formulae to values, and much more.

When you right-click the boundary of a selection, drag it to a different position, and then release the mouse button, the Alternate Drag-and-Drop option displays.

Hover around the selected rectangle's edge until you see the four-headed arrow. Right-click and start dragging to the other window.

When you've arrived at your new destination, let go of the right mouse button and choose Link Here. In the target location, Excel creates a formula with the correct syntax to connect to the source cells. Because the worksheet name includes a space, Excel wraps it in apostrophes: **= 'Expense Summary'! F3**.

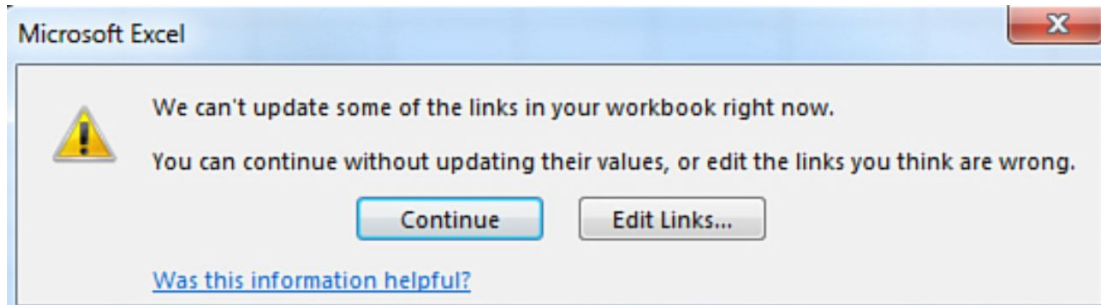
Building a formula by typing

You can always create the connections manually by inputting the formula. Because you must grasp a variety of syntactic rules, this is the least common way. Remember that the syntax requirements differ based on whether the worksheet name includes a space, if the connection is external, and whether the connected workbook is open or closed.

The syntactic rules are as follows:

- Use **=SheetName!CellAddress** for an internal connection when the worksheet name does not include a space or special characters. **=Result!B3** is an example.
- Add apostrophes around the workbook and sheet names if the worksheet name includes a space or certain special characters. **='Result Sheet' ! B3**.
- For an external link, the workbook name is enclosed in square brackets and appears before the sheet name. **= [LinkToMe.xlsm]Sheet1!B3** is an example.
- If the workbook or sheet name includes a space, use an apostrophe before and after the opening square bracket. **='[My File.xls]Income Statement' ! B3**.
- When Excel refers to a file, such as **[RegionTotals.xlsm]**, it is safe to presume that the file is open at the time. *(NB: When you shut the connected file, Excel adjusts the connecting workbook's formula to include the full pathname. **=SUM('C:[Region Totals.xlsm]Quota'!\$B\$2:\$E\$2)** is an example).*

Dealing with missing linked workbooks



If you get a linking workbook via email and do not have access to the connected workbooks, Excel notifies you that the workbook includes links that cannot be modified at this time. In this situation, you should press the **Continue button** in the dialog box.

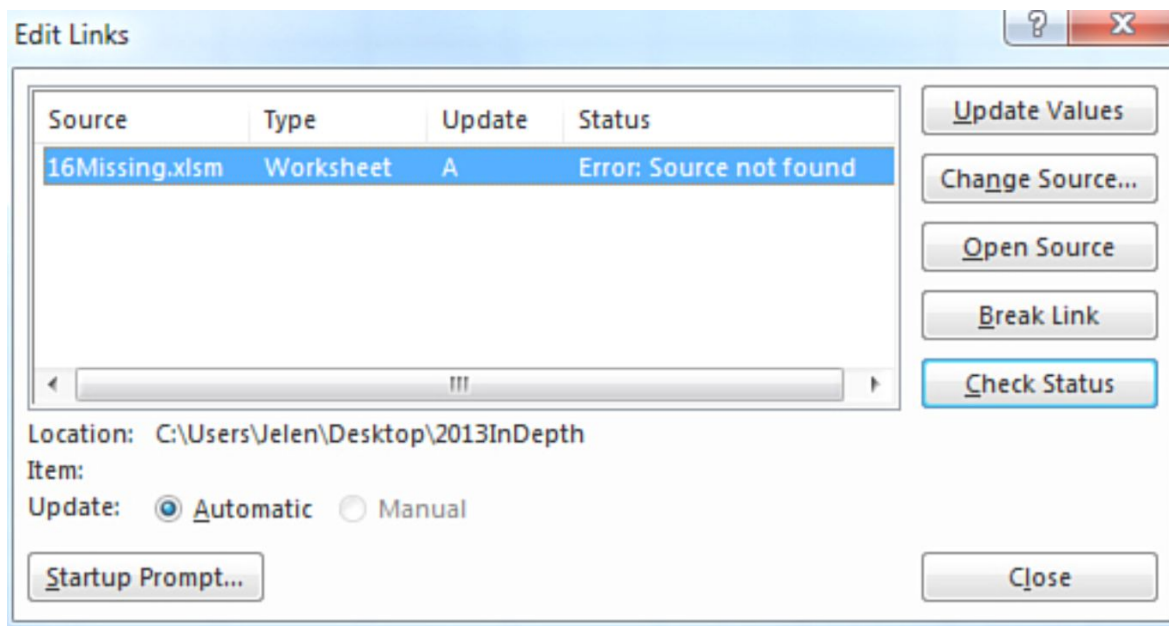
Opening workbooks with links to closed workbooks

Assume you've saved and closed the connecting worksheet. You make changes to the numbers in the attached worksheet. You save and exit from the connected worksheet. When you access the linked workbook later, Excel prompts you to update the connections to the other worksheet. Allowing the workbooks to update is OK if you generated both workbooks and hold custody of both workbooks.

Updating links when a workbook is renamed or moved

It is usual for the source workbook to be renamed or relocated. If you connect to CommissionRates2025.xlsx and a new commission plan for 2026 is produced, someone will use File, Save As to create a new CommissionRates2026.xlsx workbook. In this case, all workbooks that reference CommissionRates2025.xlsx would need to be modified to reference CommissionRates2026.xlsx. As you may expect, this procedure occurs just once a year.

In a perfect world, you would open CommissionRates2025.xlsx and any workbooks that are linked to it. With all workbooks open, open CommissionRates2025.xlsx and choose File, Save As. Change the name of the spreadsheet to CommissionRates2026.xlsx. All open workbook links that previously pointed to CommissionRates2025.xlsx will now point to CommissionRates2026.xlsx.



However, the person who maintains the Commission Rates workbook is in another office, and they often make changes without remembering that other workbooks are connected to his workbook.

Select **Data > Edit Links** to open the **Edit Links dialog box** and modify all links in a worksheet to go to a new workbook. Then, click the **Change Source button** to notify Excel that the associated workbook has been renamed or relocated. Alternatively, you may need to use the Break Link option to reset all connected formulae to their default settings.

Using the Trust Center's Links tab

Excel's default security settings thwart your efforts to retrieve data from closed workbooks. Consider the following situation, which makes use of two workbooks called Workbook A and Workbook B:

1. Create a connection between Workbook A and Workbook B.
2. Save and exit Workbook A.
3. Make changes to Workbook B, then save and shut it.
4. Next, open Workbook B.
5. Launch Workbook A.

In this situation, the updated values in Workbook B are immediately transferred to Workbook A.

When you activate the content for the first time, Excel designates the document as trustworthy. The next time you access the worksheet, Excel shows a separate warning regarding connections to potentially dangerous external sources.

CHAPTER SEVEN

How to work with functions

To effectively utilize functions in a spreadsheet, you must adhere to the function syntax. Keep in mind that every formula that uses a function must begin with an equal sign. You must include the function name, an opening parenthesis, function parameters (separated by commas), and a closing parenthesis.

A function's general syntax is as follows:

`=FunctionName(Argument1,Argument2,Argument3)`

Parentheses are required for all functions, even those that do not need arguments. These functions, for example, nevertheless need the use of parentheses:

- `=NOW()`
- `=DATE()`
- `=TODAY()`
- `=PI()`

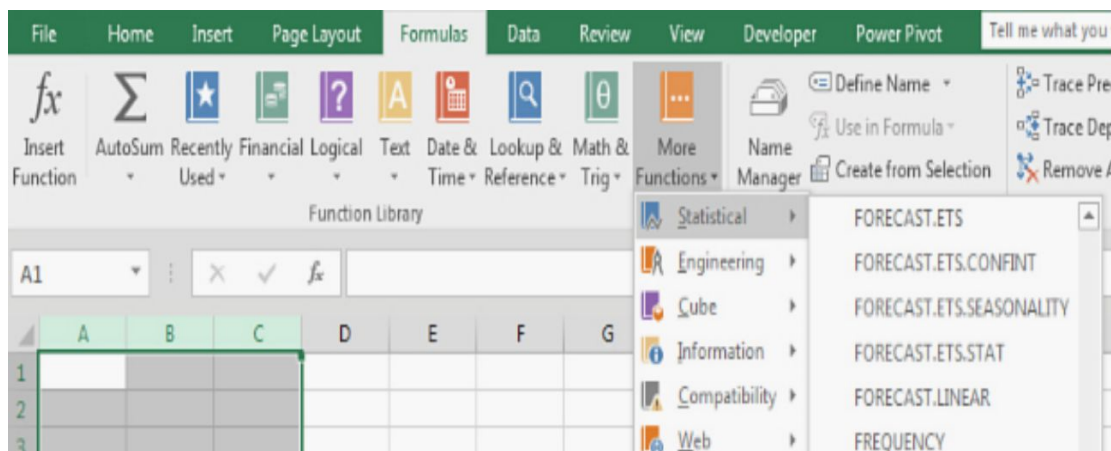
The parameters to a function should be entered in the order given in this book or in Excel Help. For example, the `PMT()` function wants the interest rate to come first, followed by the number of periods, and finally the current value. If you input the parameters in the wrong sequence, Excel will gladly generate the incorrect result.

You can input parameters as integers or cell references in many circumstances. For example, all of the following formulae are correct:

- =SUM(1,2,3^2,4/5,6*7)
- =SUM
- (A1:A9,C1,D2,Sheet2!E3:M10)
- =SUM(A1:A9,100,200,B3*5)

Errors may be returned by Excel functions. This most often occurs when one of the parameters provided to the function is beyond the range of what the function expects. If you get a #NUM!, #VALUE!, or #N/A error, seek up the function in Excel Help. The Remarks section normally specifies which issues may result in each sort of mistake.

Formulas tab in Excel



The Formulas tab in Excel is one place to look for functions. Insert Function, AutoSum, Recently Used, Financial, Logical, Text, Date & Time,

Lookup & Reference, Math & Trig, and More Functions are the icons available on this tab. When you select the More Functions button, a drop-down menu with six more function categories displays, including Statistical, Engineering, Cube, Information, Compatibility, and Web.

The Formulas tab is intended to make it easy to locate the appropriate function. When you click an icon on the ribbon, an alphabetical list of the functions in that group shows. When you move your cursor over a function in the list, Excel shows an explanation of what it does.

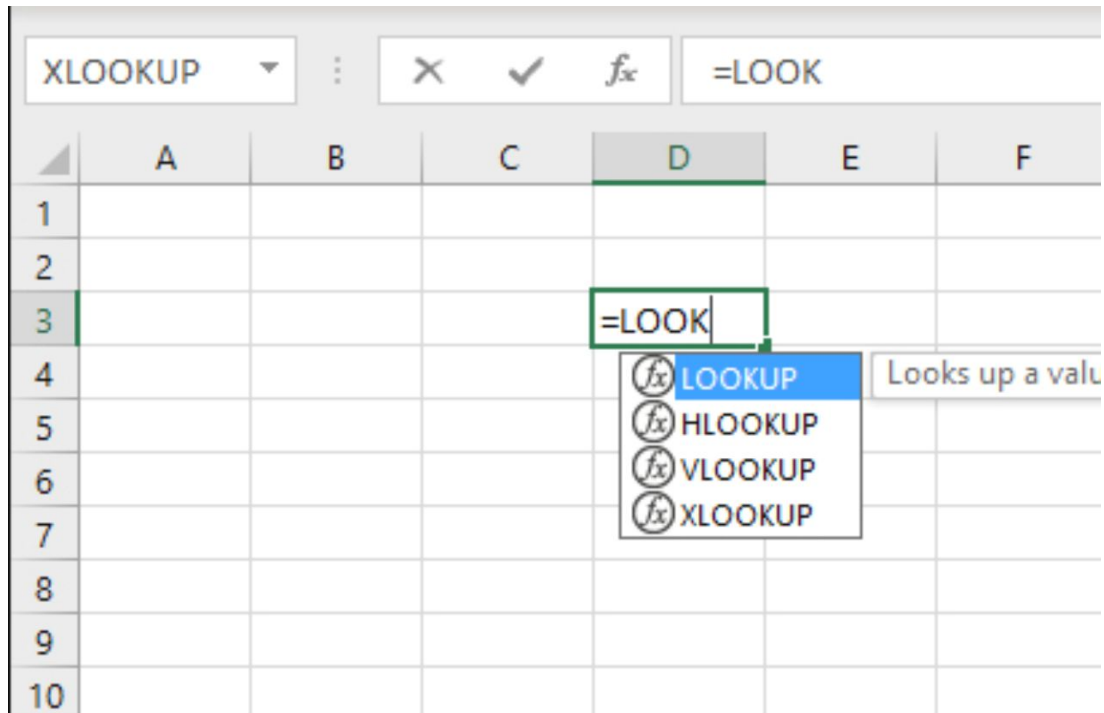
Identifying the required function

The Formulas tab's intrinsic difficulty is that you often have to guess where your desired function could be lurking. Excel's function categories have been in place for almost a decade, and functionalities are sometimes hidden in unexpected locations.

The SUM() function, for example, is a Math & Trig function. This makes logical since number addition is plainly a mathematical procedure. The AVERAGE() function, on the other hand, is not present under the Math & Trig icon. (It may be found under More Functions, Statistical.) The COUNT() function may be used for math, reference, or information, however it is located under More Functions, Statistical.

Microsoft has made it tough to discover certain functions by categorizing the list of functions.

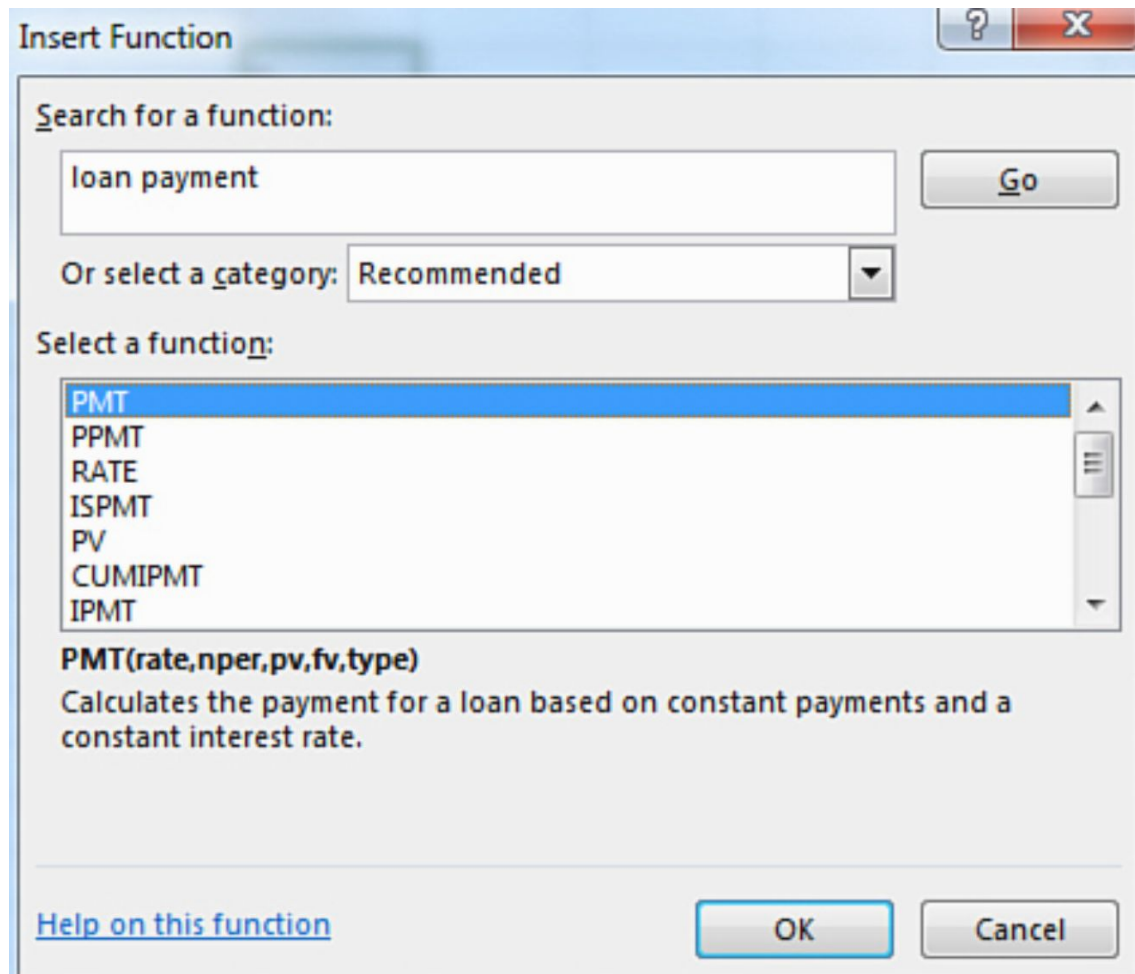
Using the Tab key to perform AutoComplete operations



Formula AutoComplete is a function in Excel. You may recall a portion of the function name but not the whole name. If you write **=LOOK**, Excel will suggest **LOOKUP**, **HLOOKUP**, **VLOOKUP**, and **XLOOKUP**. Rather of attempting to determine which category on the Formulas tab includes your function, just begin typing **=LOOK** into a cell. Excel provides a pop-up window with all the functions that include the word **LOOK**. Since Excel 2016, this feature has undergone changes. Previously, entering **=LOO** would not have resulted in **XLOOKUP**, **VLOOKUP**, or **HLOOKUP** since AutoComplete only matched words from the beginning.

You can also accept a function name from the list by double-clicking it or by selecting the name and pressing **Tab**.

Using the Insert function dialog box to find functions



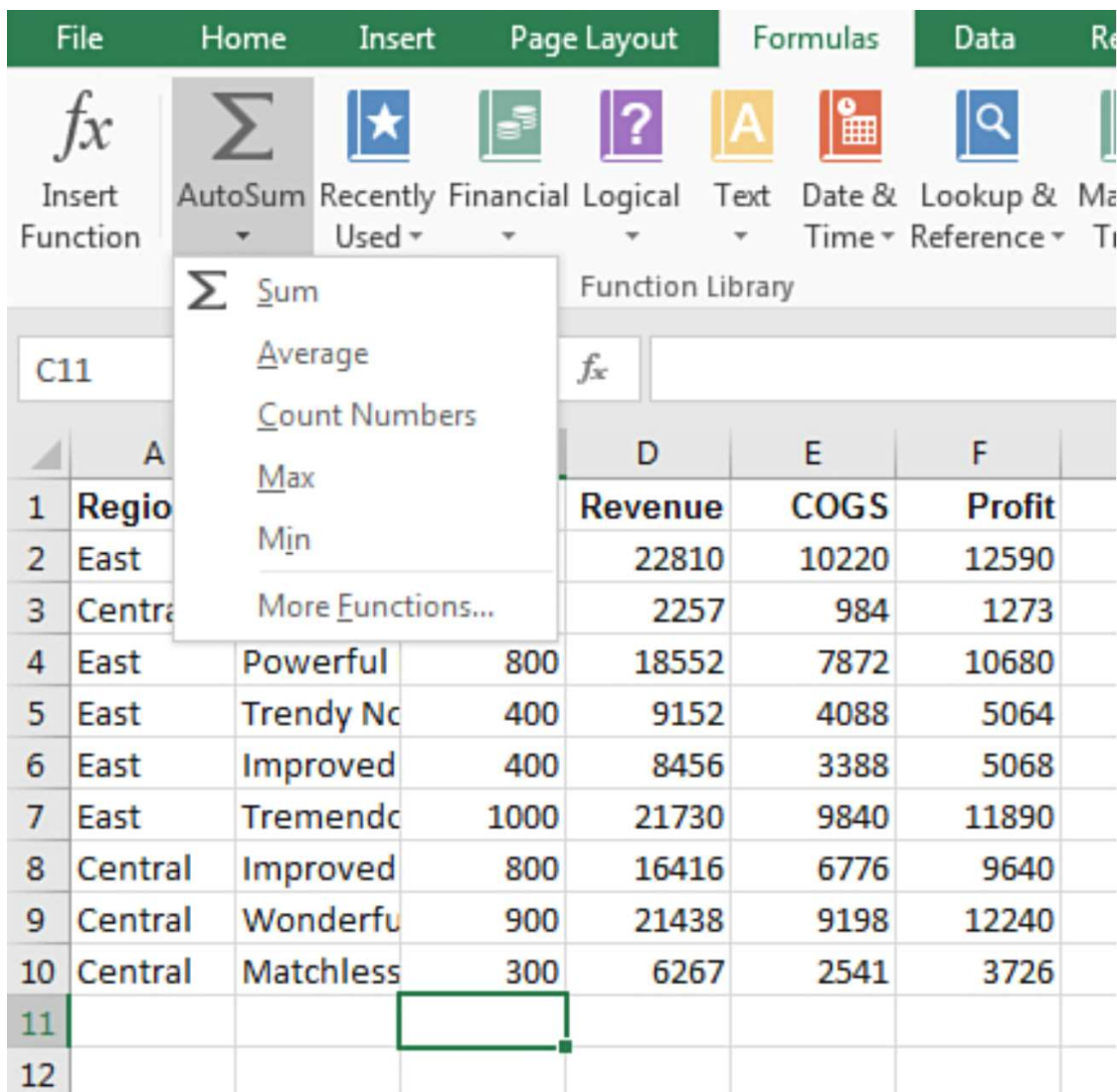
On the Formula tab of the ribbon, a huge Insert Function icon displays. At the bottom of each function category, this instruction is repeated. These 14 new Insert Function entry points were introduced in Excel 2007, although it is simpler to utilize the fx icon to the left of the formula bar.

To find the function, use the **Search For A Function box**. If you entered loan payment and then clicked Go, Excel would propose PMT (the right function) as well as PPMT, ISPMT, RATE, and other options.

When you choose a function in the Insert Function dialog box, the dialog box shows the function's syntax as well as a one-sentence explanation. If you want further information, click the Help On This Function hyperlink in the lower-left corner of the Insert Function dialog box.

How to use AutoSum

Microsoft recognizes that the SUM() function is the most often used. Excel gives one-click access to the AutoSum tool since it is so popular.



The AutoSum symbol is represented by the huge **Greek letter sigma**, which is the second icon on the Formulas tab or a tiny icon on the right side of the Home tab. You can use AutoSum by clicking this icon, or by using

the drop-down menu at the bottom of the icon to obtain AutoSum versions of Average, Count Numbers, Max, and Min.

When you click the **AutoSum button**, Excel attempts to add up the values above and to the left of the current cell. When you click the AutoSum button, Excel generally guesses which cells you are attempting to sum. Excel fills in the SUM() calculation for you. You should double-check Excel's guess to ensure that it picked the right range to total.

AutoSum's potential flaws

Although you should always double-check the range suggested by the AutoSum function, you should be extremely cautious in specific circumstances. If Excel suggests the incorrect range for a total, use your mouse to highlight the right range before clicking Enter.

In an AutoSum range, Excel avoids incorporating additional SUM() operations. If a range includes an SUM() function that refers to other cells, Excel terminates the program shortly before the SUM() function. This issue occurs only when the SUM() method refers to additional cells. AutoSum would include the cell if it contained =7000+1878, =H3+H4, or =SUM(7000,1878).

Excel likes to add a total to a column of numbers rather than a row of numbers. Excel properly predicts that you want to total B2:E2 if you position the cell cursor in cell F2 and select AutoSum. Cell F3 is fully functional. When you reach to cell F4, though, Excel gives you an option. F4 has two numerals above it and four digits to its left. Excel attempts to sum the two values right above since there are two numbers directly above.

This issue appears in the third row of the data set and progresses to the bottom.

AutoSum has certain unique features

Users can use an awesome technique with AutoSum. Excel performs a far better job of guessing what to sum if you pick a range of cells before selecting the AutoSum button.

Before pressing the AutoSum button, you could pick B11:E11, and Excel would know to total each column. However, be cautious since Excel does not provide a preview of its prediction before to inputting the calculation. Always double-check a formula after using AutoSum to ensure that the right range was chosen.

If your selection includes both blank and non-blank cells, Excel only applies the AutoSum to the blank cells. Excel appropriately fills up totals for all rows and columns once you click the AutoSum button.

Can you AutoSum from the top of a numeric column?

There is no trick to getting the AutoSum to add the values underneath the active cell. If you must do this repeatedly, however, take these steps:

1. Click on the empty cell above a column of numbers.
2. To begin the AutoSum, press **Alt+=**.
3. If Excel used a cell reference as the starting point for the calculation, use the **Delete key**.

4. To navigate to the first number in the range, press the down arrow once.
5. Select the end of the range by pressing **Ctrl+Shift+Down Arrow**.
6. Enter your password.

Making use of AutoAverage or AutoCount

The AutoSum button has a drop-down menu arrow with the options Average, Count, Max, and Min. If you find yourself often utilizing the options in this drop-down menu, you may add an AutoAverage, AutoCount, and so on icon to the **Quick Access Toolbar**.

Select **AutoSum** from the drop-down option. Right-click **Average** and choose **Add to Quick Access Toolbar** to get one-click access to an icon that functions similarly to AutoSum but employs the AVERAGE calculation instead.

Examples of date and time function

| | A | B | C | D |
|---|-----------------|---|------------------|-----------------------------------|
| 1 | NOW() | | TODAY() | Comment |
| 2 | 5/21/21 7:22 AM | | 5/21/21 12:00 AM | <i>Formatted as Date/Time</i> |
| 3 | 5/21/21 | | 5/21/21 | <i>Formatted as Date</i> |
| 4 | 44337.3076 | | 44337.0000 | <i>Formatted as Serial Number</i> |
| 5 | | | | |
| 6 | | | | |
| 7 | 8/13/2021 | | 8/13/2021 | <i>Deadline</i> |
| 8 | 83.6924 | | 84.0000 | <i>Days Until Deadline</i> |

Using NOW and TODAY to compute the current date and time or current date and time and date and date and date and date and date and date and date and date and date and date and date and date

There are many keyboard shortcuts for inputting the date and time. Ctrl+; enters the current date into a cell. Ctrl+: enters the current time into a cell. However, both of these hotkeys generate a static value, which means that the date or time represents the moment you entered the hotkey and never changes in the future.

For computing the current date, Excel has two functions: **NOW** and **TODAY**. These functions are useful for calculating the number of days till a deadline or the late status of an open receivable.

Note: It would be ideal if NOW() functioned in Excel like a real-time clock, continually updating. However, the result is computed every time the file is opened, every time the F9 key is used, and every time an input is made elsewhere in the worksheet.

Syntax:

- =NOW()
- =TODAY()

The serial number of the current date and time is returned by NOW. TODAY yields the current date's serial number. The **TODAY function** returns the current date without a time. The current date and time are returned by the **NOW function**.

Both of these methods may be used to show the current date, but there is a crucial difference to be noted when using the functions to make

computations.

Row 8 computes the number of days remaining before a deadline. Although most people believe that tomorrow is one day away, the calculation in A8 indicates that the deadline is 83.6924 days away. This might be misleading. If you want to utilize the result of NOW or TODAY in a date calculation, use TODAY to avoid Excel reporting fractional days. The formula in A8 is =A7-A3, expressed as a number rather than a date.

To separate a date/time, use YEAR, MONTH, DAY, HOUR, MINUTE, and SECOND.

To extract a specific component of a date, Excel has six functions: YEAR, MONTH, DAY, HOUR, MINUTE, and SECOND.

Functions in A3 through A8 decompose the date into its constituent parts:

- The year component of the date is returned as a four-digit year via =YEAR(date).
- =MONTH(date) yields the month number, ranging from 1 to 12.
- =DAY(date) yields the day of the month, ranging from 1 to 31.
- =HOUR(date) provides the current hour, ranging from 0 to 23.
- =MINUTE(date) yields the minute between 0 and 59.
- =SECOND(date) gives the second value between 0 and 59.

Date must have a legitimate Excel serial number in each instance. The date serial number cell may be formatted as a date or as a number.

Using DATE to compute a date based on the year, month, and day

The DATE function is one of Excel's most outstanding features. Microsoft's version of this function is fantastic, enabling you to do incredible date computations.

Syntax: =DATE(year,month,day)

The DATE function returns the serial number that corresponds to a certain date. This function accepts the following parameters:

- **Year:** This argument may range between one and four numbers. If the year is between 0 and 1899 (inclusive), Excel multiplies the value by 1900 to determine the year. =DATE(100,1,2), for example, yields January 2, 2000 (1900+100). Excel uses the value between 1900 and 9999 (inclusive) as the year. =DATE(2000,1,2), for example, yields January 2, 2000. If the year is less than 0 or higher than 10,000, Excel gives a #NUM! error.
- **Month:** This is a digit that represents the month of the year. If month is larger than 12, month adds that many months to the first month of the chosen year. =DATE(1998,14,2), for example, provides the serial number corresponding to February 2, 1999. If it is 0, it indicates the prior year's December. If the value is negative, it returns previous months; nonetheless, -1 indicates November, -2 October, and so on.
- **Day:** This is a number that represents the month's day. If the number of days in the month is larger than the number of days indicated, it adds that number of days to the first day of the month.

=DATE(2018,1,35), for example, yields the serial number corresponding to February 4, 2018. The preceding month's final day is represented as zero. Negative numbers, like months, return days early. =DATE(2018,3,5) yields March 5, 2018, as an example.

When one or more of the year, month, or day values are computed in the DATE function, the true power happens. Following are some examples:

- If cell A2 has an invoice date and you wish to compute the day one month later, use =DATE(Year(A2),Month(A2)+1,Day(A2)).
- To determine the start of the month, use =DATE(Year(A2),Month(A2),1).
- You use =DATE(Year(A2),Month(A2)+1,1)-1 or =DATE(YEAR(A2),MONTH(A2)+1,0) to compute the end of the month.

Excel's DATE function is incredible since it allows it to precisely cope with incorrect dates. It is not an issue if your calculations for Month result in a value greater than 12. For example, if you ask Excel to compute =DATE(2025,16,45), Excel will consider April 2026 to be the 16th month of 2025. Excel advances to May 15, 2026 to discover the 45th day of April 2026.

Using TIME to calculate a time

The **TIME function** and the **DATE function** are quite similar. It generates a time serial number based on an hour, minute, and second.

Syntax: =TIME(hour,minute,second)

The TIME function returns a decimal value corresponding to a certain time. TIME returns a decimal number ranging from 0 to 0.999988425925926, reflecting the times from 0:00:00 (12:00:00 a.m.) to 23:59:59. (11:59:59 p.m.). This function accepts the following parameters:

- **Hour:** This is a number ranging from 0 to 23 that represents the hour.
- **Minute:** This is a number ranging from 0 to 59 that represents the minute.
- **Second:** This is a number ranging from 0 to 59 that represents the second.

Excel, like the DATE function, can handle instances when the minute or second parameter totals more than 60. =TIME(12,72,120), for example, equals 1:14 p.m.

Using DATEVALUE to convert text dates to actual dates

It's all too simple to wind up with a spreadsheet full with text dates. This is sometimes caused by importing data from another system. It may also be caused by someone not knowing how dates operate.

If your dates come in a variety of forms, you may use the DATEVALUE function to convert them to serial numbers, which can then be displayed as dates.

Syntax: =DATEVALUE(date text)

The serial number of the date represented by date text is returned by the DATEVALUE function. DATEVALUE is used to convert a text-based date

to a serial number. The date text input contains text that represents a date in Excel date format. “3/5/2018” and “05-Mar-2018,” for example, are text strings inside quote marks that denote dates.

Using Excel for Windows’ default date system, date text must reflect a date between January 1, 1900, and December 31, 9999. DATEVALUE yields a #VALUE! If date text is outside of this range, an error is returned. DATEVALUE utilizes the current year from your computer’s built-in clock if the year element of date text is absent. Date text’s time information is disregarded.

In this case, Excel should have been clever enough to format the resultant cells into dates automatically. The cells are represented as numeric by default. As a result, many people feel that DATEVALUE does not function. To accomplish the desired outcome, you must use a date format.

Note: Text dates must be used using the DATEVALUE function. If you have a column of values, some of which are text and some of which are genuine dates, using DATEVALUE on the actual dates results in a #VALUE error. =IF(ISNUMBER(A1),A1,DATEVALUE(A1)) might be used. Consider the =DAYS(end,start) function, which may deal with text or actual dates.

There are a few text instances that DATEVALUE does not recognize. When there is no space following the comma, this is a frequent example. “January 21,2011,” for example, gives an error. To overcome this issue, use SUBSTITUTE to convert a comma to a comma space: =DATEVALUE(SUBSTITUTE(A2,”,”,” “)).

Using TIMEVALUE to convert text times to actual times

It is quite simple to wind up with a column of text values that resemble times. You may use the TIMEVALUE function to convert them to actual times in the same way that you do with DATEVALUE.

Syntax: =TIMEVALUE(time text)

TIMEVALUE returns the decimal value representing the time provided by a text string. The decimal number is a value between 0 and 0.999988425925926 that represents the times from 0:00:00 (12:00:00 a.m.) to 23:59:59. (11:59:59 p.m.). The time text parameter is a text string that represents a time in any of Microsoft Excel's time formats. For example, "6:45 PM" and "18:45" are time-related text strings enclosed in quote marks. Date data in time text is ignored.

The **TIMEVALUE function** is difficult to use since it is simple to input incorrect formats. Excel, on the other hand, considers this as 45 hours and 30 minutes. This misunderstanding renders TIMEVALUE almost worthless for a column of cells containing text representations of minutes and seconds.

TIMEVALUE is unable to identify a few pieces of text. When there is no space before the AM or PM, this is a frequent case. "11:00PM," for example, produces an error. To remedy this specific issue, use SUBSTITUTE to replace "PM" to "PM" and "AM" to "AM." This is a complicated formula:

=SUBSTITUTE((A2,"PM"," PM"),"AM"," AM")*1

The *1 at the end ensures that it is numeric. Because the SUBSTITUTE method produces a string, the result should be represented as time. This function is applicable to time formats with or without a space before the A or P!

Regrettably, Excel does not format the output of this function as a time. Column B displays the result as it appears in Excel. Column C displays the same result after applying a time format.

Using WEEKDAY to organize dates by weekday

If folks could simply agree on how to number the days, the WEEKDAY function would be less scary. Just for Monday, this one function may provide eight distinct outcomes.

Syntax: =WEEKDAY(**serial number,return type**)

The WEEKDAY function returns the weekday that corresponds to a given date. By default, the day is specified as an integer ranging from 1 (Sunday) to 7 (Saturday). This function accepts the following parameters:

- Serial number is a sequential number that reflects the date you're looking for. Dates may be provided as text strings enclosed in quotation quotes (for example, "1/30/2018", "2018/01/30"), serial numbers (for example, 43130, which represents January 30, 2018), or as the outputs of other formulae or functions (for example, DATEVALUE("1/30/2018")).

- Return type is a numeric value that specifies the type of return value.
- If return type is 1 or omitted, WEEKDAY behaves similarly to a wall calendar. Calendars are often printed with Sunday on the left and Saturday on the right. WEEKDAY's default version numbers these columns from 1 to 7.
- If return type is 2, you're utilizing the biblical WEEKDAY. Sunday is the seventh day of the week according to the Bible. Working backwards, Monday must be at the top of the list.
- You are using the accounting version of WEEKDAY if return type is 3. In this version, Monday has a value of 0, Tuesday has a value of 1, and so on. This version makes it extremely simple to organize data by week. If cell A2 includes a date, A2-WEEKDAY(A2,3) changes the date to the week's first day, Monday.
- In Excel, return types 11 through 17 were included. 11 will be back as 1 on Monday and 7 on Sunday (the same as using 2). 12 returns as 1 on Tuesday, 13 as 1 on Wednesday, and so on, up to 17 as 1 on Sunday.

Getting help with Excel functions

Each Excel function offers three degrees of assistance:

- ToolTip for On-Grid
- The dialog box Function Arguments
- Excel help

Note: If you enter =FunctionName(in a cell, you may access the Function Arguments dialog box by pressing Ctrl+A after the opening parenthesis.

For example, enter =XLOOKUP (followed by Ctrl+A) or =REDUCE (followed by Ctrl+A).

The parts that follow go through these different degrees of assistance. However, you will undoubtedly find the Function Arguments dialog box to be one of the most useful methods to get assistance.

Using ToolTips on the Grid

You can enter an equal sign, a function name, and the opening parenthesis in any cell. Excel gives a ToolTip with the anticipated parameters. This ToolTip is often sufficient to take you through the function.

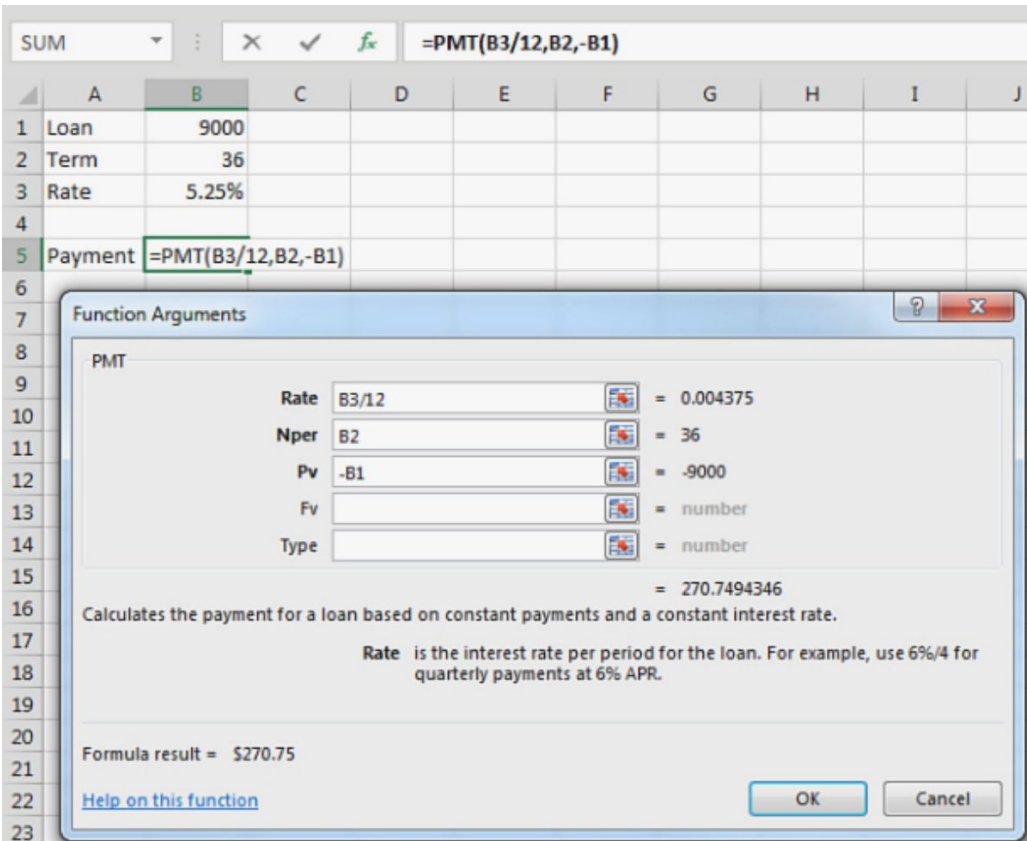
The ToolTip is sufficient to remind me that the rate comes first, then the number of periods, and finally the principal amount or present value. Any function parameters shown in square brackets are optional; for example, you may not need to input anything for fv or type.

The next parameter in the ToolTip appears in boldface as you input each comma in the function. You'll always know which debate you're joining this way.

Note: By the way, you can move the formula ToolTip to a different spot on the worksheet by clicking it. If the ToolTip is covering cells that you need to click while developing the function, this might be handy.

(NB: Excel provides Help for that function when you click the function name in the ToolTip).

Using the Dialog Box for Function Arguments



Excel shows the Function Arguments dialog box when you access a function using the Function Wizard or a drop-down menu. This dialog box is one of Excel's greatest features. If you've already begun typing the function and the beginning parenthesis, hitting **Ctrl+A** or selecting the fx icon to the left of the formula bar brings up the Function Arguments dialog box.

The Function Arguments dialog box has many components:

- A one-sentence explanation of the function shows in the dialog box's center.

- As you tab into the text field for each argument, the dialog box displays the argument's description. This explanation will help you understand what Excel is looking for. For example, Excel tells you in the dialog box that the interest rate must be split by four for quarterly payments. This serves as a reminder to divide the rate in cell B3 by 12 for monthly payments.
- A reference button is located to the right of each parameter in the dialog box. You may close the dialog box by clicking this button, allowing you to point to the cells for that argument.
- To the right of each text box is a label that displays the outcome of the argument's input.
- Any arguments in italics must be included. Arguments that are not in bold are optional.
- After you add the needed parameters, the dialog box displays the formula's tentative result. This is located on the right side, directly below the last argument text field. It reappears in the lower-left corner, immediately above the Help With This Function link.
- In the lower-left corner of the dialog box, a Help On This Function hyperlink to the Help subject for the function displays.

Using Excel Help

The Excel Help sections for the functions are quite detailed. The following parts are included in the Help subject for each function:

- The syntax for the function shows at the top of the subject. This offers a more detailed explanation of each function than the one in the Function Arguments dialog box.

- The **Remarks section** assists you in troubleshooting any issues with the function. It goes through precise restrictions for each input and defines the significance of each conceivable error that the function might return.
- Each function has an example section that includes an integrated Excel Web App worksheet. To download the example to your PC, click the **XL symbol** in the sample's footer.
- The **See Also section** at the bottom of a Help subject allows you to learn about related functions. See Also's logical groupings are far more useful than the Formulas tab's category groupings.

How to use math functions

A formula to add a column of numbers is the most popular in Excel. Excel, in addition to SUM, provides a number of mathematical functions.

Adding numbers using SUM

By far the most widely used function in Excel is the SUM function. This function can combine numbers from one or more data sets.

Syntax: =SUM(number1,number2,...)

SUM sums all of the numbers in a range of cells. The parameters number1, number2,... range from 1 to 255 and represent the total value or sum of the arguments.

=SUM is a common application of this function (B4:B12). It is also possible to use the operator =SUM (1,2,3). In the latter case, no more than 255 separate values may be specified. You may define up to 255 ranges in the previous example, each of which can contain hundreds or millions of cells.

It's unlikely that you'll need more than 255 parameters in this function, but if you do, group them in parenthesis. =SUM((A10,A12),(A14,A16)) would, for example, count as just two of the 255 permissible parameters.

When a text value that seems to be a number is included in a range, the text value is not included in the total result. Surprisingly, if you supply the text value directly as a parameter in the function, Excel includes it in the output. For example, =SUM(1,2,3,4) equals 6, whereas =SUM(1,2,3,4) equals 5. (D4:D6).

The comma is considered a union operator. Excel detects the cells that lie in the intersection of the specified ranges if the comma is replaced with a space. In cell E17, the formula =SUM(F13:H14 G12:G15) sums up the two cells that are shared by both ranges.

If one cell in a referenced range has an error, the SUM function returns an error. Use the AGGREGATE function to add numbers while disregarding incorrect cells.

It is possible to develop a spearing formula. This formula adds the same cell from many spreadsheets. =SUM(Jan:Dec!B20), for example, adds cell B20 on all 12 sheets between January and December. If the sheet names include spaces or other nonalphabetic characters, use apostrophes to surround them: =SUM('Jan 2025:Dec 2025'!B20).

Using AGGREGATE to disregard incorrect cells or filtered

rows

The AGGREGATE function, which was added in Excel 2010, allows you to execute 17 operations on a range of data while selecting disregarding erroneous cells or rows masked by a filter.

Syntax: =AGGREGATE(func num, options, array, [k])

The function's most intriguing feature is the options parameter. You have the option of ignoring any, all, or none of the following categories:

- Error codes
- Hidden rows
- Additional SUBTOTAL and AGGREGATE functionalities

Similar to the **SUBTOTAL function**, the option to disregard filtered rows and other AGGREGATE functions is available. AGGREGATE's ability to disregard incorrect numbers answers a frequent Excel issue. A single **#N/A error cell** in a range causes most Excel functions to output a #N/A error. AGGREGATE's settings allow you to disregard any error cells in the range.

The options argument specifies which values should be disregarded. This is a simple binary system, as seen below:

- To disregard other subtotals, add 0. Add 4 to include subtotals.
- To disregard concealed rows, multiply by 1.
- To disregard incorrect values, multiply by 2.
- As a result, you give 3 (0+1+2) as the options parameter to disregard additional subtotals, hidden rows, and error values.

- You provide 5 (1+4) as the option to disregard error values but include other SUBTOTAL values.

Choosing between COUNT and COUNTA

The key to choose between COUNT and COUNTA is to examine the data to be counted.

In this scenario, COUNTA would be used to get an exact count. Dates are shown in Column C. (which are treated as numeric). COUNT or COUNTA delivers the proper value in column C. Column D contains both text and numeric items. COUNTA may be used to count how many individuals took the exam. Tally is used to count how many persons got a numerical score.

Rounding numbers

A number of functions are available, including ROUND, ROUNDDOWN, ROUNDUP, INT, TRUNC, FLOOR, FLOOR.

MATH, EVEN, ODD, and MROUND—these functions round or eliminate decimals from a result. ROUND is the most commonly used function.

- ROUND(number, num digits) returns the rounded number. Use 0 as the second parameter to round to the closest dollar. Use 2 as the second parameter to round to the closest penny. Use -3 as the third argument to round to the closest thousand dollars. Excel will round away from zero if the digit after the final significant digit is precisely 5. =ROUND(4.5,0), for example, will round to 5 and =ROUND(-4.5,0) will round to -5.

- ROUNDUP(number, num digits) never rounds to zero. Although this normally increases the number, it is rare for negative integers to behave this way. =ROUNDUP(-1.1,0) reduces the value from zero to -2. If you want the result to be rounded to -1, use TRUNC(number).
- ROUNDDOWN(number, num digits) always rounds to the nearest integer. Although this makes sense for positive numbers, it may not make sense for negative numbers. =ROUNDDOWN(-3.1,0) rounds to zero and yields -3. If you expect this to return -4, use =INT(-3.1).
- MROUND(number, multiple) returns the closest multiple. To round to the closest 5 or 25, use this function. =MROUND(115,25) returns 125. There are a few unique variations. For the uncommon condition in which things are packed two to a case, =EVEN(number) always rounds up to an even number. =ODD(number) returns an odd integer.

Examples of database functions

If you were a data analyst in the 1980s or early 1990s, you were probably intrigued with database functions. When individuals did data analysis in a spreadsheet, the DSUM, DMIN, DMAX, and DAVERAGE functions received a major workout when used with a data table.

The pivot table was then introduced to the Data menu in Excel by Microsoft in 1993. Pivot tables revolutionized business. Those strong database capabilities seemed to be worn out and exhausted.

Customers complained sufficiently for Microsoft to add AVERAGEIF to the armory of COUNTIF and SUMIF. Customers could have easily done this by putting up a modest criterion range and utilizing DAVERAGE.

If the database functions did not need headers for the criterion range, they would be significantly more popular.

The DSUM is quite strong in that it returns all records that have a given criterion range (such as the region is East). In reality, though, your boss will want to view the records where the area is Central and West rather than East. When you start copying the DSUM function for other regions, you notice you need two more cells to store each criterion range.

If you wanted to return the sales for 100 workers using 100 rows of DSUM, you would require 200 cells of criterion range. Arranging those cells vertically would make pointing to the relevant criterion range challenging. ***(NB: Contemporary functions such as SUMIFS and FILTER give more convenient methods to get results than DSUM).***

Eleven of the twelve database functions are the same. DSUM, DAVERAGE, DCOUNT, DCOUNTA, DMAX, DMIN, DPRODUCT, DSTDEV, DSTDEVP, DVAR, and DVARP all execute the same function as their non-D counterparts, but they enable for complicated criteria to include records that fit certain criteria.

DCOUNT counts numeric cells and DCOUNTA counts nonblank cells to spare you the trouble of digging up the perplexing few. DSTDEV and

DVAR compute the standard deviation and variance of a population sample, respectively. DSTDEVP and DVARP compute the population's standard deviation and variance, respectively. DGET, the 12th database function, takes the same inputs as DGET but behaves differently.

Using DSUM to conditionally sum records from a database

Every database function has three parameters. It is incredibly simple to set up your first DSUM. The criterion argument provides the most freedom. The syntax for the next 11 database functions is the same as this.

Syntax: DSUM(database,field,criteria)

The DSUM function adds records from a single field in a data collection if the records fulfill certain conditions. The DSUM function accepts the following parameters:

- **Database:** The range of cells that comprise the list or database, including the header row. A database is a collection of connected data, where rows of data are records and columns of data are fields.
- **Column:** This specifies which column is utilized in the function.

When defining a field, you have three options:

- For Revenue, you may point to the cell with the fieldname, such as H23.
- The term Revenue may be used as a field argument.
- The number 8 might be used to indicate that Revenue is the database's eighth field.

- **Criteria:** This is the range of cells that contains the provided conditions. For the criterion argument, you may use any range. The criterion range usually comprises at least one column label and at least one cell below the column label for setting a column condition.

Examples of logical function

The logical function group is one of Excel's smallest, with just eight functions. The IF function is simple to use and allows you to solve a wide range of issues.

Making a choice using the IF function

Many computations in our life are not simple. Assume a manager provides a bonus program if her team accomplishes its objectives. Perhaps a commission plan includes a bonus if a specific profit target is attained. The IF function may be used to solve these sorts of computations.

Syntax: IF(logical test,value if true,value if false)

The IF function takes three parameters. The first argument is any logical test that yields a TRUE or FALSE answer.

Using the AND function to check for two or more conditions

The preceding instance had a single simple condition: the commission rate changed if the value in column H was more than or equal to 50%.

In many circumstances, though, you may need to test for two or more criteria. Assume a retail shop manager provides a \$25 incentive for each leather jacket sold on Fridays this month

Syntax: AND(logical1,logical2,...)

The parameters logical1,logical2,... are expressions ranging from one to 255 that evaluate to TRUE or FALSE. Only if all inputs are TRUE does the method return TRUE.

Examples of text functions

The majority of people associate Excel with numbers. Excel excels at working with numbers and allows you to create formulae to generate new numbers. Excel has a plethora of formulae for working with text.

You may be annoyed at times when you get data from others and the content is not in the format you need. Alternatively, the mainframe may deliver client names in uppercase, or an employee in the next department may enter a whole address into a single cell. Excel has text functions that can handle all of these scenarios and more.

Text joining using TEXTJOIN

In past years, Microsoft released two new text-joining features. The CONCAT function joins text in many cells. While CONCAT is superior to the historical CONCATENATE function, it lacks the flexibility of the fantastic TEXTJOIN function.

CONCAT has been added to a lengthy list of names. There is, however, no space or comma between each item. You may define a delimiter using the TEXTJOIN function. =TEXTJOIN(", ", TRUE, A2:A24) connects all of the names in D6, and each name is separated by a comma and a space.

Furthermore, the third parameter to TEXTJOIN might be an array or a three-dimensional reference. That is, you have the option of including or excluding each name. =TEXTJOIN(", ", TRUE, IF(B2:B24="Yes", A2:A24, "")) might be used to connect just the names when column B indicates the RSVP is Yes.

| | A | B | C | D | E | F | G | H | I |
|----|-------------------|-------------|---|--|---|---|---|---|---|
| 1 | Name | RSVP | | Join All | | | | | |
| 2 | Ellen Atkins | Yes | | Ellen AtkinsErnest BullockSandra CarrollSonia DavidJason E' | | | | | |
| 3 | Ernest Bullock | No | | =CONCAT(A2:A24) | | | | | |
| 4 | Sandra Carroll | Yes | | | | | | | |
| 5 | Sonia David | Yes | | Join All with Commas | | | | | |
| 6 | Jason Everett | No | | Ellen Atkins, Ernest Bullock, Sandra Carroll, Sonia David, Jas | | | | | |
| 7 | Gary Hammond | Yes | | =TEXTJOIN(", ", TRUE, A2:A24) | | | | | |
| 8 | Jacqueline Kemp | No | | | | | | | |
| 9 | Stacy King | Yes | | Join only where RSVP=Yes | | | | | |
| 10 | Bradley Marks | No | | Ellen Atkins, Sandra Carroll, Sonia David, Gary Hammond, S | | | | | |
| 11 | Madeline Martinez | Yes | | =TEXTJOIN(", ", TRUE, IF(B2:B24="Yes", A2:A24, "")) | | | | | |
| 12 | Bertha Moreno | Yes | | | | | | | |
| 13 | Delores Peck | No | | Old Way | | | | | |
| 14 | Mattie Pierce | Yes | | Ellen Atkins, Ernest Bullock, Sandra Carroll | | | | | |
| 15 | Vera Powers | No | | =A2&" "&A3&" "&A4 | | | | | |
| 16 | Kay Quinn | Yes | | | | | | | |

The TEXTJOIN function uses a delimiter to join a list or a span of text.

Prior to the introduction of TEXTJOIN in 2017, you would have had to use =A2&" "&A3&" "&A4& Even the heritage CONCATENATE function was unable to accept a diverse variety of cells. =CONCATENATE would have been the formula ("A2", "A3", "A4", "...).

To change text case, use LOWER, UPPER, or PROPER

Text is converted to or from capital letters using three functions: LOWER, UPPER, and PROPER. The goods in column B were inserted haphazardly. Some products used lowercase, while others used uppercase. Column C employs =UPPER(B2) to make all the products uppercase.

CHAPTER EIGHT

How to create your first pivot table

Pivot tables work best with transactional data, which is raw data files obtained straight from your company's IT department.

To generate the greatest pivot tables, make sure your data adheres to the following guidelines:

- Make certain that each column has a one-cell header. Use different headers for each column; don't use the same heading for two columns. If you want your headers to display in two rows, enter the first word, press **Alt+Enter**, and then write the second.
- If a column should include numeric data, no blank cells should be allowed in the column. Instead of blanks, use zeros.
- Avoid using blank rows or columns.
- Remove any totals that are incorporated in your report.
- Make sure the worksheet is not in Compatibility mode. When the worksheet is in Compatibility mode, several pivot table capabilities from Excel 2007–2019 are disabled.
- If you add new data to the bottom of your data set every month, you should seriously consider converting it to a table using **Ctrl+T**. After a refresh, pivot tables generated from tables instantly take up new rows copied to the bottom of the tables.
- Whether your data contains months split over multiple columns, return to the source software program to check if an alternative

representation of the data with months running down the rows is available.

This data collection contains two years' worth of transactional data. Customer has a single text column. There is just one date column. Quantity, Revenue, COGS, and Profit are all numerical columns.

| | A | B | C | D | E | F | G | H |
|---|---------|---------|----------|----------------------------|----------|---------|-------|--------|
| 1 | Region | Product | Date | Customer | Quantity | Revenue | COGS | Profit |
| 2 | East | XYZ | 1/1/2024 | MyOnlineTrainingHub.com | 954 | 22810 | 10213 | 12597 |
| 3 | Central | DEF | 1/2/2024 | WM Squared Inc. | 124 | 2257 | 998 | 1259 |
| 4 | East | XYZ | 1/4/2024 | SlinkyRN Excel Instruction | 425 | 9152 | 4083 | 5069 |
| 5 | East | DEF | 1/4/2024 | MrExcel.com | 773 | 18552 | 7883 | 10669 |
| 6 | East | ABC | 1/7/2024 | DataSolverz.com | 401 | 8456 | 3389 | 5067 |
| 7 | East | DEF | 1/7/2024 | Excel Design Solutions Ltd | 1035 | 21730 | 9839 | 11891 |

Begin with a blank pivot table

The typical way to make a pivot table is to start with a blank one. Select one cell from your data. From the Insert tab, choose PivotTable. The Create PivotTable dialog box appears in Excel.

PivotTable from table or range ? X

Select a table or range

Table/Range: Data!\$A\$1:\$H\$564 ↑

Choose where you want the PivotTable to be placed

New Worksheet
 Existing Worksheet

Location: ↑

Choose whether you want to analyze multiple tables

Add this data to the Data Model

OK Cancel

This dialog box validates the data range. Excel usually does this properly if there are no blank rows or columns.

You can create the pivot table on a new blank worksheet or in an existing place by using the **Create PivotTable dialog box**. If you want to create a dashboard with many pivot tables, you may choose to place the pivot table in J2 on this worksheet or adjacent to another existing pivot table or pivot chart.

By clicking the **Add This Data to The Data Model check box**, you can create a pivot table from a relational model.

Using the field list to add fields to your pivot table

PivotTable Name: PivotTable2 Active Field: Region

Options Field Settings Drill Down

PivotTable Active Field

| | A | B |
|----|-------------|----------------|
| 1 | | |
| 2 | | |
| 3 | Row Labels | Sum of Revenue |
| 4 | Central | 2375879 |
| 5 | East | 2493003 |
| 6 | West | 1838930 |
| 7 | Grand Total | 6707812 |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |

PivotTable Fields

Choose fields to add to report:

Search

- Region
- Product
- Date
- Customer
- Quantity
- Revenue

Drag fields between areas below:

FILTERS
 COLUMNS

ROWS
 Region

VALUES
 Sum of Reven...

If you began with a blank pivot table, you will see a PivotTable Fields. At the top of the PivotTable Fields section is a list of fields from your original data collection, and at the bottom are four drop zones. To create your report, drag and drop fields into the drop zones at the bottom.

Using the field list to modify the pivot table report

Examine the Region, Product, and **Revenue sections**.

When you choose a text or date field, it goes to the Rows drop zone in the PivotTable Fields list. When you check a numeric field, it goes to the Values drop zone and the field type is changed to Sum of Field.

You can view the Sum of Revenue by Region and Product by selecting **Region, Product, and Revenue**.

You may further personalize the pivot table by rearranging the fields in the drop zones. Drag the Region field, for example, so that it is below the Product field in the Rows drop zone.

How to rearrange a pivot table

The following are the drop zone parts of the PivotTable Fields list box:

- **Filter:** This part is used to filter the report to just specified criteria. The slicer function effectively replaces this part.
- **Rows:** This part contains fields that display on the table's left side. When you pick the check boxes at the top of the field list, all text fields are moved here by default.
- **Columns:** This part contains fields that run along the top rows of your table's columns. *(NB: This is referred to as a crosstab report by old database experts).*
- **Values:** This section contains all the numeric fields summarized in the table. Most values are automatically summed by default, but you may modify the computation to an average, minimum, maximum, or other calculation.

(NB: You can add fields to a drop zone by dragging them from the top of the PivotTable Fields list or from one drop zone to another. Drag a field from a drop zone to the outside of the PivotTable Fields list or uncheck it from the field list to remove it from the drop zone).

Calculating and roll-ups with pivot tables

Pivot tables provide many more calculation choices. The ability to roll daily dates up to months, quarters, and years is one of the most fantastic features.

Daily dates are organized into months, quarters, and years

Good pivot tables begin with high-quality transactional data. That transactional data is almost always recorded with daily dates rather than monthly summaries.

Follow these steps to create a summary by month, quarter, and year:

1. Begin with data including daily dates. Create a pivot table with daily dates in the row field, regions in the columns, and sum of revenue in the value area.
2. Choose a cell that has a date. Select **Group Field** from the PivotTable Analyze tab.
3. Select Months, Quarters, and Years from the Grouping dialog box. Click the OK button.

Follow these steps to create an intriguing alternative to the report:

1. To eliminate the **Region and Quarter fields** from the report, uncheck the boxes next to them.
2. Move the **Years field** from the Rows to the Columns area by dragging it from the Rows to the Columns area.

You now have a pivot table that displays totals by month and quarter as well as compares years throughout the report. You'll see that your pivot table field list contains three date-related fields: The years and quarters fields are both virtual. The months are included in the original Date field. Microsoft made a good design move by allowing years and months to be pivoted to various areas of the pivot table.

Adding calculations outside the pivot table

However, after you've grouped the dates in the pivot table, you won't be able to add a calculated field inside the pivot table, thus you'll have to use ordinary Excel to give the percent Growth column.

The most common stumbling block is step three. Take the following steps:

1. In D4, right-click the **Grand Total** and choose **Remove Grand Total**.
2. In D4, create a heading called percent Growth.
3. Enter $=C5/B5-1$ in cell D5. If you utilize the mouse or arrow keys while creating the formula, you will get stung by the GetPivotData issue.
4. Cell D5 should be formatted as a percentage with one decimal point.
5. In D5, double-click the fill handle to copy the formula to all rows.

Changing a field's computation

By default, a numeric column with the default calculation of Sum will be added to the pivot table. Excel has 10 more computations, including Average, Count, Max, and Min.

The figures in this part begin with a fully new pivot table. You may follow along by doing the following:

1. Remove the pivot table from the previous examples' worksheets. This memory-clears the pivot cache.
2. Choose one cell from the Data worksheet.
3. Select **Insert > PivotTable**.
4. Mark the Region, Product, and Revenue fields with a check.
5. Move Revenue to the Values section two more times. (***NB: They will display as Sum Of Revenue2 and Sum Of Revenue3 in the pivot table***).
6. Select **Report Layout > Show In Tabular Form** from the Design tab.
7. Select **Report Layout and Repeat All Item Labels** from the Design tab.

How to sort a pivot table

Customers are displayed alphabetically in all pivot tables in this chapter thus far. In each of these cases, the report would be more interesting if it were provided arranged by revenue rather than by client name.

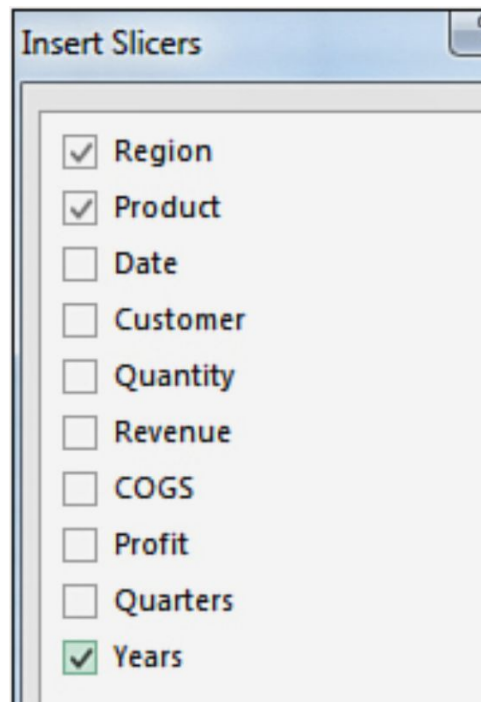
When you click the AZ or ZA icons on the Data tab, Excel creates rules in the Sort and More Sort Options dialog boxes.

- Open a row field drop-down box and choose **More Sort Options** to retrieve these choices later. More Sort Options may be accessed by clicking the **More button** (Customer).

How to filter using slicers

Slicers are visual filters that make it simple to do a variety of ad-hoc analysis. While slicers are simpler to use than the Report Filter, they have the extra advantage of filtering numerous pivot tables and pivot charts built from the same data source.

Adding slicers

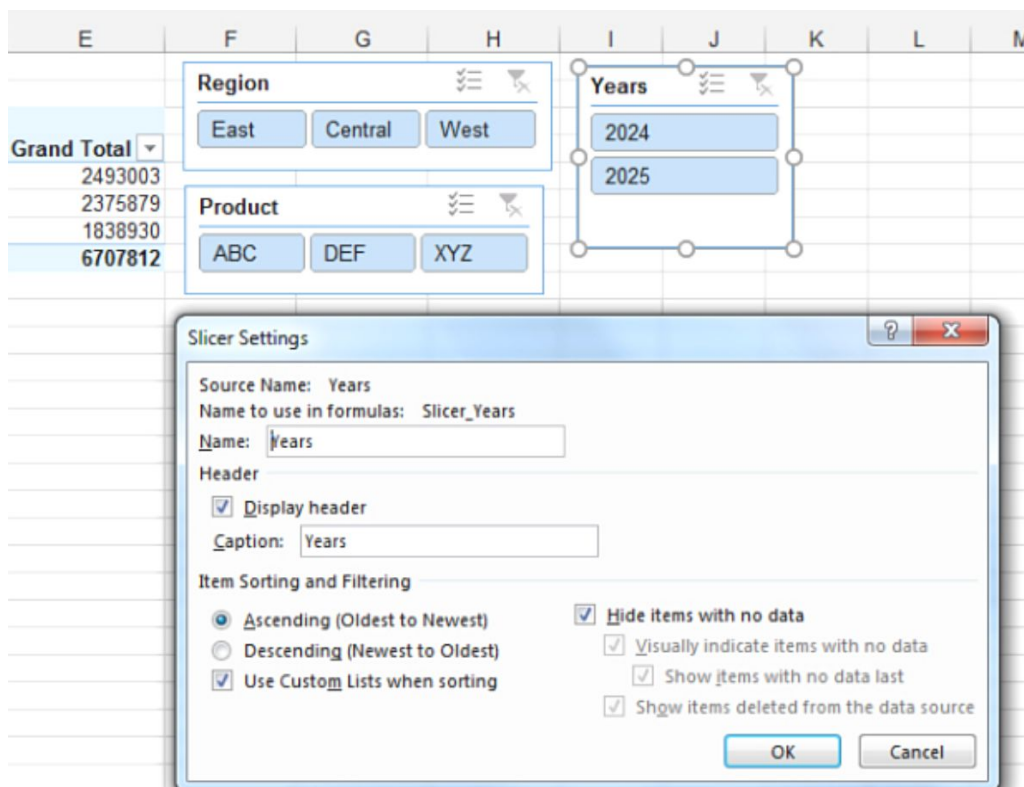


Follow these procedures to add default slicers:

1. Choose one cell from your pivot table.

2. Click the **Insert Slicer button** on the PivotTable Analyze tab.
3. Select any fields that would make good filter fields. The region, product, and years are chosen. Months, quarters, and dates would also work.
4. Click the *OK button*.

Arranging the slicers



The slicers may be repositioned and resized. Choose a logical configuration for the slicers. Here are a few instances.

Short entries can be found in the Region and Product slicers. Extend the width of each slicer and then use the Columns option in the **Slicer Tools Options panel** to increase each slicer to three columns.

The Year slicer is broader than necessary. There are also two more items in the slicer (1/1/2024 and >12/31/2025) that are Auto Group leftovers. These may be disabled in the Slicer Settings dialog box. Choose Slicer Settings after selecting the slicer. Hide Items With No Data is also enabled.

Using Excel's slicers

Choose that item to choose a single item from a slicer. To multiselect in Excel, first select the symbol with three check marks at the top of the slicer. Each item may now be selected by clicking on it.

You can also use the **Ctrl** key to pick several objects that are not adjacent, or drag the mouse to select items that are nearby.

Items in other slicers may become inaccessible as a result of selections in one slicer. In this situation, the items are pushed to the bottom of the list. This indicates visually that the item is not accessible based on the current criteria.

To remove a filter from a slicer, click the **Funnel-X** symbol in the slicer's upper right corner.

Slicers can be set up to filter many pivot tables and pivot charts at once. If both pivot tables use the same data source, the slicers will have an effect on both pivot tables.

If there are numerous pivot tables, proceed as follows:

1. Choose a slicer.

2. Select **Report Connections** from the ribbon's Slicer Tools Options menu.
3. Choose which pivot tables should be filtered by the slicer.

Using the row label filter to filter

To proceed, open the 16-Slicers.xlsx file and create a new pivot table. Examine the fields Customer, Date, Quantity, Revenue, COGS, and Profit. Open the Report Layout drop-down menu from the Design tab. Select Tabular form, then Repeat All Item Labels. On the Design tab, tick the Banded Rows box. You will get the pivot table as a result.

This drop-down menu has four distinct filter mechanisms:

- For fields with text values, the Label Filters fly-out menu shows. You may use this fly-out to find client names that include certain words, begin, end, or fall between specific letters.
- The Value Filters fly-out menu lets you filter consumers based on values in the pivot table. Use the Value Filters fly-out if you only want orders above \$20,000 or if you only want to view the Top 10 clients.
- Excel 2010 introduced the Search box, which is comparable to using Label Filters but quicker.
- Use the check boxes to exclude certain consumers, or use Select All to clear or select all customers.

Clearing a filter

To clear all filters in the pivot table, click the **Clear button** in the Data tab's Sort & Filter group. To remove filters from a single field in the pivot table, enter the filter drop-down menu and pick Clear Filter from **"Field."**

Using check boxes to filter

The Customer drop-down menu lists all of the customers in the database. Clear their check boxes in the filter list if you need to exclude a few particular consumers.

The **(Select All) option** restores any previously cleared boxes. If all of the boxes are already checked, selecting **(Select All)** clears them all.

Because it is simpler to choose three clients than it is to clear 27, if you need to delete the majority of the items from the list of customers, you can do it by following these steps:

1. If any customers have been cleared, choose Select All to reselect all of them.
2. Tap **Select All** to delete all clients.
3. Choose which consumers you wish to see.

CHAPTER NINE

How to create a custom data type in Excel

What if you wish to design your own data types? You will need to define them using Power Query.

The Name column will be shown in the cells, while the other columns will be accessible through the Card or formulae. *(NB: Ctrl+T will format the data into a table).*

To create a new data type, follow these steps:

1. Choose one cell from your data table.
2. Select **From Sheet** from the **Data tab**.
3. Select all the columns in the Power Query Editor. *(NB: You may achieve this by clicking on the first column's heading and then shifting-clicking on the final column's heading).*
4. On the Transform tab, on the far right, click the **Create Data Type button**.
5. If you wish to delete any columns from the data type, click **Advanced** on the Create Data Type dialog box.
6. Give the data type a name and choose which column will be shown in Excel when the data type is presented as a single cell.
7. To exit the Create Data Type dialog box, click OK. Except for the one column used as the Display Column, everything in the Power Query editor is hidden.

8. Select **Home > Close, and Load**. A new worksheet with the data type in column A is added to your workbook.

(NB: Now that the data type has been formed, you can now transfer the query results to another worksheet and the data types will continue to function).

How to use Power Query

The Power Query tools were designed to make it simpler to clean up sloppy data. Assume that your IT department sends you a data set with certain issues every day. Rather than waiting for IT to rebuild the query, you may use Power Query to remember the steps required to clean the data. When the IT department sends you a new file, just reload the query, and Excel will go through all of the data purification stages again.

Column A has two distinct fields separated by a comma. The client column is all capital letters. Columns D through O are a repeating set with varying month values. To pivot this data, you must unpivot D:O, which results in an additional date column and 12 times the number of rows.

Creating a Workflow

Assume that the IT department provides you this information once a month. You may save the workbook in the same folder with the same name, and then create your query in a new workbook. *(NB: This workbook will be programmed to constantly open the file C:FooUglyDataFromIT.xlsx).*

Alternatively, the file they supply each month may need to be integrated with all of the prior monthly files. In such situation, you should create a

new folder to house all of IT's workbooks. This folder should not be used for anything else. A new worksheet containing the query would be saved in a separate folder. In this situation, you'd choose **Get Data, From File, or From Folder**.

Either of the methods described above will make it simpler to update the query in the future. The “**wrong**” technique is to open the file from IT and then construct the query inside it.

Using Power Query to load data

Power Query can import data from the following sources:

- Workbook, PDF, Text, CSV, XML, JSON, or files from a folder
- SQL Server, Access, Analysis Services, Oracle, IBM DB2, MySQL, PostgreSQL, Sybase, Teradata, and SAP HANA are examples of databases.
- SQL Database, Synapse Analytics, HDInsight (HDFS), Blob Storage, Table Storage, Data Lake Storage, and Data Explorer are all available in Azure.
- Power BI: Make a pivot table that is linked to your company's Power BI data.
- SharePoint, Exchange, Dynamics 365, Salesforce Objects, and Salesforce Reports are all available online.
- Other: Microsoft Query, SharePoint List, OData Feed, Hadoop File, ActiveDirectory, Microsoft Exchange, ODBC, and OLEDB

The Get Data menu contains all of the previous items. The first icon on the Data tab is this one. It may be found under the Get & Transform Data section. Several of those options are repeated in the Get & Transform Data section: From Text/CSV, From Web, and From Sheet.

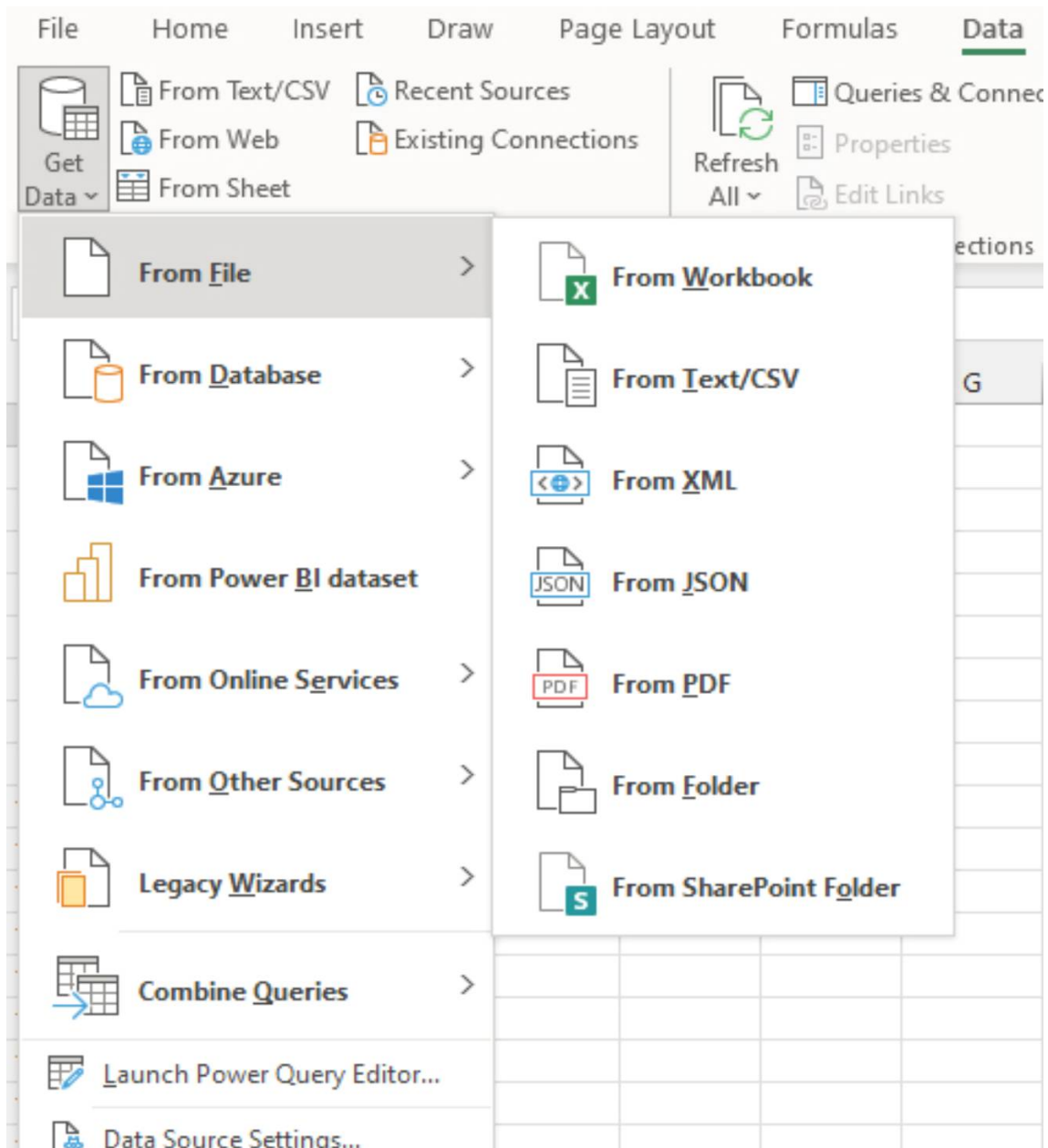
Note: You might have utilized the legacy connections in the past. Previously, the Data tab in Excel included seven icons: From Access, From Web, From Text, From SQL Server, From OData Data Feed, From XML Data Import, and From Data Connection Wizard.

While these seven instructions still exist, they are no longer visible on the ribbon. Go to File, **Options, Data** if you need to access the old commands. You may restore the icons by using the different checkboxes in the **Show Legacy Data Import Wizards section**. Any icons you choose here will display in the Data, Get Data, and Legacy Wizards sections.

Loading data from a single Excel workbook

Make a new workbook using a blank template. Make a name for the worksheet, such as PowerQueryToLoadUglyData.xlsx.

- Select **Data > Obtain Information > From Workbook > From File**.



Depending on the source, you will need to navigate to the file, supply a database connect string, or offer a URL.

The Navigator dialog box will be shown. Nothing is shown in the Data Preview on the right at first. Click on the **Data worksheet** on the left side of the dialog box. The Preview will be shown on the right.

You have the option to Load, Transform Data, or Cancel below the Preview. You should choose Transform Data so that you may define the data cleanup processes.

Unpivoting data in Power Query

It is fairly typical to encounter data that spans months or years across columns. This structure's pivot tables are quite difficult to use. Previously, repairing the data structure required repetitive copying and pasting or using an esoteric method called **Multiple Consolidation Ranges**. This technique is made quite easy with Power Query.

The first four columns have been chosen. Transform, Unpivot Columns, and Unpivot Other Columns are the options.

Choose the **Date column**. On the Transform tab, look at the Data Type value. These dates are being treated as text by Power Query. Select Date from the Data Type drop-down option when the Date column is chosen.

If there are customers who had no revenue in a certain month, you may eliminate such records by using the Filter drop-down option on the Value column and unchecking 0 values.

Adding columns in Power Query

The new Column from Examples tool in Power Query is similar to Excel's Flash Fill. Column From Examples generates a formula that may be reused in the future. To add a column in Excel 2016, you had to construct a new formula.

The formula language is not the same as Excel. Date is the method for obtaining a month name from a date. MonthName([Date]). Power Query refused to accept a date. Date or monthname Monthname. Date has to be typed. MonthName in all capital letters.

Today, the new Column from Examples tool makes the procedure easier. Take the following steps:

1. Click on the **Date column**.
2. Select **Add Column, Column From Examples in Power Query**.
On the far right side of the window, a new Column1 emerges.
3. In Column 1, click the first cell and write January.
4. Power Query will provide a Month Name From Date option. Click the **OK button**.

Month Name will be added as a new column in Power Query. Choose View, Formula Bar if you don't see the formula bar above your data. The formula bar demonstrates that Month Name From Date employs the Date. MonthName([Month]) is a function. This is helpful if you want to learn Power Query formulae.

How to append one worksheet from every workbook in a folder

The greatest Power Query method is to consolidate all single-sheet workbooks from a single folder.

Select **Get Data, From File, From Folder from Excel**, and then specify the folder. Power Query will provide a list of the files in the folder. Select **Combine & Edit**. Select the appropriate worksheet from the Navigator screen.

Also, Power Query is intelligent enough to highlight the first row of the first file as headers. It will then remove all other headers from the remaining workbooks.

If you have additional columns in certain files, those columns will display in the final query, along with the phrase “null” for entries that do not contain the extra column.

Additionally, if new workbooks are added to the folder over time, you can simply click **Refresh** to have Excel refresh everything from the folder.

How to add worksheets from one workbook to another

What if you have a workbook with many worksheets that you need to combine? You must ensure that all spreadsheets have the same columns in the same order.

Take the following steps:

1. Assume you have a workbook with a number of worksheets. Because it merely includes boilerplate instructions, one worksheet does not need to be merged. Close the workbook and begin over with a fresh blank workbook.
2. Select **Data, Get Data, and From Workbook**.
3. Locate and select the worksheet.
4. At the top left of the Navigator, there is a folder with the name of the workbook and a list of worksheets. Select **Transform Data** from the context menu when you right-click on the folder name. This step is not evident, yet it is critical for combining worksheets.
5. The Power Query Editor is launched. There will be one row for each worksheet and a second set of rows containing the worksheet's secret names. To delete the DefinedName entries, use the Filter drop-down option in the Kind column. Remove any sheets that should not be joined by using the Filter drop-down option in the Name column.
6. Select **Remove Other Columns** from the menu that appears when you right-click the **Data heading**.

7. To the right of the Data heading, click the **Expand symbol**. Uncheck the **Use Original Column Name As Prefix box**. Click the **OK button**. All records from all worksheets are combined by the Power Query Editor. It should be noted that the headers in row 1 should be promoted. The remaining headers at the top of each spreadsheet must be removed.
8. Select **Use First Row As Headers** from the Power Query Editor Home menu.
9. The first column in this data collection has the header “**Region.**” Deselect Region from the filter drop-down option for this column. *(NB: This will delete all of the heads from the data).*
10. Select **Close & Load** from the Home tab. *(NB: All records from all worksheets in the other workbook will be included in the resultant data collection).*

How to add automatic subtotals

If you have a complex data database, you may wish to add subtotals to each set of entries. If your data just has one field that identifies the groups, you may rapidly add the subtotals using the Subtotals command.

To add subtotals to a data collection, follow these steps:

1. Sort the data set according to your group field. Column D, Customer, is the case in this scenario. Select one of the cells in that column, then Data, Sort & Filter, AZ.
2. Choose one cell from your data collection.

3. Choose **Data, Outline, and Subtotal**.
4. Change the At Each Change In drop-down choice in the Subtotal dialog box to suit your group field.
5. Check that the Use Function is set to Sum.
6. In the Add Subtotal To list, choose the field for each field you wish to total.

How to subtotal multiple fields

Assume you wish to add subtotals based on location and product. The subtotals will be added twice. Make sure the **Replace Current Subtotals check box** is unchecked in the second Subtotal command.

Check that your data is appropriately organized. You may sort by area and then by product using the **Sort dialog box**, or you can follow these procedures, which take just four clicks:

1. Choose one of the cells in the **Product column**.
2. On the Data tab, click the **AZ button**.
3. Choose one of the cells in the Region column.
4. On the Data tab, click the **AZ button**.

This combination of steps successfully sorts by product inside the area since the sort in step 4 maintains the ties from the prior sequence.

(NB: It is critical to add subtotals to the outer group first. Rerun the Subtotals command. This time, indicate Each Product Change. Uncheck the Replace Current Subtotals box).

There are now four Group and Outline buttons. When you hit the #3 button, you'll see product and region totals. It's worth noting that Excel allows for a maximum of eight Group and Outline buttons, allowing you to create up to six layers of subtotals.

Using subtotals as a tool

To the left of column A, you'll see three new buttons labeled 1, 2, and 3. Those buttons are known as the Group and Outline buttons, and they were automatically added by the Subtotals command. They are essential for further subtotal analysis.

Displaying a one-page summary that simply includes the subtotals

To the left of and immediately above cell A1, click the #2 button. Excel conceals all detail rows except the customer subtotals and the Grand Total row.

You would have a one-page summary of the 500+ rows of data after adjusting the print area.

Excel conceals everything but the Grand Total when you select the #1 Group and Outline button. When you click the #3 button, Excel returns to the detail rows.

Sorting the collapsed subtotal view such that the biggest customers appear first

You have the customers listed alphabetically. Your management, on the other hand, would most likely prefer to see the biggest clients at the top of the report.

Consider this suggestion, though. The subtotal for Excel4Apps in row 211 is one of the major consumers in the group, summing together data from rows 151 through 210. If you attempt to sort in descending order and the data in row 211 gets to row 3, the algorithm that looks at 60 rows of data will almost likely return a #REF! error.

However, you can quickly sort data while it is in the compressed #2 view. Take the following steps:

1. Perform the subtotals stated previously.
2. Click the #2 Group and Outline button to collapse the subtotals.
3. Choose a single cell in your revenue column.
4. On the Data tab, click the **ZA button** to sort in descending order.

How to filter records

The function that was formerly known as **AutoFilter** is now renamed as **Filter**. The command includes additional functions in addition to its new name. Filtering works on any range of data that has headers in the first row. It supports both table-defined ranges and conventional ranges.

Microsoft introduced the following functionality when they renamed AutoFilter to Filter:

- The **Search field** allows you to look for values that include a wildcard. You can add the results of the search to a previous filter. As a result, you could instantly discover all entries containing the words “**bank**” or “**credit union.**”
- The Filter drop-down menu has a multiselection option. It is now simple to choose two, three, or 10 values from the filter. On the other hand, filtering to a single value is little more difficult since you must first uncheck the **(Select All)** option.
- You can narrow down your search by color or icon set.
- You can also filter text columns based on cells that start with, finish with, or include a value.
- Number columns may be filtered based on cells that are greater than, less than, or between values. You have the option of selecting Top 10, Above Average, or Below Average.
- Date data can be filtered by year or month. You may narrow your search by conceptual values like This Month, Last Quarter, or Year To Date.
- You have the option of filtering by selection. Rather of selecting a value from the Filter drop-down box, you may use Filter By Selection to limit the data to that value.

When one column has values of the same kind, the different functionalities operate well. For example, if you have dates in a column, Excel wants all columns except the header to be dates. Based on what it sees in the column, Excel provides specific text, numeric, or date forms.

Using a filter

The toggle icon for the filter drop-down menus turns the functionality on and off. To enable the functionality, just click the symbol once. To disable the function, click the symbol once again. Before you can use the filter, you must first choose one cell from your data range. There should be no blank rows or columns in the filtered range.

You can enable the filter drop-down menus using any of the following methods:

- Select **Sort & Filter, then Filter, from the Data tab.**
- Select **Filter** from the Sort & Filter drop-down option on the Home tab.
- Use a table format to format a range.
- Right-click any cell, choose **Filter**, and then choose one of the Filter choices. In addition to running the filter, this will enable the Filter function if it was not already enabled.
- Select any value and then the **AutoFilter icon** from the QAT. Excel has had the Filter By Selection capability since 2003, but the symbol has never been featured in the normal user interface. In addition, this icon has always been labeled incorrectly in the Customize dialog box.

When you enable the filter, a drop-down menu arrow appears next to each heading in the range.

Using the Advanced Filter command

Excel still has the Advanced Filter command. Microsoft should rename this function since it is quite strong and performs much more than filtering. The Advanced Filter command, on the other hand, is one of the most perplexing operations in Excel. This is especially true since the Advanced Filter may be used in eight distinct ways, each with somewhat different processes.

Note: Filtered results may only be copied to the current sheet, not to a new sheet. If you start on a blank sheet, you may indicate that you wish to filter data from another sheet and bring it into the current sheet.

The Advanced Filter dialog box has three options, and based on your selections for those three options, you may have the following potential combinations:

- You have the option of **Filtering In Place or Copying To A New Location**.
- You may filter using a criterion range or without any criteria.
- You have the option of returning all matched values or simply the unique ones.

In actuality, Advanced Filter may be used in more than eight ways. If you opt to transfer records to a new location, you may either replicate all the input columns in their original order or select a subset of columns and/or a new column sequence.

You can create a basic filter for a single column. For numerous columns, you may combine any number of filters. You can create very complicated filters using any formula you can think of. You might also use no criterion at all. When you wish to use Advanced Filter to extract unique values or to reorganize the sequence of columns, it is normal to utilize no criteria.

Follow these procedures to apply Advanced Filter to a data set:

1. Copy one or more headers from your data collection to a blank area of the worksheet if you are using criteria. List the value(s) you wish to include under each header.
2. If you're using an output range and wish to reorganize the columns or include a subset of them, copy the headers into the correct order in a blank part of the worksheet. The output range may be any blank cell if you want all of the original columns in their original order.
3. Choose a cell from your data range.
4. Choose **Data, Sort & Filter, and Advanced**.
5. Confirm that the list range includes your original data collection.
6. Enter the criterion range if you are using criteria.
7. Select **Copy to Another Place** if you wish to move the matched records to an other location. *(NB: This allows the Copy To reference box. Fill in the blanks with the output range).*
8. Select **Unique Records Only** if you want the output range to include only unique values. If your output range has a single field, a list of the values in that field that meet the requirements is presented. If your output range includes two or more fields, each distinct combination of those two or more fields is presented.
9. Click OK to run the filter.

Combining duplicates and adding values

Each client appears on the list one or more times, with sales, cost, and profit figures. You want to know the entire sales and profit for each client, in

addition to obtaining a unique list of customers. A pivot table may be used to calculate the total sales for each client. Alternatively, you may utilize the data tools to reduce the table to one entry for each client.

Follow these procedures to utilize the Consolidate function to total sales from all records for that customer:

1. Rather of pre-selecting the data, move the cell pointer to a blank portion of the worksheet.
2. Choose **Data, Data Tools, and Consolidate**.
3. In the Consolidate dialog box, in the Reference box, enter the reference to your data. The data will be merged depending on the field in the range's left column. If you have numerous customer lists, you may add more ranges by clicking the Add button.
4. In the Use Labels In section, make sure the Top Row and Left Column check boxes are checked.
5. Select OK.

CHAPTER TEN

Excel tips and tricks

Inserting a symbol in a cell

Many symbols are usually inserted using obscure key combinations. You do not, however, have to learn any of them. Instead, you may open the Symbol dialog box by clicking the Symbol icon on the Insert tab.

You can navigate through various subsets of the current typeface in the Symbol dialog box. When you've found the right symbol, select it and press the Insert button.

Watching the results of a distant cell

You may need to keep an eye on a single result on a worksheet different than the one you're now in at times. For instance, you can have a workbook in which assumptions on numerous pages result in a final ROI. It would be useful to know the impact on ROI when you adjust the assumptions.

It might be time consuming to repeatedly go back and forth between the results worksheet and the changes worksheet after each modification. Instead, you may configure a watch to display the current value of the distant cell (s).

Follow these steps to set up a watch:

1. Choose **Formulas, Watch Window** to bring up the floating Watch Window dialog box on top of the worksheet.
2. In the Watch Window dialog box, click **Add Watch**.
3. In the Add Watch dialog box, click the **RefEdit** button, then choose the cells to monitor.
4. To add the cell(s) to the Watch Window dialog box, click **Add**. Steps 2–4 should be repeated as needed.
5. Move the Watch Window dialog box above your worksheet to an out-of-the-way area so you may continue working. It is important to note that the Watch Window may be docked above the formula bar.

(NB: The Watch Window dialog box displays the current value of the monitored cells whenever you make a modification to the worksheet).

Protecting a worksheet

If you have a lot of formulae in a worksheet, you may wish to keep them from being changed by others. In most cases, your worksheet will include some input variables at the top. You may want to allow those elements to be modified, but you may not want to allow changes to your formulae.

To secure a worksheet, do the following steps:

1. In your worksheet, select the input cells. These are the cells you want someone to be able to modify.

2. Hit **Ctrl+1** or go to the Home tab's Cells group and pick Format, Format Cells.
3. Clear the **Locked check box** on the Format Cells dialog box's Protection tab. Click the OK button.
4. Choose **Review > Protect Sheet**.
5. Change what can happen in the protected worksheet, if desired.
6. Click **OK** to activate the protection.

Editing an equation

The Insert tab's Equation drop-down menu has eight prebuilt equations. If you need one of these equations, you may have to choose it from the drop-down option.

Insert a shape in the worksheet first if you need to create another equation. Insert, Equation, Insert New Equation when the shape is chosen. The form now has a blank equation.

It may seem to be a minor detail, but you must be within the equation to access the Equation Tools Design tab. To input a mathematical symbol, use the ribbon to access the different drop-down choices. Three placeholders are used for certain symbols. These are little text boxes into which you may enter different values.

Calculating a formula in slow motion

If you have a particularly complex formula, you can watch Excel compute it in slow motion. This might assist you in identifying any logical problems in

the spreadsheet.

Follow these steps to assess a formula in slow motion:

1. Locate the cell containing the formula.
2. Formulas are chosen and evaluated. The formula is shown in the Evaluate Formula dialog box. One of the formula's elements is highlighted, indicating that it will be computed next.
3. Click **Evaluate** to view the value of the highlighted element right away.
4. Instead of clicking Evaluate, click Step In to see how that element is computed. Excel displays the element's formula.
5. Finally, the final level is assigned a number. Step Out to return to the previous level of the dialog box.
6. Continue to click Evaluate until you reach the result indicated in the cell.

Inserting and exploring 3D models

Almost 50% of all manufacturing organizations use 3D printing as a quick prototyping tool.

Excel supports the following file formats: Filmbox (*.fbx), Object (*.obj), 3D Manufacturing Format (*.3mf), Polygon (*.ply), StereoLithography (*.stl), and Binary GL Transmission (*.glb).

- Select **3D Models** from the **Insert tab**. Microsoft provides a few example files, but you may import any file you have.

Using the inking tools and the Action Pen

The Draw tab on the ribbon is most likely a well-used tool in PowerPoint. Because the functionality had previously been built for PowerPoint, it was made available to Word and Excel.

If you don't see the Draw tab in Excel, do the following:

1. Select **Customize the Ribbon** from the menu that appears when you right-click the ribbon.
2. On the right side of the Excel Options window, there is a list of all of Excel's built-in tabs. Locate and choose the **Draw tab**.
3. To dismiss Excel Options, click **OK**.

(NB: Microsoft introduced the Action Pen to the Drawing Tools collection on the right side. You may draw numbers or letters with the Action Pen, and Excel will transform them to text or numbers).

CHAPTER ELEVEN

Auditing worksheets using Inquire

You can activate the Inquire add-in if you have Office Pro Plus or a Microsoft 356 E3 subscription or above. The add-in provides tools for detecting possible issues in workbooks. You may see a visual map of connections, flag cells that indicate possible issues, and compare two versions of the same worksheet.

- Select **File > Options > Add-Ins** to enable Inquire.
- Choose **Manage Com Add-Ins** at the bottom of the screen and press **Go**.
- Select **Inquire and press OK**.

Assume you have a workbook that you want to email to a coworker for evaluation. When you get the modified version of the workbook from your coworker, you want to examine whether any modifications have been made to the workbook.

Rename one or both workbooks so that you know which the original is and which the modified version is. Launch both workbooks. Select **Compare Files** from the Inquire tab. In the Compare drop-down option, choose the newer, modified version of the worksheet. In the To drop-down option, choose the original worksheet. This may seem to be a step back from how you would expect the files to be supplied.

(NB: The findings are shown in the Spreadsheet Compare tool once you click Compare. If you don't want to modify the cell formatting, uncheck

the box in the bottom left corner of the window).

The two workbooks are shown at the top of the window. Any modifications are color coded to match the color legend in the bottom left.

Formatting with styles

Instead of using the Font group of the Home tab's options, you may prepare a report using the built-in cell styles. For more than a decade, cell styles have been popular in Microsoft Word. They were accessible in previous versions of Excel, but since they were not included to the Formatting toolbar, few users used them.

Cell styles have the benefit of allowing you to change the appearance and feel of a report by selecting a theme from the Page Layout tab.

A menu option in the Cell Styles gallery allows you to add extra styles to a workbook. Using cell styles as an alternative to the usual manner of formatting is an intriguing option.

Using traditional formatting

Formatting is usually done via the **Format Cells dialog box** or with the formatting icons on the Home tab.

The classic formatting icons in Excel are found on the Home tab in the Font, Alignment, and Number groups. Additional column and row formatting instructions may be found in the Cells group on the Home tab's Format drop-down menu.

If your preferred setting is not on the Home tab, you may reach it through one of the four entry pathways to the Format Cells dialog box, which includes extra options such as Shrink To Fit, StrikeThrough, and other border settings:

- Press **Ctrl+1**, which is Ctrl plus one. Ctrl+Shift+F will bring up the Font tab in the same dialog box.
- In the Font, Alignment, or Number groups, click the dialog box launcher icons in the lower-right corner. Each icon opens the dialog box, focusing on a particular tab.
- Select **Format Cells** from the context menu when you right-click any cell.
- On the Home tab, under the cells group, choose **Format Cells** from the Format drop-down menu.

The Format Cells dialog box has the six tabs shown below:

- **Number:** Provides complete control over numeric formatting. You may choose among 96,885 built-in formats or build your own using the Custom category.
- **Alignment:** Provides options for horizontal and vertical alignment, rotation, wrapping, merging, and shrinking to fit.
- **Font:** This option controls the font, size, style, underlining, color, strikethrough, superscript, and subscript.
- **Border:** Sets the line style and color for each cell's four borders and diagonals.
- **Fill:** Over 16 million fill colors and patterns are available.

- **Protection:** When the sheet is protected, it may be used to lock or unlock cells or conceal their contents from view.

Using the Home tab to switch between numeric formats

If you've ever gone hardware shopping, you've undoubtedly seen how a general-purpose store may have nearly everything you need but seldom precisely what you need. At this point, you probably regret stopping at the general-purpose store instead of driving another mile down the road to Home Depot or Lowe's, where you can always locate precisely what you need.

Using the Number group on the Home page is similar to buying at a general store. It includes a lot of number formatting options, but they aren't always what you need. When this occurs, you are sent to the Number tab of the Format Cells dialog box.

To begin, there are three icons: one for currency, one for percentage, and one for comma style. The Percentage icon is beneficial. Unfortunately, the Currency and Comma symbols apply an Accounting style to a cell, which is unsuitable for anybody other than accountants. Furthermore, these three icons are not toggle buttons, which means that when you use one of them, the only option for rapidly returning to a generic style is Undo.

The Decimal Increase and Decrease icons are helpful. Each of these buttons causes Excel to display one more or one fewer decimal place. If all of your numbers have two decimal places, two clicks on the **Decrease Decimal button** will remedy the issue.

The following list contains several comments and warnings regarding using the number styles from the Home tab's drop-down menu:

- A number format is used in general format. If necessary, decimal places are shown. There is no usage of a thousands separator. A negative number is denoted by a minus sign before the number.
- There is no thousands separator in the number. Even with numbers that do not need decimal places, it imposes two decimal places.
- Currency is a format that everyone may use. The currency sign appears just before the number. Every number is stated to two decimal places. Negative numbers are denoted by a hyphen before the number.
- Currency symbols are placed to the left border of the cell. Positive numbers appear one character from the cell's right edge, allowing them to match up with negative numbers.
- When percentage is chosen from the drop-down menu, it utilizes two decimal places. This is one format where the ribbon icon rather than the Format Cells dialog box is preferable.
- Fraction displays a fraction with a one-digit divisor by default. If you have a number like 0.925, various Excel number formats will accurately display it as 15/16. Regrettably, the Fraction option in this drop-down menu only allows only one-digit divisors.

Changing numeric formats in the Format Cells dialog box by using built-in formats

The number formats available in the **Format Cells dialog box** are more extensive than those available on the Home tab. Only the Format Cells dialog box provides access to my preferred number format.

The **Format Cells dialog box** may be accessed by selecting the dialog box launcher icon in the lower-right corner of the Number group on the Home tab. The **Number tab** is the active tab when you access the Format Cells dialog box in this manner.

On the left side of the **Number tab**, there are twelve categories. Each of the General and Text categories has a single setting. The Custom category allows you to create any number format by using formatting codes. The next nine categories each provide a set of controls for modifying the numeric format.

Using thousands separators with numeric formatting

The thousands separators make it easier to read the number. The decimal places may be removed from the numbers. Microsoft does not provide buttons to pick this format on the Home page. The comma button is an ideal location for it, however Microsoft allocates it to the accounting format.

Follow these procedures to format cells in numeric format:

1. To open the Format Cells dialog box, use **Ctrl+1**.
2. From the Number tab, choose the **Number category**.
3. Check the Use 1000 Separator box.
4. Set the **Decimal Places spin button** to 0 if desired.

5. Choose a technique for showing negative integers if desired.

Understanding Themes

A theme is a set of color schemes, typefaces, and effects. Office comes with 20 pre-installed themes. If you've updated from a prior version of Windows, you may also download new themes from Office Online or create your own.

Themes are shared in simple XML files, allowing them to be distributed across an organization. A theme is made up of the following elements:

- **Fonts:** A theme includes two fonts: one for body text and another for titles. Fonts are used more often in PowerPoint and Word than in Excel. Styles in Excel, on the other hand, make use of typefaces as well.
- **Colors:** There are 12 colors in total: four for text and backgrounds, six for accent colors used in charts and table accents, and two for hyperlinks. One of the two colors for hyperlinks denotes followed hyperlinks, while the other color shows unfollowed URLs. The colors given here are shown at the top of the **Color Chooser**.
- Object effects, such as bevel and line style, are included in each theme.

Selecting a New Theme

The Page Layout tab is where you manage your themes. The four drop-down menus accessible in the Themes group are listed below:

- **Themes:** Allows you to choose between the pre-installed themes.
- **Colors:** Changes the color scheme to allow you to utilize colors from another theme.
- **Fonts:** Allows you to use fonts from a different theme.
- **Effects:** Allows you to utilize effects from a different theme.

(NB: Theme changes have an impact on charts, tables, SmartArt diagrams, and added objects).

To switch to a different theme, do the following:

1. Position your worksheet such that any themed components, such as tables or charts, are visible on the right side of the screen.
2. Select the Themes drop-down menu from the Themes group from the **Page Layout tab**.
3. Hover your mouse over the different themes. The worksheet is refreshed to reflect the updated colors, fonts, and effects.
4. When you've found a theme you like, click it to apply it to the workbook.

If you are just interested in the accent colors, go to the Themes group and pick the Colors drop-down option to view the accent colors used in each theme. It's worth noting that this drop-down menu has a grayscale option that the Themes drop-down menu does not.

CHAPTER TWELVE

How to share documents with others

There are at least three methods for sharing a cloud-stored document. The Excel team introduced the possibility to share the workbook in the **Save This File dialog** to make sharing more visible.

Sharing documents with others

From a new document, use **Ctrl+S** to bring up the contemporary **Save This File window**. Once you've selected an online location, the same dialog allows you to optionally collaborate with others.

Using the Share button to share

If you wish to share the workbook later, click the **Share button** in the upper right corner of the Excel screen. In this dialog, you have additional options. You have the option of creating a connection. Use the Pencil symbol to choose whether you want the user to be able to modify or merely read.

In the **Link Settings window**, you can specify an expiry date, block the document from being downloaded, and perform other things by clicking the **Link Settings button**. It is important to note that Block Download is only possible if you deselect **Allow Editing**.

Sharing by mentioning in a modern comment

The third method of distributing the file is to @Mention someone in a remark or to give a task to them through a comment. More about mentions and tasks may be found later in this chapter.

You might readily envisage sharing a workbook with three people of your department. In a remark, someone poses a query concerning a cell. “This isn’t my region,” the respondent responds. Let us consult with @Joe in Finance.” Despite the fact that Joe from Finance was not one of the contributors, the workbook has now been shared with him so that he may respond to the criticism.

After a few weeks of working on the paper, you may have a large number of persons who were named and now have access to it. You’ll need a mechanism to keep track of who has access.

Sorting and filtering using Sheet Views

How would Excel know how to compute these formulae if each user could filter independently?

The issue was resolved in 2019. To set up and handle numerous data views, use the new Sheet View group on the left side of the View tab.

The “**actual**” version of the worksheet is called Default. When a user attempts to Sort or Filter, they are urged to have the action display exclusively for them. If they choose this option, a new view named Temporary View is produced. If you like the temporary view and wish to use it again, click Keep and give it a name like BillView.

Once you’ve made a view permanent, everyone working on it will be able to choose it. When you restrict the data set to just Bill records, the Others

Are Making Changes dialog box displays. It asks whether you want to view other people's sorting and filtering. You have the option of seeing just mine or seeing everyone's. The obvious alternative is to just view your filters.

If you dismiss the notice, you may use the **New icon** to create a new Sheet View.

Excel provides a new Sheet View called Temporary View if you choose See Just Mine. This indicates that you are the only one who can see this version of the data.

External workbooks that connect to this worksheet, on the other hand, will acquire the Total Visible from the Default View. Also, the column letters and row numbers now have a black backdrop. This serves as a reminder that you are in Sheet View.

When you have a **Temporary View**, you can return to the **Default View** by clicking the Exit symbol on the View tab. If you wish to return to this Sheet View regularly, utilize the Keep icon and give the view a name.

It's worth noting that if you build a view named BillView, everyone participating will have the opportunity to switch to that view.

Editing the same workbook at the same time

When you ask someone to collaborate on a workbook, they will get an email with a link to the workbook. The worksheet will also appear in the **Shared with Me** and **Recommended for Me** sections of the Excel Home screen for the other individual.

Previously, if many users had access to the same worksheet, it was a “one-at-a-time” scenario. You may now all edit at the same time. *(NB: The only restriction is that you should not alter the same cell at the same time).*

Using presence to see who else is editing

Numerous cell pointers appear when multiple users are editing the same worksheet at the same time. In your session, the active cell will be green. Each individual editing will be given a separate color cell pointer.

The presence of little circles in the upper right corner of the Excel window shows who is present and editing the file. Hover your mouse over any circle to see their complete name and the cell they are presently working on.

It takes some practice to figure out which cell pointer belongs to you. Some users on UserVoice have requested the option to conceal all presence features since it might be irritating to watch the cell pointers for many peers moving across the screen.

Etiquette for editing at the same time

You’ll be OK if you don’t choose any cells that other people are modifying. When someone begins altering a cell on another computer, an animated

three dots will show next to that cell. This signifies that the cell is being edited by someone else.

Wait until they have finished modifying the cell and the cell has updated. After then, you may modify the cell.

If two persons make changes to the same cell at the same time, Excel will pick a winner. In most circumstances, the last individual to update the cell “wins,” but not always. Coauthoring is supported in various ways by different endpoints. Sometimes, a person using an earlier version of Excel will not have complete coauthoring functionality, and that person will always win. You may prevent the issue by avoiding picking a cell that is being edited by someone else.

How to store documents in the cloud

To collaborate successfully, the document must be saved on the cloud. Today, this translates to OneDrive.

Additionally, your workbooks will always be accessible if you save them to OneDrive. You are not required to copy them on a flash drive. You don't have to keep the flash drive in your pocket. If you work three days from home and two days in the office each week, the files will always be accessible in any location.

They will be provided with one caveat: they will be available until the Internet fails. Even in these instances, the Windows and Mac versions of Excel will allow you to continue working on a document. When the Internet is restored, the changes you make will be aggregated and applied to the online version of the workbook.

Here's a crucial distinction: Store your worksheets on the cloud while continuing to work in the desktop version of Excel.

People seem to believe that since a document is saved on the cloud, you must work in Excel Online. Perhaps your boss requires immediate action, and you are visiting your grandma, who does not have Excel. In such scenario, you might use Excel Online to make the necessary changes.

There is one instance where you may wish to experiment with Excel Online. New features have been introduced first in Excel Online, then in Windows and Mac, and ultimately in Excel for mobile devices.

Tracking who did what in the workbook

Most people's concern when requesting colleagues to collaborate on a worksheet is that someone would mistakenly change a formula, sort a portion of the data, and so on. You could secure sheets and workbooks on desktop Excel, but as of June 2021, such proactive techniques of securing a workbook are no longer available in Excel Online.

Microsoft has given tools to enable you reactively erase unwanted modifications made by others until sheet protection is added to Excel Online:

- The **Show Updates tool** displays all workbook changes made in the previous 60 days. You can see everything written into the cell, as well as who did it and when. If a cell has been updated many times, Show Changes will display the whole history. You have the option of reverting to any prior setting.

- Version History displays the workbook's latest 25 revisions. The modifications made in each version are visible in Excel Online. You can restore to a previous version or save a copy of a previous version.

Using threaded comments, mentions, and assigning tasks

Previously, a single cell could only contain one note. The new threaded comments feature is one of the enhancements to the collaborative environment. Select a cell and then Review, New Comment to begin a comment thread.

While composing your remark, you may address it to a specific individual by inserting a @ symbol followed by the person's name. This is referred to as a **@Mention (pronounced "at mention")**.

As of 2021, the @Mention system will need Microsoft Exchange's Active Directory functionality. This implies that @Mentions will not operate in Excel's home or consumer versions. Microsoft would love to find out how to make @Mentions work for home users, so it may be operational by the time you read this.

More so, you can create a task for someone if you @Mention them in a remark. A popup opens after you type the @Mention, asking whether you wish to create a task. Task creation is currently being rolled out as a new feature. It's functioning in Excel Online, but it has to be available on desktop and mobile devices as well. ***(NB: However, you may expect them to integrate tasks with either Outlook Tasks or Microsoft To Do).***

Each new comment has a green paper aircraft symbol in the bottom left corner. To add a remark to a cell, click this symbol.

CHAPTER THIRTEEN

Printing

How to work with page breaks

There are two types of page breaks: automatic and manual. When Excel hits the bottom or right margin of a physical page, an automatic page break happens. These page breaks vary automatically when you modify the margins, add or remove rows, or change the height of certain rows on the page.

Initially, the spreadsheet does not display automatic page breaks. However, if you exit Print Preview and return to Normal view, automatic page breaks are shown in the document as a thin dashed line. Page Layout view and Page Break Preview mode both show automatic page breaks.

To disable the page breaks, go to File, Options, Advanced, Display Options for This Worksheet and uncheck the Show Page Breaks option. If this is something you do regularly, the shortcut keys `/fta` followed by `Alt+k` will bring you there.

You can manually insert page breaks where you wish to start a new page in rows or columns. For example, at the beginning of a new part of a report, you may wish to place a manual page break. A manual page break does not alter in response to changes in the rows of the worksheet.

Adding page breaks manually

Follow these procedures to manually insert a page break at a certain row:

1. Click the row number that should be the first row on the new page to choose a full row. Alternatively, choose the cell in that row's column A.
2. Select **Page Setup, Breaks, and Insert Page Break** from the Page Layout tab.

Follow these procedures to manually insert a page break at a certain column:

1. Click the letter above the column that should be the first column on the new page to choose a whole column. Alternatively, choose row 1 from that column.
2. Select **Page Setup, Breaks, and Insert Page Break** from the Page Layout tab.

Note: When you insert a page break when the cell pointer is outside row 1 or column A, Excel inserts a row page break and a column page break at the same time. This is almost never what you desire. Make careful to insert a row break by selecting a cell in column A or a column break by selecting a cell in row 1.

Manual versus automatic page breaks

There is a small visual difference between manual and automated page breaks in Normal mode. The dashed line indicating a manual page break is more apparent than the line indicating an automated page break.

To have a clearer view of page breaks, go to **View, Page Break Preview** and choose **Page Break Preview mode**. Automatic page breaks are shown

as dotted blue lines in this mode. Manual page breaks are represented by solid lines.

Making adjustments using Page Break Preview

Page Break Preview mode has the benefit of allowing you to move a page break by dragging the line connected with the page break. When you drag an automated page break to increase the number of rows or columns on a page, Excel adjusts the Scale % for all pages.

Removing manual page breaks

To remove a manual page break for a row, do the following:

1. Place your cursor on the row below the page break.
2. Select **Page Setup, Breaks, and Remove Page Break** from the Page Layout tab.

To remove a manual page break for a column, do the following:

1. Place your pointer in the column to the right of the page break.
2. Select **Page Setup, Breaks, and Remove Page Break** from the Page Layout tab.

*(NB: Select **Page Setup, Breaks, Reset Any Page Breaks** from the Page Layout tab to eliminate all manual page breaks. It's worth noting that removing the page breaks returns the scale to 100%).*

How to find print settings

In Excel, you can change the print settings or page setup at least nine times. The most frequent duties may be found in a variety of areas. You may, for example, modify the margins in five of the nine spots. Four of the nine locations allow you to adjust the paper size and orientation.

When you get to the more esoteric settings, you may only be able to discover them in one or two locations. You can find out where you may be able to adjust the setting for every specific job.

Here's where you can locate each location:

- **File > Print:** To show the **Print panel**, open the **File menu** and choose **Print**. This panel contains Printer and Page Setup options in the middle, as well as a huge Print Preview on the right.
- **The Ribbon's Page Layout Tab:** In the ribbon, choose the Page Layout tab. Printing is divided into three categories: **Page Setup, Scale to Fit, and Sheet Options**.
- **Page Setup Dialog:** To open the classic **Page Setup dialog box**, click the **diagonal arrow** icon in the lower-right corner of the three groups in the **Page Layout ribbon tab**. There are four tabs in this dialog box. The tab is identified by the superscript next to each bullet: 1 for Page, 2 for Margins, 3 for Header/Footer, and 4 for

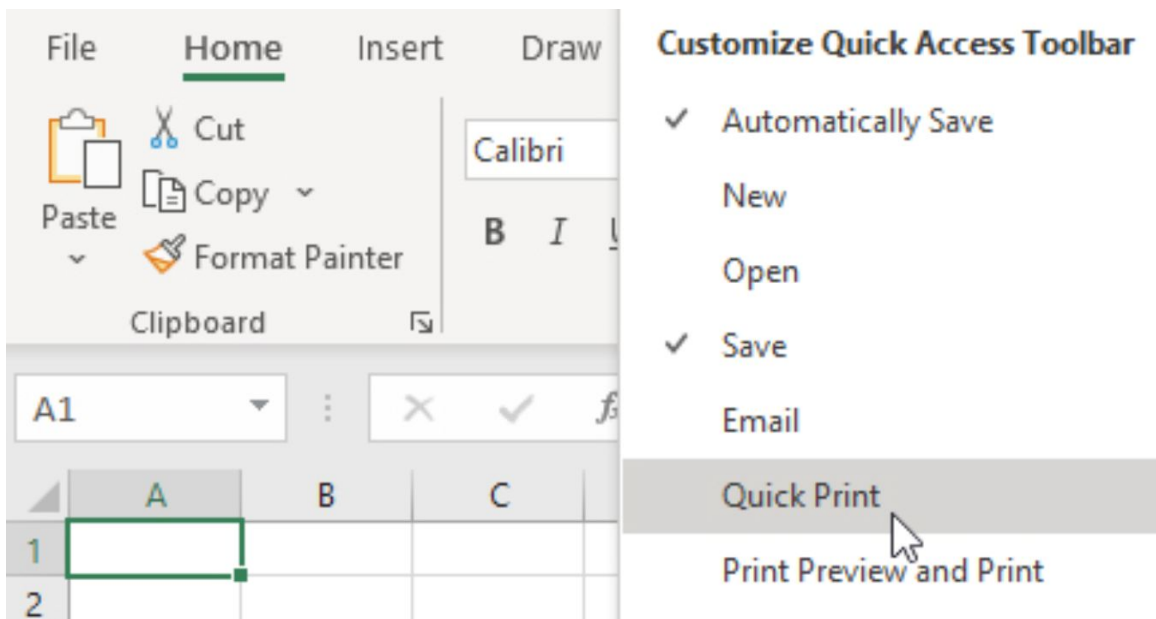
Sheet. This dialog box may also be accessed by selecting the Print Titles button in the Page Layout tab of the ribbon.

- **Page Layout View:** On the View tab, choose **Page Layout**. This indicator may also be seen in the bottom right corner of the Excel screen.
- **Header & Footer Tools Design Tab:** On **Page Layout view**, select one of the three header or footer zones on any page to bring up the **Header & Footer Tools Design tab** in the ribbon. It is important to note that in order to leave Page Layout view, you must first click outside of the header or footer zones. Although this is the most concealed option, it provides a more convenient approach to adjust headers and footers.
- **Preview of Page Breaks View:** On the **View tab**, choose **Page Break Preview**. This symbol may also be seen in the bottom right corner of the Excel window.
- **Printer Properties Dialog:** To open the **Print panel**, use **Ctrl+P**. Just below the printer name, a link to Printer Properties appears.
- **Excel Options:** Select **Options, Advanced from the File menu**. After you've done a Print Preview, this is the sole area where you may disable the display of automatic page breaks.

- **Print Preview Full Screen:** Drag this icon to the **Quick Get Toolbar** to access a full-screen version of Print Preview akin to prior Excel versions.

Printing with a single click

If you're a keyboard fanatic, you may be annoyed that **Ctrl+P** in Excel brings you to the Print panel rather than completing a rapid print. Quick Print, can, however, be restored to Excel in a few simple steps.



The Quick Access Toolbar (QAT) is a row of tiny icons located immediately above or below the ribbon. A drop-down menu is located on the right side of this toolbar. To show a brief list of common commands, use

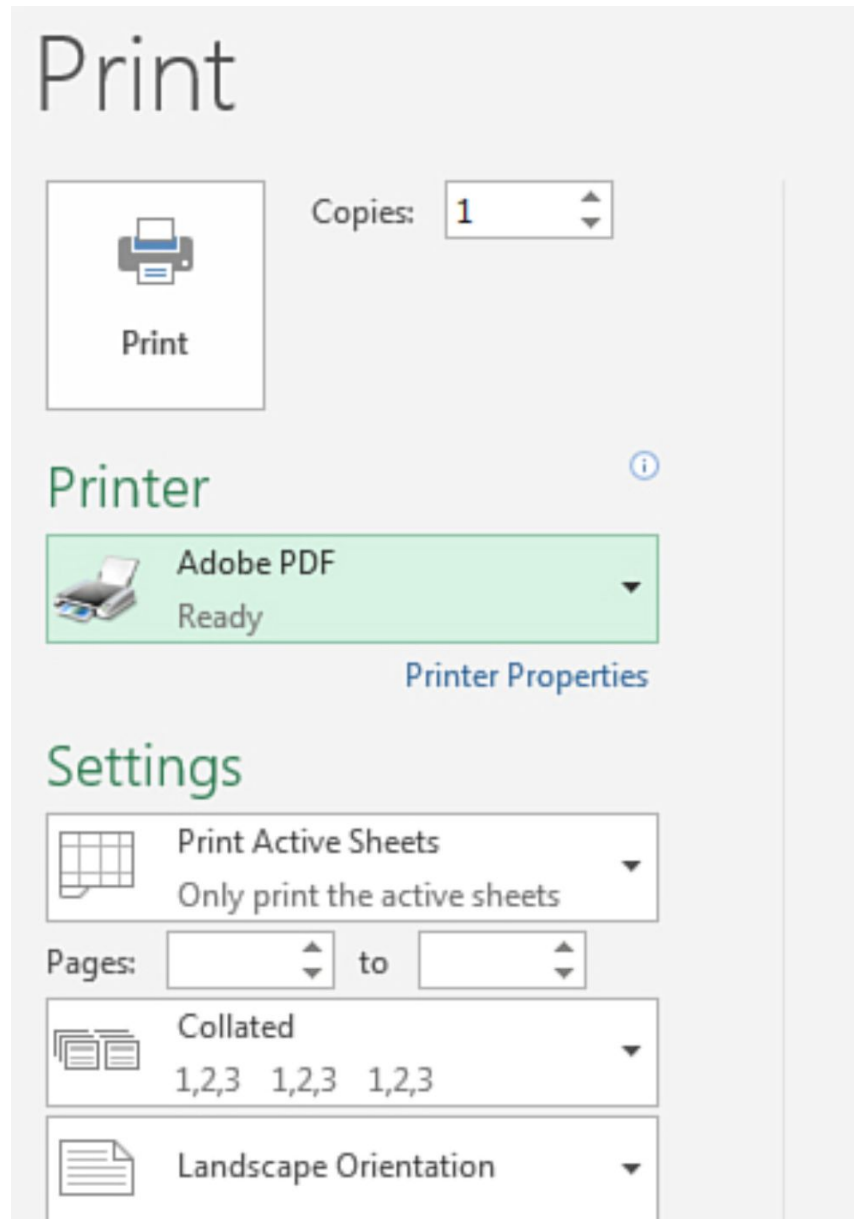
the drop-down menu at the right edge of the Quick Access Toolbar. Select **Quick Print**.

When you click the **Quick Print button**, Excel sends one copy of the current worksheet to the last printer you used. The worksheet is sent to the default printer if you have not previously printed in this Excel session.

Although this restores Quick Print as a mouse click, it is still inconvenient for keyboard-centric users. On Excel, pressing and releasing the **Alt key** displays a row of shortcuts for the first nine items in the Quick Access Toolbar.

Using the File menu to print

To reach the Print panel, choose **File > Print, or press Ctrl+P**. The panel combines options from the Print and Page Setup dialog boxes in the centre of the screen, as well as the Print Preview on the right. As you change the settings in the centre of the screen, the Print Preview changes, allowing you to always see the most recent preview.



The left side of the screen is dominated by a huge Print button. To print the document, click this button. You can adjust the number of copies to print by spinning the spin button next to the Print button.

(NB: The remainder of the left panel is devoted to a new kind of gallery. Without opening the gallery, you may view the current selection. There is no need to access the drop-down menu if the relevant printer is already chosen).

Choosing a Printer

Excel shows all the existing printers and indicates whether or not the printer is presently online and/or accessible when you enter the Printer drop-down menu. This useful enhancement allows you to identify whether the department printer is jammed and print to a new printer.

Viewing the Page Layout

The Normal view is the default view when you start Excel. The only options in previous versions of Excel were Normal view and Page Break Preview mode. However, starting with Excel 2007, Microsoft introduced the **Page Layout view**, which is useful when preparing a document for printing. *(NB: The three views in Excel may be found on the View tab or on the right side of the status bar).*

You have a fully functional worksheet in Page Layout view. The formula bar, for example, works, and you can browse around the worksheet. However, the following are the distinctions between Page Layout and Normal view:

- On each page, white space appears to illustrate the margins. This is typically advantageous since you can see any page gaps between columns or rows. If you wish to conceal the white space, right-click it and choose **Hide White Space**.
- A ruler appears underneath the formula bar, which you can use to modify margins by moving the ruler's gray regions.

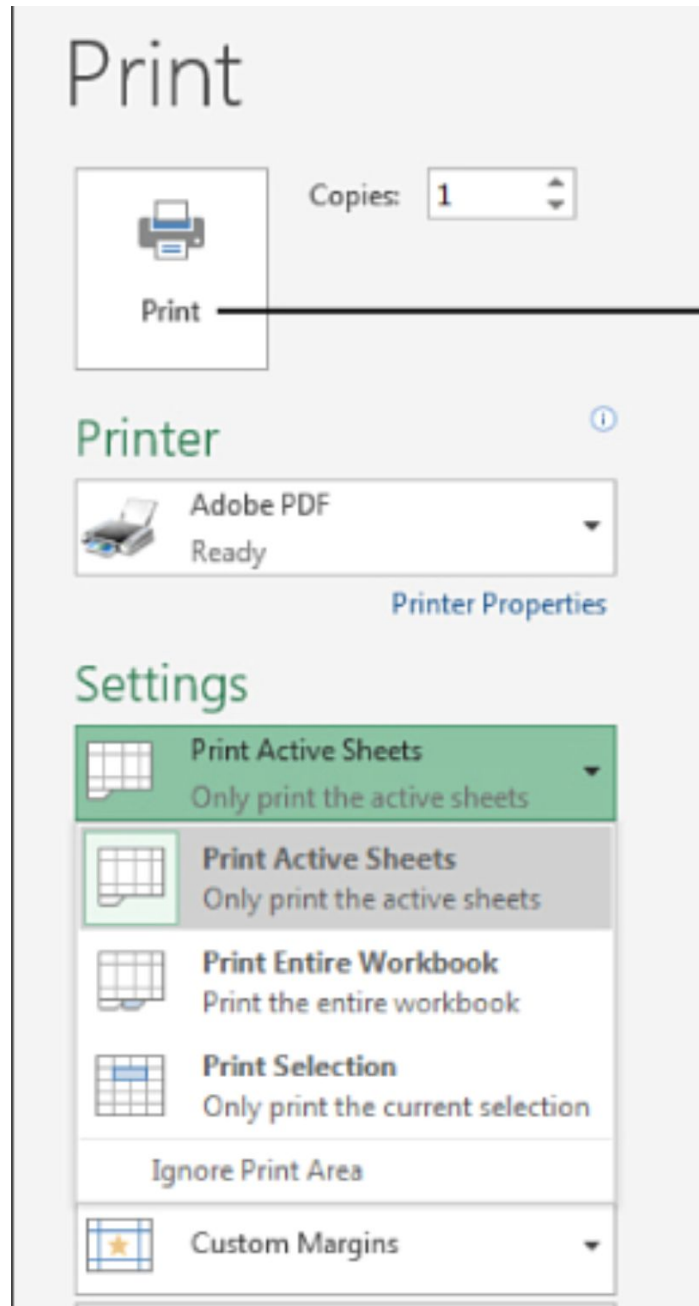
- Areas are labeled **Add a Header and a Footer** by clicking the **Add a Header and Add a Footer buttons**. Whereas headers and footers are hidden in previous versions of Excel, they are clearly visible in the **Page Layout view** of Excel.
- Click to **Add Data** is shown in areas of a worksheet that are not in the data area. One issue with the Page Break Preview mode was that sections outside of the data area were grayed out. *(NB: The Click to Add Data Labels option, on the other hand, enables you to continue adding pages to your spreadsheet).*

(NB: The sole downside of using Page Layout view is that it disables your Freeze Panes settings. Excel alerts you to the fact that this is occurring. Excel employs this to underline the distinction between Print Titles and Freeze Panes).

How to choose what to print

Active Sheets, Entire Workbook, and Selection options are available in the Print What gallery. You can further customize these options by selecting Ignore Print Area.

When you pick **Active Sheets**, the currently chosen sheet is printed. If you specify a print area, just that range is printed; otherwise, Excel displays the whole document's usable range. When you pick several sheets in Group mode, however, all of the chosen sheets print.



When you choose the Entire Workbook option, all no hidden worksheets in the workbook are printed. One benefit of this choice is that the pages are sequentially numbered as the printing progresses from Sheet1 to Sheet2.

By selecting the Selection option, you can temporarily override the print area. If you just need to print a tiny portion of a huge report, choose that

portion and then select the Selection option in the Print What gallery. (***NB: This saves you from changing the Print Area repeatedly.***)

The **Ignore Print Area option** instructs Excel to disregard any previously set print zones. The full utilized area of the worksheet is printed as a result of this.

Using the Pages spin buttons, you may print selected pages. Enter the page number in both the Pages and To boxes to print a single page.

Changing Printer Settings

The remaining galleries on the left side of the Print panel are repainted once you choose a printer. Use the gallery to pick each of these choices if you are printing to an office printer that supports collating and stapling. Excel does not display the galleries if you print to a home printer that does not have these settings.

Changing a few of the Page Setup options

Despite their appearance, the final options on the left side of the Print panel are used to manage portrait vs landscape, paper size, and margins. If you make a modification here, it will be reflected in the Page Setup dialog box.

If you're wondering why these settings are duplicated here, you may also be wondering why your preferred Page Setup options aren't. Although it is convenient to go from portrait to landscape mode here, it would be much more convenient to be able to modify the Page Scaling or **Rows to Repeat At Top options**. However, this is not possible since such adjustments need closing the **Print panel** and using the **Page Layout tab** of the ribbon.

Exploring other page setup options

Other page layout options can be found throughout the various interface areas. Although some of these are obscure, you may need to use them in certain circumstances.

Printing gridlines and headings

Select **Sheet Options > Gridlines > Print from the Page Layout tab** to print the gridlines on a worksheet.

The A-B-C column headings and the 1-2-3 row headings can also be printed. To do so, go to the Page Layout tab and select **Sheet Options, Headings, and Print**. When printing formulas with the **FORMULATEXT function** and need to see the cell address of each cell, this option comes in handy.

Centering a small report on a page

Small reports that are printed in the upper-left corner of a page may appear out of place. Instead of expanding the margins, you can center the report horizontally or vertically on a page.

To open the **Page Setup dialog box**, choose **Page Layout, Margins, and Custom Margins**. At the bottom of the dialog box, there are two check boxes that allow you to center the report on the page.

Replacing error values when printing

Excel computations may sometimes produce mistakes such as **#N/A!** or **DIV/0**. Although these error numbers assist you in determining how to correct the issues, they seem out of place on a printed page. You have the option of replacing any mistake cells with a blank or two hyphens.

To access the Sheet tab of the Page Setup dialog box, choose **Page Layout, Print Titles**. Select **blank> or — from the Cell Errors As drop-down option**.

Printing comments

Cell comments are often shown as a little red triangle in a cell. At the conclusion of your report, you can print a table with all the comments. Choose **At End Of Sheet** from the **Comments And Notes drop-down menu** on the **Sheet tab** of the Page Setup dialog box.

Excel produces your report and then opens a new page with each comment/note listed. The new page displays the cell as well as the comment/note content.

The other option for printing comments and notes is to print any visible ones that are currently visible where they are displayed. Select **Review, Notes, and Show All Notes** to see them all. When they are visible, you can drag them to a new location so that they do not obscure important cells.

Controlling the first page number

It's possible that you're putting a printed Excel spreadsheet in the midst of a printed Word document. If the Excel worksheet appears on the tenth page of the Word report, for example, you'd want the Excel page numbers to begin at 10 rather than 1.

Select the **dialog box launcher** at the bottom right of the Page Setup group from the Page Layout tab. The **Page tab** of the Page Setup dialog box is displayed in Excel. The last option is First Page Number, which is originally set to **Auto**. If you enter 10 in this field, Excel will print the Excel worksheet with page numbers 10, 11, 12, and so on.

CONCLUSION

The new Microsoft Excel 2022 is equipped with a whole lot of new features and enhancements much more than its predecessor (Microsoft Excel 2021). This version of Microsoft Excel comes alongside Microsoft Office 365 and its collaboration makes Excel 2022 a very unique software.

In this guide, users will learn the fundamentals regarding Excel like creating pivot tables, learn about worksheets and workbooks, creating links between worksheets, use formulas to join text use keyboard accelerators, using date math, how to use AutoSum and so much more.

At the end of this guide, users will fully understand Microsoft Excel 2022 and get to begin using the software on their own and with their companies. Going further, the Microsoft Excel 2022 User Guide includes updated information and an up-to-date step-by-step guide to make your adventure of acquiring and learning Excel 2022 functionalities more enjoyable.

If you are a business or individual worker who wants to learn how to create tables, organize, and manage data, you need to purchase this Microsoft Excel 2022 User Guide and start your incredible journey.

