CONNECTIONS

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Basic Microsoft Excel

This workshop is designed to help you to become familiar with the foundational skills of Microsoft Excel. You will learn how to navigate Excel, create spreadsheets, enter data and manipulate data using basic functions of the program.

This workshop covers:

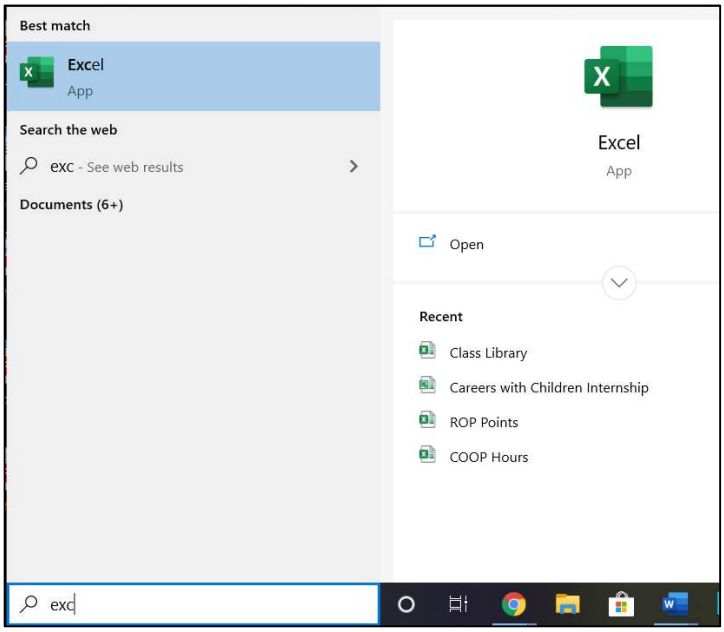
- **Opening Microsoft Excel**
- **Navigating Excel**
- **Getting Started**
- **Introduction to Functions**
- **Additional Features**
- **Practice Resources**

Welcome to Microsoft Excel!

Microsoft Excel is an electronic spreadsheet program used to store, organize and manipulate an electronic document in which data is arranged in the rows and columns of a grid and can be manipulated and used in calculations. Excel allows the user to visualize and analyze information and data quickly and easily.

Opening Microsoft Excel

To open Excel, click the start button at the bottom left of your screen. In the search box, type "excel" and the computer will bring up Microsoft Excel. Click on the icon to open the program, allowing you to create a new file. Alternatively, if you have the Microsoft Excel icon on your desktop you can double click on it to open the program.

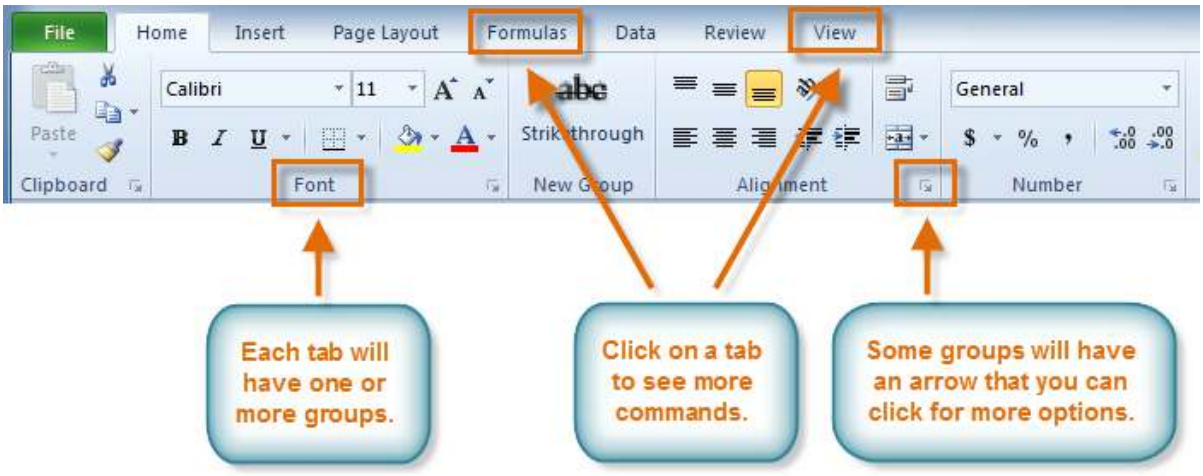


Excel files are called **workbooks**. Each workbook is made up of **worksheets** where you will list and analyze your data. When you start a new project in Excel, you will create a new workbook, which can either be blank or built from a template.

Navigating Excel

The Ribbon

The **Ribbon** is a set of toolbars at the top of the window in every Microsoft Office program, which is designed to help you find the commands you need to complete a task. The Ribbon is divided into different Tabs and each Tab contains groups of closely related commands (buttons).

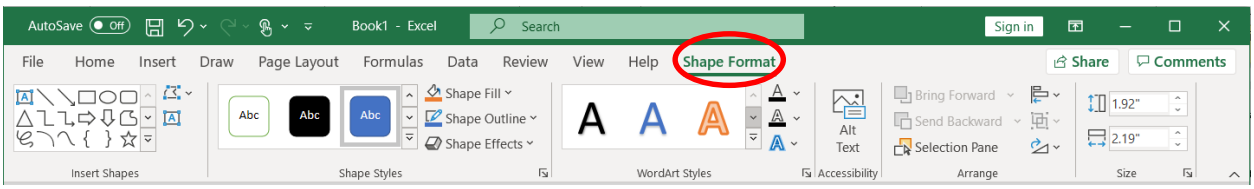


The Home Tab contains many of the frequently used tools that are used in Excel. This can range from the formatting of data to inserting additional cells. If you are unsure of what a command does in any of the Microsoft Office programs, hover your mouse over that command, and an *Enhanced Tip* will pop up with an explanation of the command.

Try to become familiar with as many of the various tabs on the Ribbon as possible. The tabs follow a logical format (i.e. if you want to insert a shape or picture, it will be found on the *Insert* Tab and if you want to review the workbook for spelling errors, Spell Check is found in the *Review* Tab). Being familiar with the various groups in the tabs will help you navigate Excel quickly.

At the bottom of some of the groups, in the right corner, there is an icon which opens the **Dialogue Box Launcher**. This will open that group's set of commands in a new window for you to select from.

Occasionally, you will select a piece of text, a table of data, a shape, or a picture, and a **Contextual Tab Set** will open with one or more **Contextual Tabs**. These are specific tabs for that option that will only be visible when that object is selected.

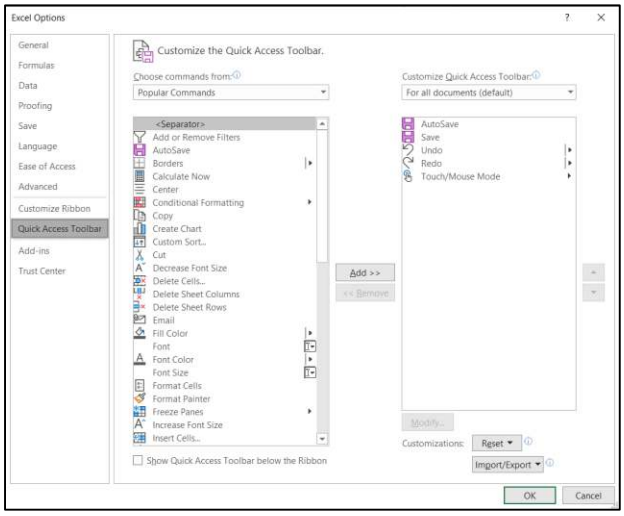


Spend some time reviewing the different tabs and groups now to learn where the different commands are located.

Quick Access Tool Bar

The **Quick Access Toolbar** is a toolbar menu that appears in the top left corner of the window in all of the Microsoft Office programs. It gives you quick access to commonly used features such as the *Save* feature and the *Undo* command. Next to the icons, there is a drop-down menu which gives you the ability to customize the Quick Access Toolbar by adding or removing any of the commands shown in the toolbar. Every command which has a check mark next to it is one that is available for you to use on the Quick Access Toolbar. Selecting a command which does not have a check mark will enable it and add it to your toolbar.

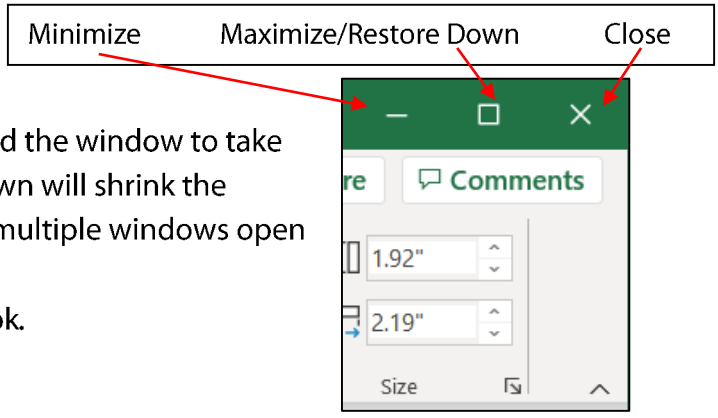
Click on the drop-down menu and select *More Commands* (located at the bottom of the list) to add access to the entire list of commands. This will open additional commands for you to add to your Quick Access Toolbar making it customizable to your specific needs. Select the command you wish to add to your list from the options on the left side and click the *add* button in the middle to add the command to your toolbar. When you are finished, click the *OK* button at the bottom.



Closing Excel

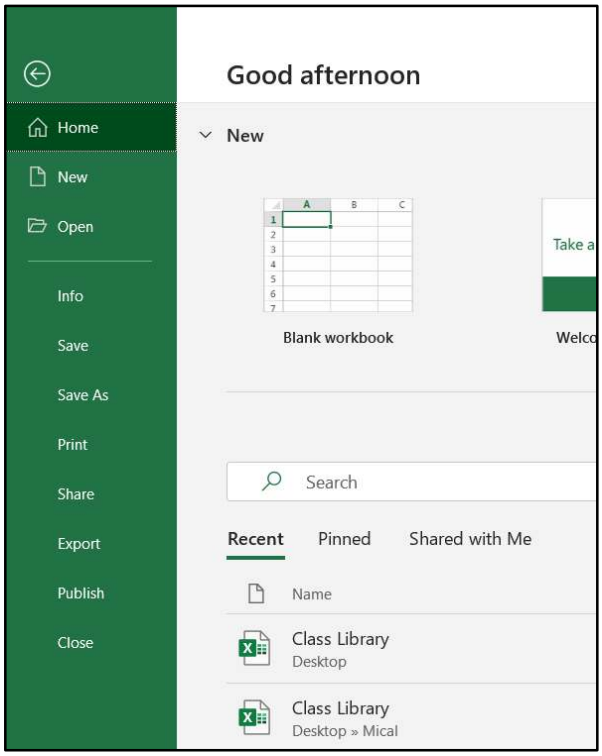
Familiarize yourself with the buttons on the top right corner of the ribbon. These buttons allow you to minimize, maximize or close the Excel workbook.

- Minimizing the workbook leaves it open, but hides it from your view.
- Maximizing the workbook will expand the window to take up the whole screen. Restoring it Down will shrink the window it is in so that you can have multiple windows open on your screen.
- The Close button closes the workbook.



The Backstage View

The Backstage View will give you access to saving your workbooks, creating new files, printing, opening recently opened files, as well as information about the open file (such as Permission Settings and Sharing Options).



To Open an Existing Workbook

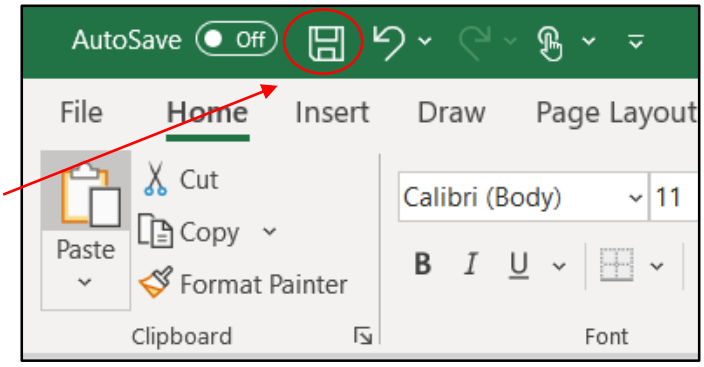
- Click the File tab. This takes you to the Backstage View.
- Select Open. The Open dialog box appears.
- Select your workbook, and then click Open.

To Print Your Workbook

- Click the File tab. This takes you to the Backstage View.
- Select Print. The Print dialog box appears. Choose where you wish your workbook to print.
- Once you have chosen your print location, adjust any other aspects of the printing job and click OK.

To Save Your Workbook

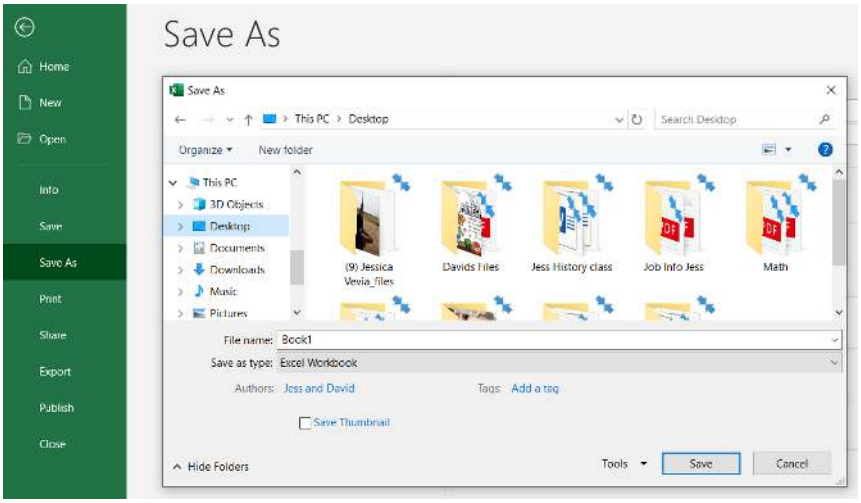
As you are creating and working on your workbook, you should save your progress periodically. This way if the program closes accidentally, you won't lose your place or your data. In order to save your workbook, click the save command on the Quick Access Toolbar.



Saving your workbook for the first time will open a dialogue box which will ask you where you wish to save your workbook and what you would like to name it. Once saved and named, selecting the save button will save new changed over the original document

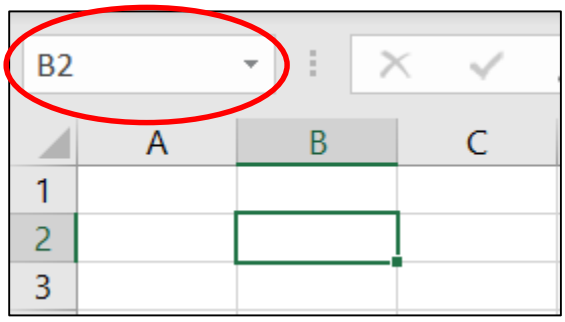
If you would like to save your updates to a workbook with a different name, use the Save As feature in the Backstage View.

- Click the File tab. This takes you to the Backstage View.
- Select Save As. The Save dialog box appears. This is where you choose where you wish your workbook to be saved and what you would like to name it.
- Once you have chosen your save location, name your workbook and click save.



Getting Started

Examine the Worksheet



Every worksheet is made up of 4 million different cells. When you select a cell, it becomes an **active cell** where you may input data. You know it is an active cell because of the border which is around it. Each cell is found at the intersection of a specific row and column. This intersection is known as the cell's address (such as the cell B2). You can find the cell's address at any point by referring to the Name Box located before the Ribbon, to the left of the Formula Bar.

The Formula Bar is one of the ways you can enter data into a cell. Once you have activated a cell, click into the Formula Bar and type in the data you wish to add. This may be a formula or advanced function as well as simple text data. After you have typed in your data, you need to confirm or cancel your selection. This may be done by selecting the check mark to confirm your entry or by selecting the X symbol to cancel the entry. The FX icon inserts a function into the Formula Bar, making it easier for you to create more complex tables.

Entering Data in a Cell

Start by selecting cell A1 making it the active cell. Once selected, type in the phrase "*My Checkbook"* and hit enter. Using the enter key is one of the alternatives to using the Formula Bar system to confirm your entered data. Hitting the enter key will confirm your entry into the cell and move the active cell to one cell below. If you hit the Tab key after entering your data instead of the enter key, it will confirm your entry and move the active cell to one cell to the right.

Complete the steps in the table below to start creating a basic budget.

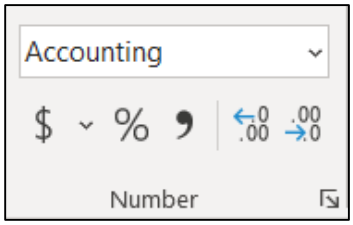
What you type or do	**What happens**
Click cell **A3**	Makes **A3** the active cell
Type **Cash on Hand** and press **ENTER**	Enters **Cash on Hand** into cell **A3**, then makes cell **A4** the active cell
Type **Paycheck** and the press **ENTER**	Enters **Paycheck** into cell **A4,** then makes cell **A5** the active cell
Type **Total** and then click cell **B3**	Enters **Total** into cell **A5**, then makes cell **B3** the active cell
Type **$1,000** and then press **ENTER**	Enters **$1,000** into cell **B3**, then makes **B4** the active cell, because it is then next select cell
Type **$1,500** and then press **ENTER**	Enters **$1,500** into cell **B4**, then makes **B5** the active cell.

Your table should look like this:

	A	B	C
1	My Checkbook		
2			
3	Cash on Ha	$1,000.00	
4	Paycheck	$1,500.00	
5	Total		
6			

Note that Excel truncates (or shortens) any labels that are wider than the current column width. That is why you can't see the entire label "Cash on Hand" in cell A3. We will correct this problem after completing our table.

One of the most important skills to use with Microsoft Excel is **critical thinking**. You need to be able to examine the table and the data and determine if what you are seeing makes sense and *why* or *why not.*



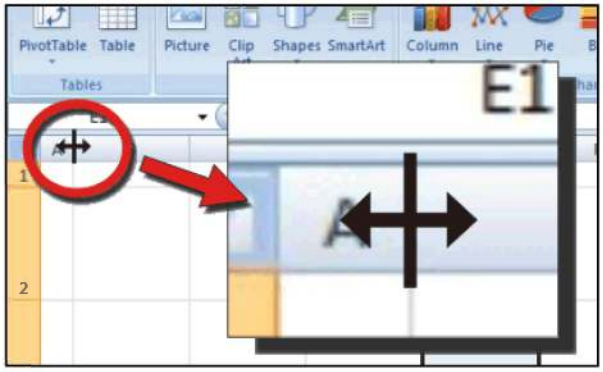
If you created the table above, but you are not seeing the dollar signs next to your numbers, the cell is formatted incorrectly. Select the two cells containing the dollar information (B3 and B4) by clicking on one cell and holding down your mouse to drag over the other cell. On the Home Tab, there is a group in the middle of the Ribbon called *Number*. Select the dollar sign icon and your numbers in B3 and B4 should change to dollar amounts.

Continue creating your budget, by using the following steps:

What you type or do	**What happens**
Position to **A7**	Selects cell **A7**
Type **Phone** and press **RIGHT**	Enters **Phone** into cell **A7,** then makes cell **B7** the active cell.
Enter the rest of the data as shown below	

	A	B	C
1	My Checkbook		
2			
3	Cash on Ha	$1,000.00	
4	Paycheck	$1,500.00	
5	Total		
6			
7	Phone	$ 95.00	
8	Electric	$ 143.00	
9	Cable	$ 75.00	
10	Utilities Total		
11	Utilities Average		
12			
13	Utilities Total		
14	Auto	$ 225.00	
15	Rent	$1,750.00	
16	Total		
17	Money Left		
18			

Widening Columns and Rows

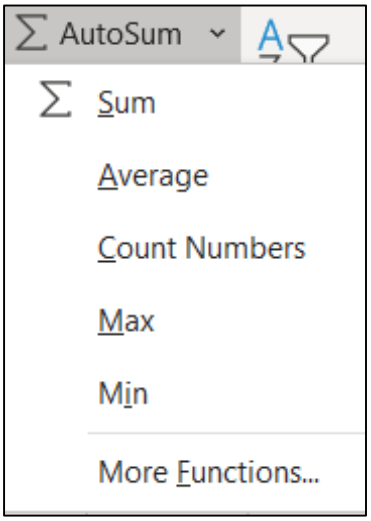


If you create labels in Excel which are truncated and cut off due to additional data in the neighboring cell, you can widen the column or row to create more space. In order to widen the columns of a worksheet, move the mouse pointer in between the border of column A and column B. It must be in the headings of the columns (where the letters are located), right on the line. At that point your mouse pointer will change to a double-headed arrow.

When your mouse pointer changes, you will be able to click and hold the left mouse button down as you drag the columns to the left or right to enlarge or shrink the column size. Once the information is correctly displayed in cell, release the mouse button to confirm your choice. The same process works for elongating the rows. The only difference is you must move your mouse in between the headings of two rows (the numbers on the left-hand side) to get the double-headed arrow mouse point.

An alternative way of automatically adjusting the size of the columns or rows is to move your mouse pointer between the column headings of column A and column B in order to get the double-headed arrow mouse pointer. Instead of clicking and moving the mouse, double click on that border line and Excel will automatically resize that column (or row).

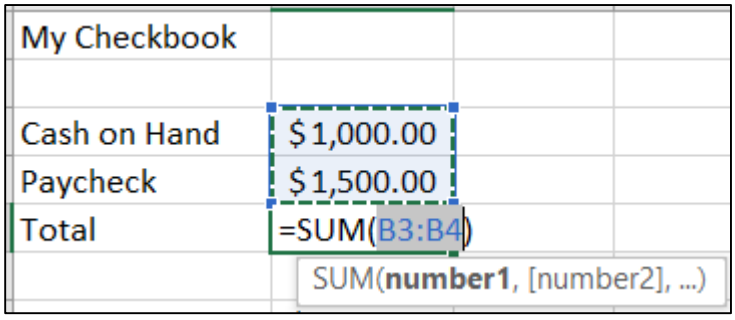
Introduction to Functions



Excel is a very powerful program. It can be setup to automatically run processes which are designed to update data when new and additional information is entered. In order to create these processes, you will need to add functions to your worksheets.

The first step in adding a basic function to your worksheet is to select the cell where you want the resulting data to go. In our example, we will use income and bills. In order to determine the total amount of income we have at any given time, we will need to add an addition formula to our total cell.

1. Select cell B5. This is where we want our income total to end up. Once the cell is selected, select the Home Tab on the Ribbon and on the right-hand side is a group with the command *AutoSum*. Clicking on the triangle next to the word *AutoSum* will provide a drop-down menu of additional options such as: *Average, Count Numbers, Max, Min, and More Functions.* For this exercise, we will select *AutoSum* as the solution to an addition problem is called a "sum."



   Once we choose *AutoSum*, Excel will assume we want to add the nearest, attached cells with data in them. This would be cells B3 and B4, which we want to add together. At this point, you will confirm the formula which appears: **=SUM (B3: B4)** is what you want. This means you are doing a Sum Function (adding multiple cells together) and the function uses cells B3 to B4. Hit enter to confirm your entry and see that the amounts in the selected cells have been added up and total is displayed.

My Checkbook	
Cash on Hand	$1,000.00
Paycheck	$1,500.00
Total	$2,500.00

One of the benefits of using a function in your worksheet is when you change the "Cash on Hand" number or the "Paycheck" number to reflect new information, your total will automatically update.

2. Select cell B10. On the Home Tab, click the AutoSum command button. This should select the adjacent cells of B7, B8 and B9 to include in our function. Confirm that the selected cells are the ones that we wish to add up, and press Enter.

3. Select cell B11. On the Home Tab, click the drop-down menu where the AutoSum command button is. This will bring up additional options for you to choose from. Select Average but DO NOT hit enter.

Total	$2,500.00
Phone	$ 95.00
Electric	$ 143.00
Cable	$ 75.00
Utilities Total	$ 313.00
Utilities Average	=AVERAGE(B7:B10)

*Remember that one of the most important skill in using Excel is **critical thinking**. Notice what cells are being selected. Excel selected the adjacent cells B7, B8, B9, and B10. We are trying to determine the average amount that we are spending on our utilities each month. Average is determined by adding items up together and then dividing them by how many items there are. In our example, we should have three items to add up, Excel has selected four items.*

You must indicate to Excel which cells you want to use in your function by clicking on the first cell (B7), holding down the left mouse button, dragging the mouse pointer down and stopping at B9, then letting go of the left mouse button. This will select the three items that we need for our average. Then press enter.

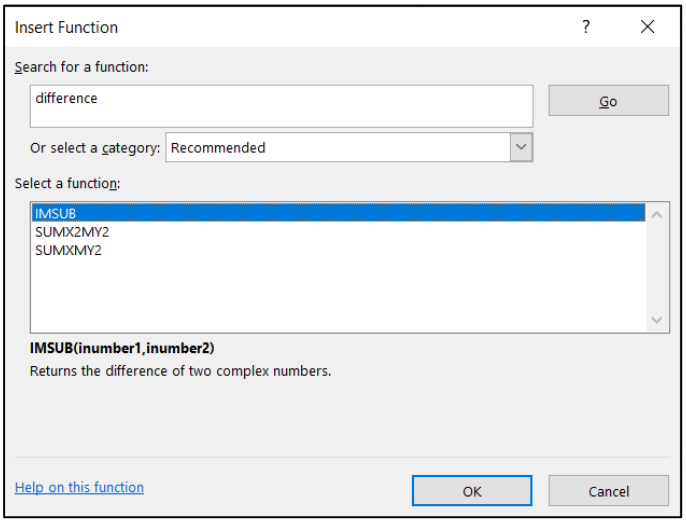
My Checkbook		
Cash on Hand	$1,000.00	
Paycheck	$1,500.00	
Total	$2,500.00	
Phone	$ 95.00	
Electric	$ 143.00	
Cable	$ 75.00	
Utilities Total	$ 313.00	
Utilities Average	$ 156.50	
Utilities Total		
Auto	$ 225.00	
Rent	$1,750.00	
Total		
Money Left		

4. Finish the last two total cells (B13 and B16) independently. Remember that you need to observe what cells are being selected and intentionally instruct Excel what you want. When you're done, your table should look like this:

My Checkbook		
Cash on Hand	$1,000.00	
Paycheck	$1,500.00	
Total	$2,500.00	
Phone	$ 95.00	
Electric	$ 143.00	
Cable	$ 75.00	
Utilities Total	$ 313.00	
Utilities Average	$ 156.50	
Utilities Total	$ 313.00	
Auto	$ 225.00	
Rent	$1,750.00	
Total	$2,288.00	
Money Left		

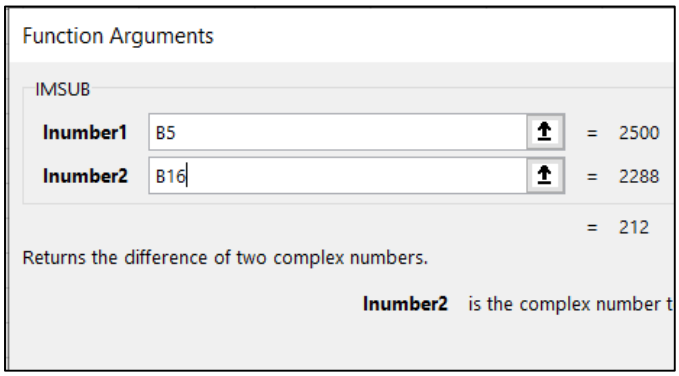
5. In order to determine how much money you have left, you need to find the difference between the total income and the total bills. Select cell B17 to make it the active cell. From the Home Tab, select the drop-down menu by the AutoSum command and select the *More Functions* button.

   In the search box at the top, it will ask you to type what you would like your function to do. For our example, type "difference"as we are trying to find the difference between two cells. When you hit Go, you will see the list of options Excel recommends.



   When you click on one of the options, a description of that option will appear at the bottom of the window. It is important to read the description to understand what the function does. For our example, we were recommended IMSUB as one of the options. According to the description, IMSUB returns the difference of two complex numbers. Select OK to accept that choice.

   A new window will open asking for two cell locations. These will be the complex numbers used to find the difference. Click in the first box and type the cell for your income total (B5). Then click in the second box and type the cell for the bill total (B16). Notice that a preview of the data located in each cell will appear in this window. Click OK to confirm.

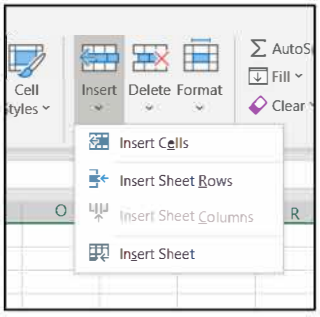


You have now created a working budget. As you update the information in each category (you have more income one month), the totals will change, keeping your budget balanced.

Inserting and Deleting Rows

As you make changes to one part of a worksheet, it is important to watch how your changes affect the rest of the worksheet. One small change in one part of a worksheet may upset the functions and formulas in another part of the worksheet and upset the reliability of your data.

In order to insert a new row into your worksheet, select the entire row. This keeps the rest of your data in line and helps adjust the functions that are working in the worksheet. To select an entire row, click on the row heading (the number). After you have selected the heading for the row, click on the Insert Row command button on the Home Tab. This will move the rest of the rows down accordingly.



Try adding a new bill item to your budget by adding a row.

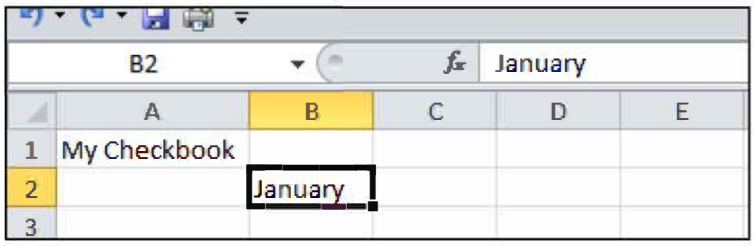
The same process works for deleting rows. If you want to delete a row, you need to start by selecting the row heading. Then select the Delete command next to the Insert command on the Home Tab.

Additional Features

The Fill Handle

The **Fill Handle** is a tool in Excel which is designed to extend and fill in a series of numbers, dates or text to a desired number of cells.

Go back to your budget practice exercise and select cell B2. Type in the word "January," ensuring that the spelling is correct. In the bottom right corner of the cell, there is a small dot. Moving your mouse to that corner will change the pointer from a mouse pointer to a + sign. Click and hold the left mouse button, dragging the pointer into the cells immediately to the right (C2, D2, E2 and F2). This should continue adding the calendar months to your budget.



Now select your data from your budget in cells B3 through B17. Use the fill handle to drag the data to the columns to the right (Columns C, D, E, and F) as you did for the calendar dates. The fill handle will bring the data as well as the functions, so you are able to adjust one column and it will only affect that one column.

This feature works for number lists (even patterns of numbers i.e. 2, 4, 6, etc.…) as well as days of the week and other series of data.

Undo Typing

When you make a mistake, such as deleting a block of text, you can step back and undo your actions. This is accomplished through the Undo Typing command. The Undo Typing  command undoes anything that you can do in Excel. It is located on your Quick Access Toolbar and by using the shortcut combination of CTRL+Z. The benefit of using the command button on your Quick Access Toolbar is there is a drop-down menu next to the icon, which shows you the recent actions which you have taken and allows you to choose how far you would like to undo.

Shortcut Keys in Microsoft Excel

Microsoft Excel utilizes different shortcut key combinations to perform tasks. Many of these key combinations are universal across the various Microsoft Office programs.

Shortcut Key	Description
CTRL+C	Copy the selected text
CTRL+X	Cut the selected text
CTRL+V	Paste the selected text
CTRL+A	Select all contents of the workbook
CTRL+B	Bold the highlighted selection
CTRL+I	Italicize the highlighted selection
CTRL+U	Underline the highlighted selection
CTRL+P	Print the workbook
CTRL+Z	Undo the last action performed
CTRL+F	Search in a spreadsheet
CTRL+HOME	Move to the beginning of a worksheet (A1)
PAGE UP / PAGE DOWN	Move one screen up or down in a worksheet

Practice Resources

The best way to become familiar with Excel is to practice using it. Create your own real budget and practice using it. Create lists of things such as family and friends' contact information. The more you work in Excel, the more familiar it will become to you. If you are looking for additional resources, here are some wonderful tutorials and online trainings.

- Official Microsoft Excel for Windows training
    - https://support.office.com/en-us/article/excel-for-windows-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb

If you want a resource of training videos, you might as well go to the source itself. Microsoft's support website has videos that cover everything from introductory material to advanced features in word.

- GCF Global Microsoft Office Online Training
    - https://edu.gcfglobal.org/en/subjects/office/

The Goodwill Community Foundation (GCF) has created short tutorials, how to videos and challenges for anyone who wants to learn. This is a great, free and online resource for all Microsoft Office products.

- The Dock – Practice Projects for Microsoft Excel
    - https://thedockforlearning.org/series/practice-projects-for-excel/

The Dock contains practice projects for you to complete on a variety of topics in Excel. For these challenges, you will receive a copy of a workbook, highlighting a specific topic or skill and you will be tasked with replicating it.

- Lynda.com
    - https://www.lynda.com/excel-training-tutorials/192-0.html

While not a free resource, Lynda.com (now LinkedIn Learning) has a large range of in-depth tutorials and trainings.