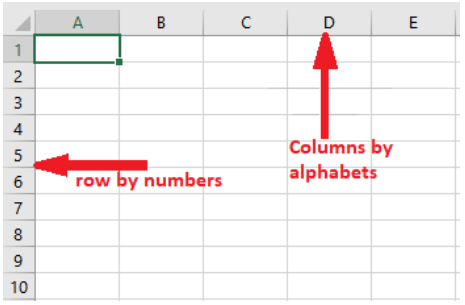
Advance Excel Assignment 1

1. What do you mean by cells in an excel sheet?

   A cell is an essential part of MS-Excel. It is an object of Excel worksheets. Whenever you open Excel, the Excel worksheet contains cells to store the information in them. You enter content and your data into these cells. Cells are the building blocks of the Excel worksheet.

   In the Excel worksheet, a cell is a rectangular-shaped box. It is a small unit of the Excel spreadsheet. There are around 17 billion cells in an Excel worksheet, which are united together in horizontal and vertical lines.

   An Excel worksheet contains cells in rows and columns. Rows are labeled as numbers and columns as alphabets. It means the rows are identified by numbers and columns by alphabets. In Excel, you can easily identify the cell number you are currently in. You can either find the cell number inside the Name box or also from row and column headers.



   Excel consists of a group of cells in a worksheet. You can enter data in any of these cells. Excel allows the user to enter any type of data in Excel cells, such as numeric, text, date, and time data. Whatever you enter in a cell, it appears inside the cell and as well as in the formula bar. Double-tap on any of a cell to make it editable and write the data in it. In Excel, you can enter any type of data in Excel cells, such as number, string, text, date, time, etc. In addition, the users can also perform operations on it.

2. How can you restrict someone from copying a cell from your worksheet?

   By default, when you protect a worksheet, all the cells on the worksheet are locked, and users cannot make any changes to a locked cell.

   To set a password to protect cells, follow the steps given below:

   1) Go to REVIEW tab and click on "Protect Sheet" option.

   2) Excel opens the Protect Sheet dialog box. By default, Excel selects the Protect Worksheet and Contents of Locked Cells check box.

   3) Select any of the check boxes in the Allow All Users of This Worksheet To list box (such as Format Cells or Insert Columns) that you still want to be functional when the worksheet protection is operational.
   The Select Locked Cells and Select Unlocked Cells check boxes are selected by default.

   4) Type the password in the 'Password to unprotect Sheet' text box.

5) Click OK.

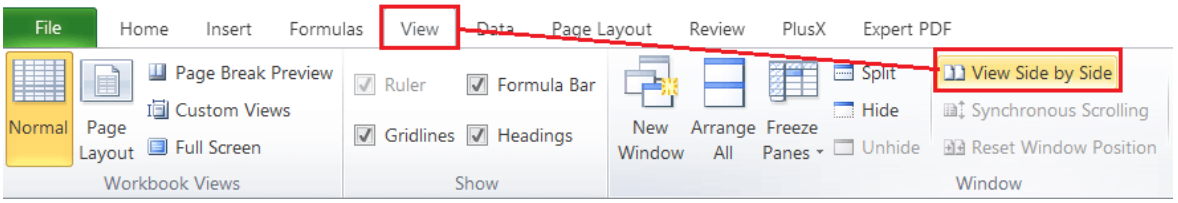
6) Excel opens the Confirm Password dialog box. Re-enter the password in the Re-enter Password to Proceed text box and then click OK. Notice that if you try to edit a cell, Excel displays an error message.

-- To remove worksheet protection, click the Unprotect Sheet button in the Changes group on the Review tab. You'll be prompted to type the password that you had set for protection.

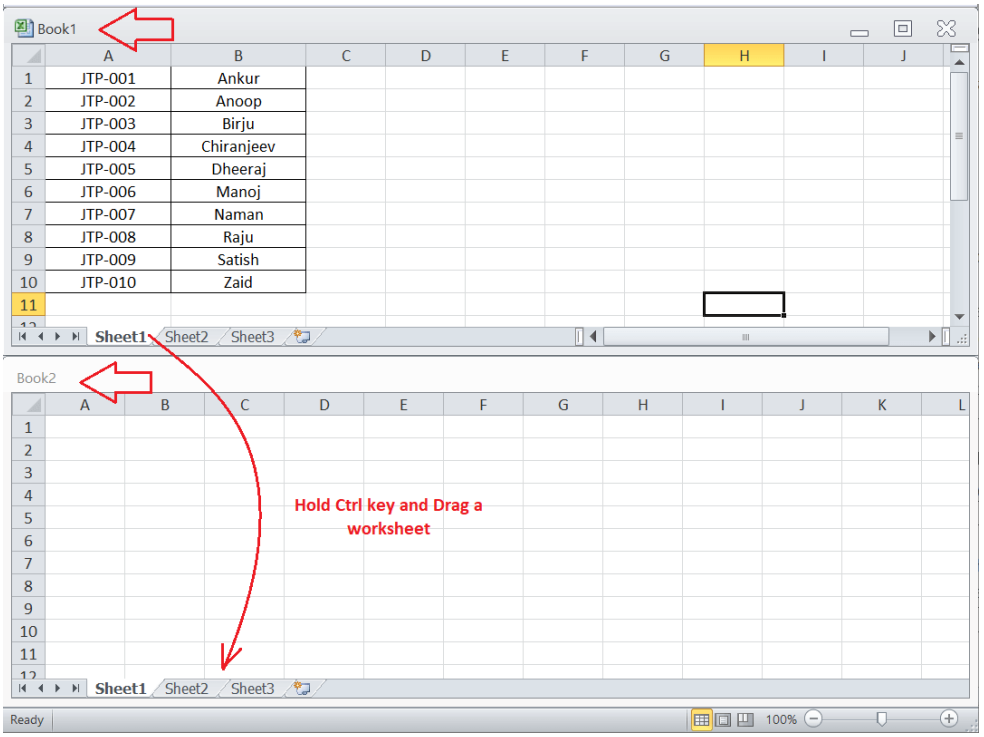
3. How to move or copy the worksheet into another workbook?

By Using Dragging

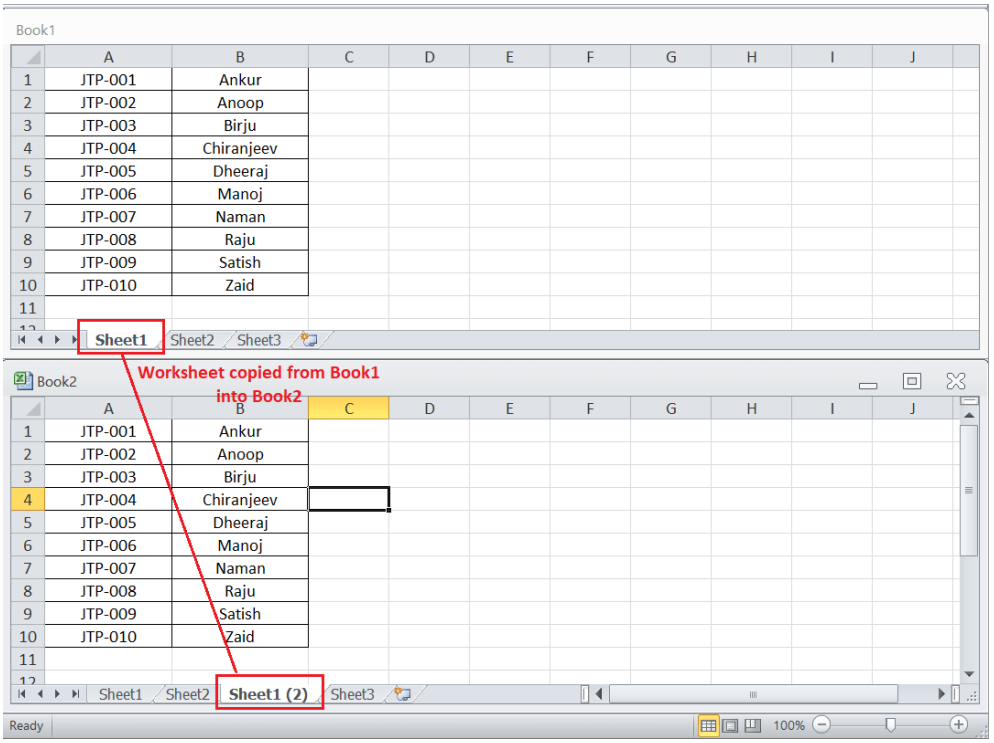
- First, we need to open both the Excel workbooks, one we want to copy and the other to which we want to copy.
- After opening both the Excel workbooks, we need to navigate the View tab and click on View Side by Side option from the section Windows. This will arrange both the workbooks horizontally on the screen side by side.



- Next, we must select the worksheet from the first workbook (source workbook). We need to hold the Ctrl key and drag the selected worksheet onto the other workbook.

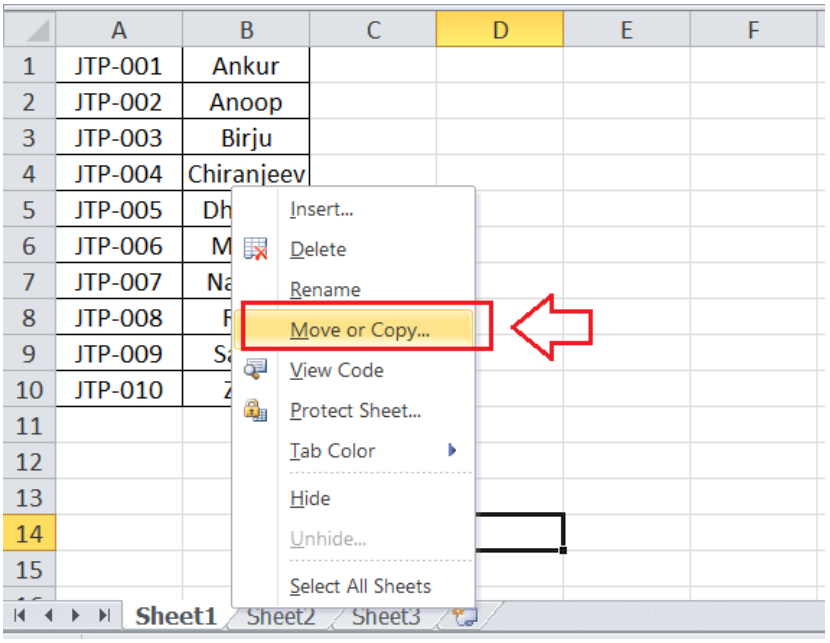


- Lastly, we must drop the selected worksheet at the desired place between the worksheets in the Sheet tab on the second workbook.

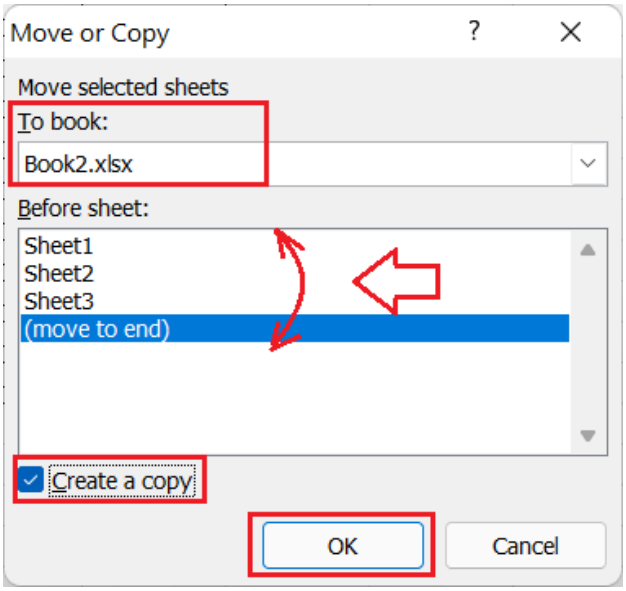


By Using Right-Click

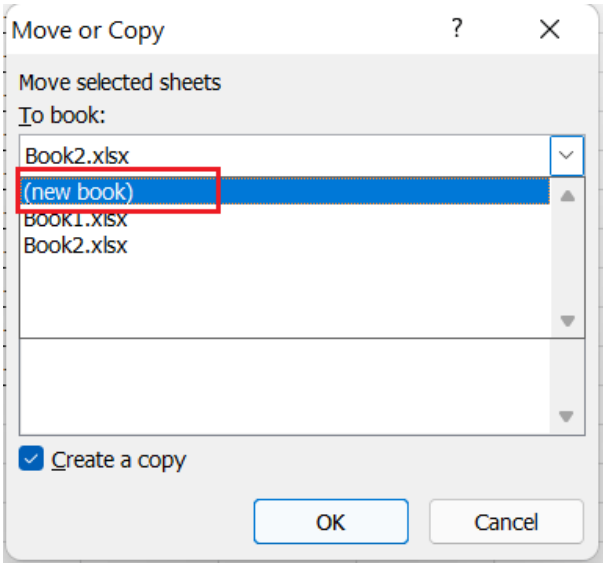
- We need to right-click on the source worksheet and choose 'Move or Copy'.



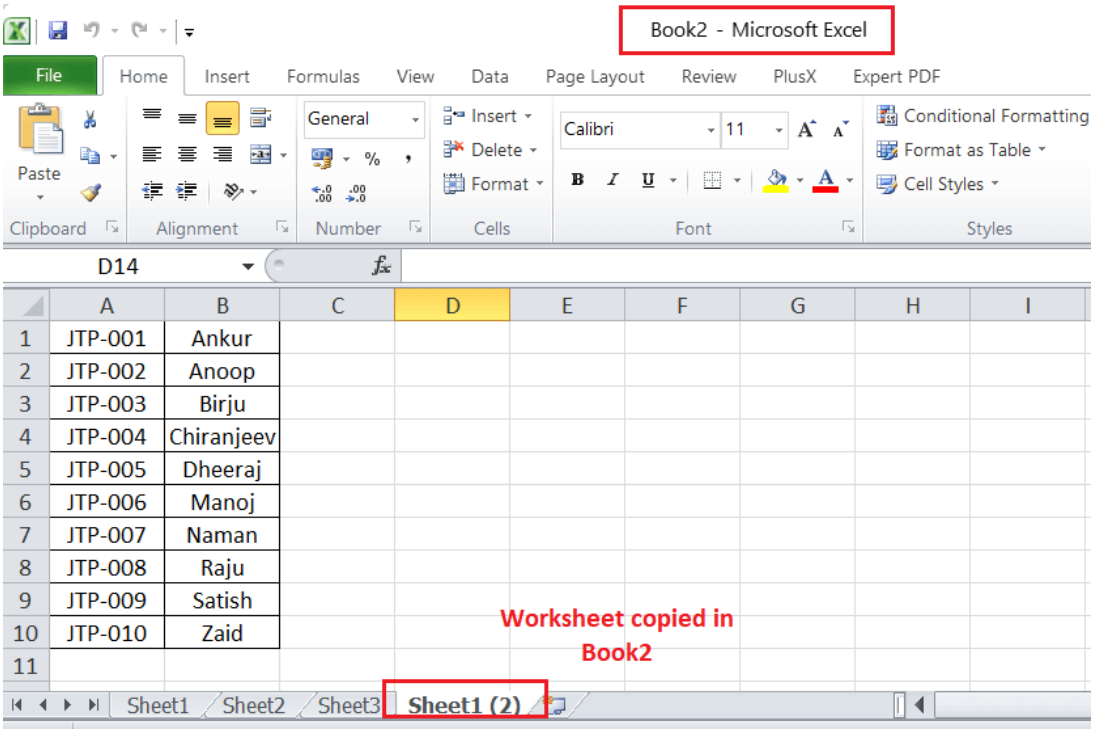
- Next, we must choose the target or destination workbook from the drop-down under 'To book'. However, the target workbook must be active in the background.



If we want to copy the worksheet into a new workbook, we can choose the 'New Book' option from the drop-down list.

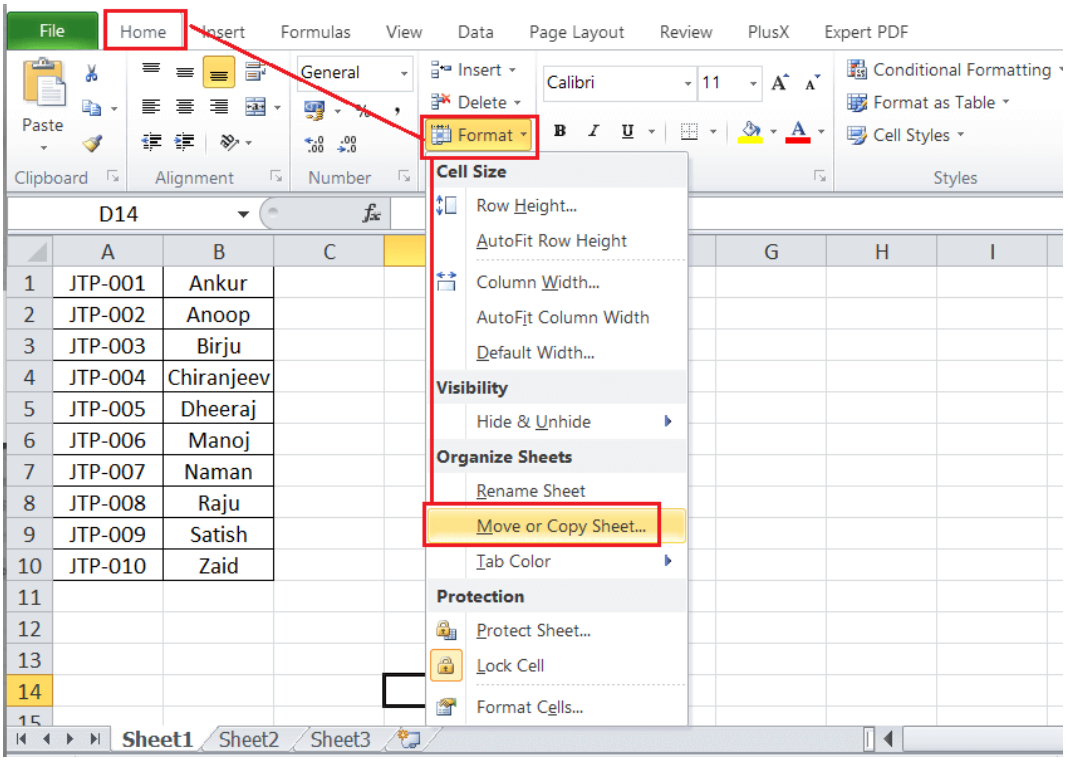


- After selecting the workbook, we must select where to copy the worksheet. For example, before any existing worksheet or at the end in the destination workbook. Lastly, we must tick the 'Create a copy' box and click the OK button.



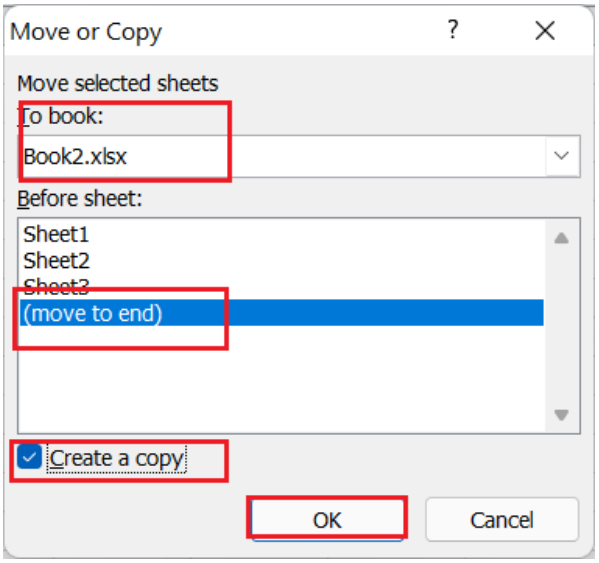
By Using Ribbon

- First, we need to open the source workbook and the destination workbook.
- Next, we must select the worksheet to copy in the source workbook (Book1). We must navigate the Home tab and choose the Format button. After that, we must click the 'Move or Copy Sheet' option.



- Excel will launch the Move or Copy dialogue box, shown in the previous method. We need to select the destination workbook (Book2, Book3, or New Workbook), choose a location on the sheet tab to copy the worksheet, tick the 'Create a copy'

box, and click OK.



By Using Keyboard Shortcuts

- First, we need to open both the source and destination workbooks.
- Next, we must open a worksheet to copy in the source workbook, select the entire sheet using 'Ctrl + A', and copy it using 'Ctrl + C'.
- After copying the worksheet, we need to go to another workbook. Open the destination sheet in the destination workbook and paste a worksheet using 'Ctrl + V'.

Copying multiple worksheets or tabs at once

Instead of copying a single worksheet, we can also copy multiple Excel worksheets at once. However, we must select all desired (source) worksheets to copy before using any of the methods discussed above, like dragging, right-clicking, using ribbon or keyboard shortcuts.

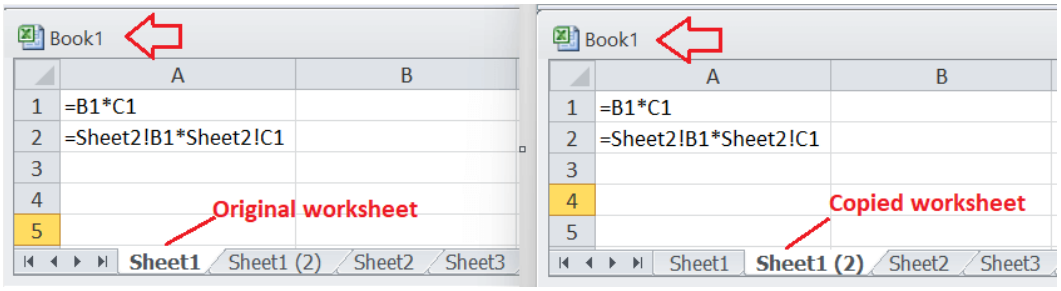
To select multiple worksheets, we can use any of the following ways:

- When we need to select adjacent worksheets (or contiguous sheets), we must hold the Shift key and click on the first and last worksheet from the sheet tab. This will select/ highlight all the worksheets between the first and last selected sheets.
- When we need to select non-adjacent worksheets (or non-contiguous sheets), we must hold the Ctrl key and click on each worksheet one by one from the sheet tab. This will select/highlight only those sheets we clicked while holding the Ctrl key.

Copying a worksheet containing formulas

Typically, we can copy a worksheet with the formulas using any methods discussed above. Also, the formula references adjust automatically in most cases. For example, suppose we copy a Sheet1 with formulas to another sheet within the same workbook. In that case, the formulas get changed to refer to the source sheet unless we have not used the external cell references pointing to another worksheet or Excel workbook.

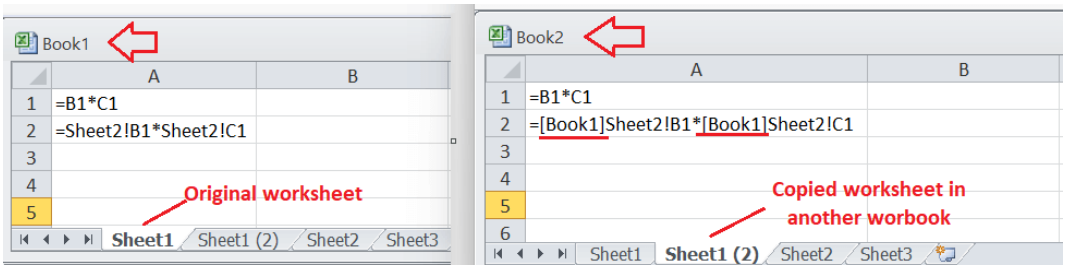
The following image displays the auto adjustment of formulas from Sheet1 when copied to a new sheet:



By default, when copying a worksheet to another workbook, the formula references get changed in the following ways:

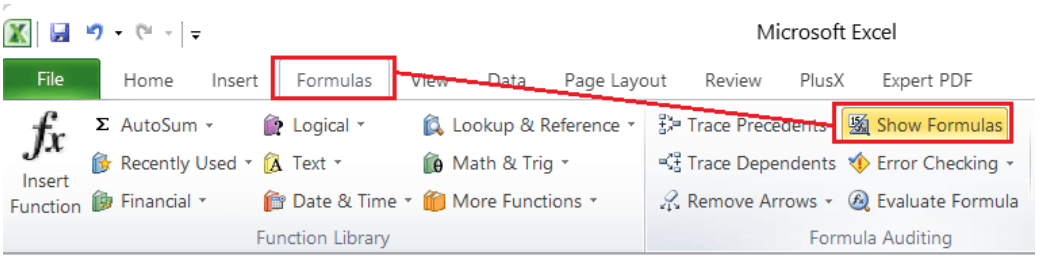
References used for the worksheet in another workbook, either absolute or relative, will refer to the same worksheets as the original or source workbook. The cell references or sheet references do not get changed. However, the references in other (or new) worksheets will also point to the original workbook.

For example, our example displays that the references in another worksheet have automatically changed slightly compared to the original workbook. Although cell references or sheet names are the same, a workbook name is added before the worksheet name in the copied worksheet.

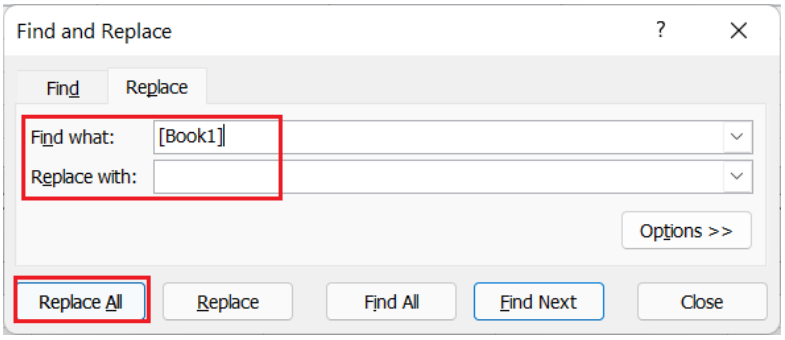


To fix this issue or change the formulas in another workbook to match the references of the destination workbook, we must remove the source workbook name from the formulas. This can be done using Excel's 'Find and Replace' tool. We must perform the following steps after copying the worksheet with formulas in another workbook:

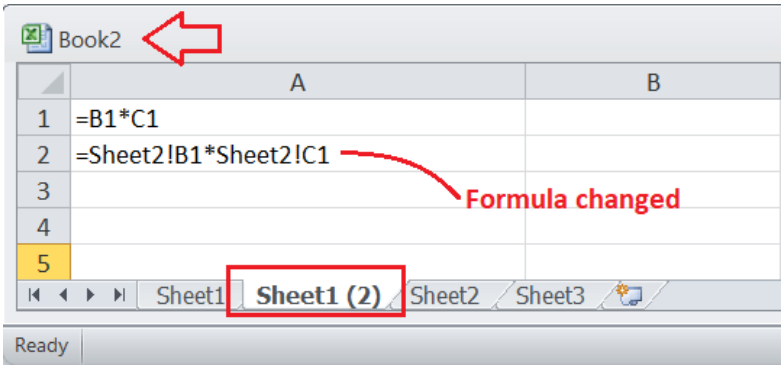
- First, we must select the copied worksheet in another (or new or destination) workbook and navigate to Formula > Show Formulas from the Ribbon to make all the formulas visible.



- Next, we must select all the cells with formulas where we want to make changes (remove original workbook name).
- After selecting the formula cells, we need to use the shortcut 'Ctrl + H' to open the 'Find and Replace' dialogue box.
- We must type the original workbook name next to the 'Find what' box in the dialogue box. In our example, we type '[Book1]' as it is the name of our original workbook. Moreover, we must leave the 'Replace with' box empty, as displayed in the following image:



Lastly, we must click the Replace all button. This will remove the name of the original workbook (i.e., Book1) from formulas and make them suitable for the destination workbook. As in our example, the formula in the destination workbook has changed from =[Book1]Sheet2!B1*[Book1]Sheet2!C1 to =Sheet2!B1*Sheet2!C1.



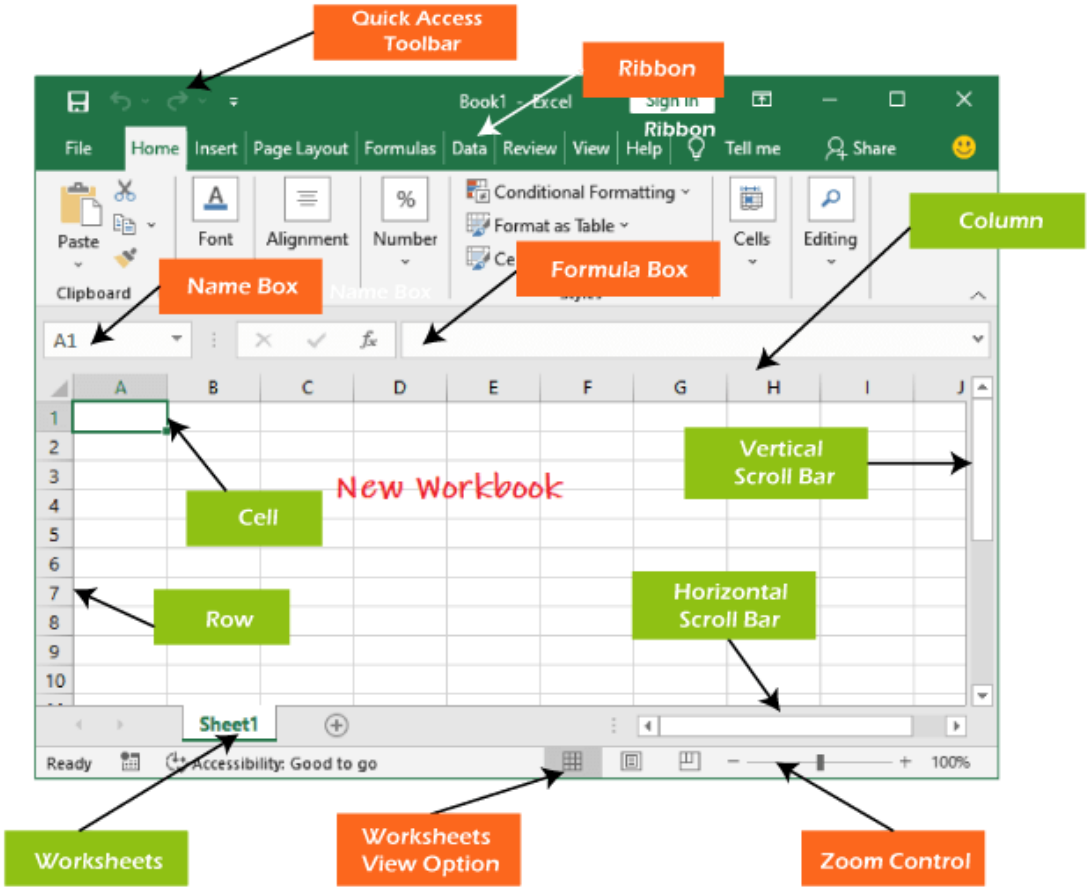
4. Which key is used as a shortcut for opening a new window document?

   Ctrl+N

5. What are the things that we can notice after opening the Excel interface?

   It is the main interface of an Excel worksheet, where we work and store our data. This interface contains various components. Before starting working with Excel worksheet, you should be familiar with these components so that you can use the Excel application efficiently.

   Once you get familiar with the Excel interface, you will be able to identify the basic and most-used components of an Excel workbook. We have explained a bit about these components.



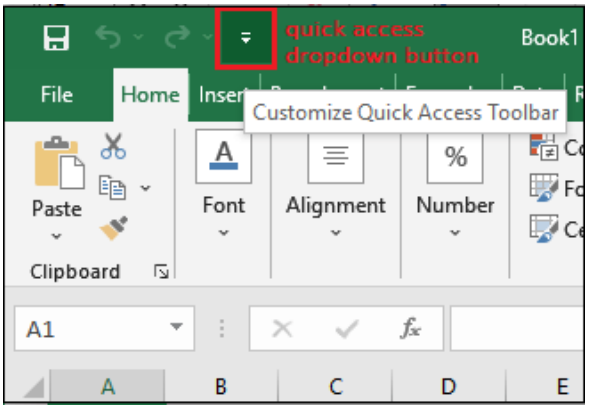
Quick Access Toolbar

The Quick Access Toolbar contains some common and most used commands of Excel, which users repeatedly need while working with Excel. By default, Save, Undo, and Repeat commands are added in the quick access toolbar.

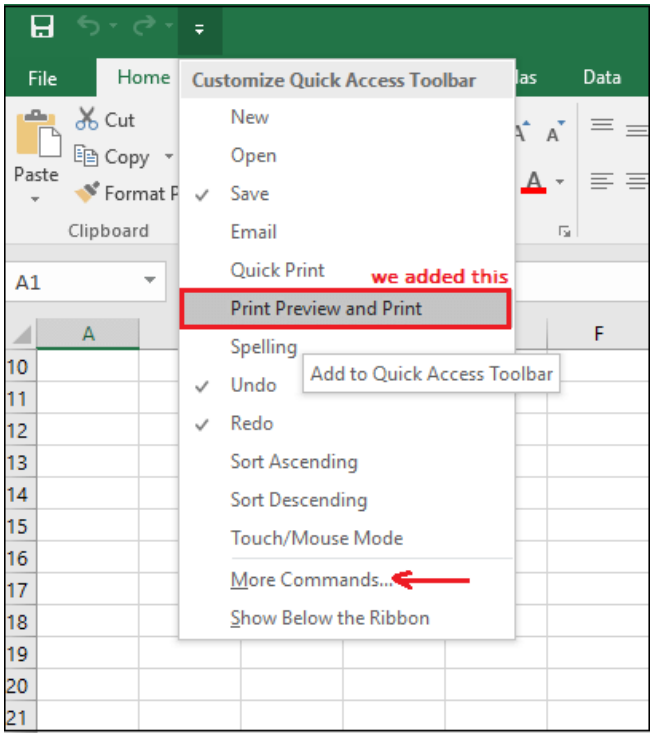
It provides fast access to its users by adding most-used commands in it. This quick access toolbar is customizable. It means you can add other commands, whichever you need most.

Add commands to the Quick Access toolbar

Step 1: Click on the drop-down arrow to the right of the Quick Access toolbar.

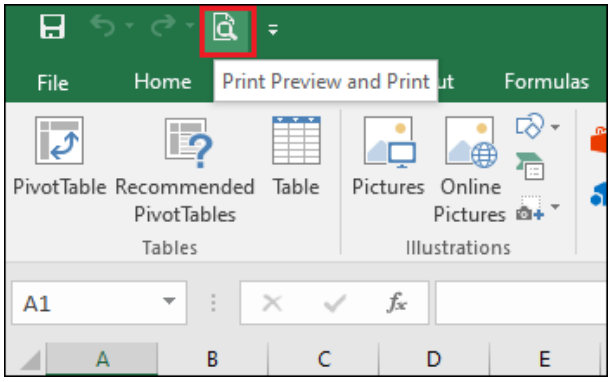


Step 2: Select the command you wish to add in the quick access toolbar from the drop-down menu.



For more commands, which are not available here, click on More Commands and choose from there.

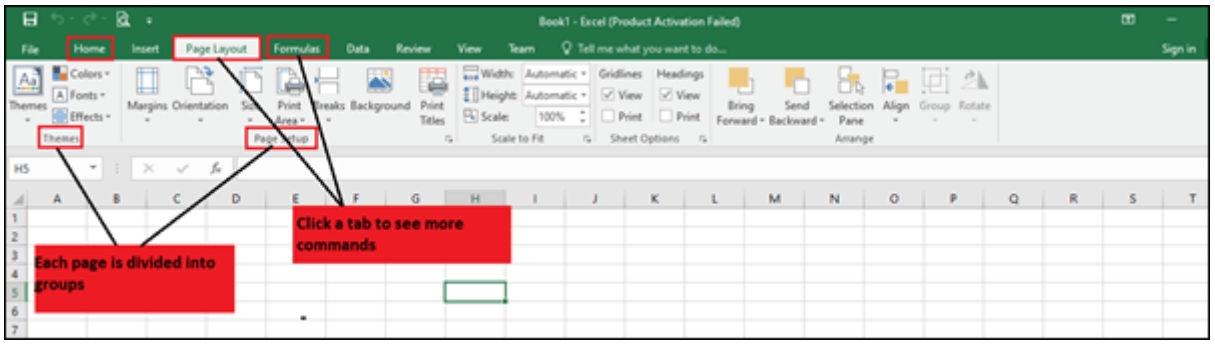
Step 3: Here, we have selected the command Print Preview and Print that has been added to the Quick Access toolbar along with other commands. You can see it here.



Excel Ribbon

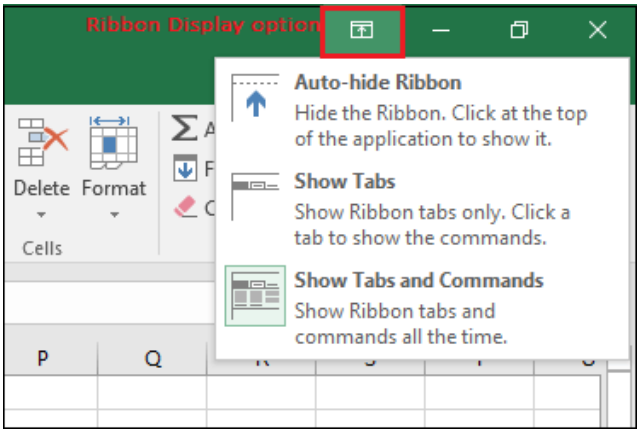
Excel 2016 utilizes a tabbed Ribbon system instead of traditional menus. The Ribbon includes multiple tabs, each with several groups of commands. We will use these tabs to perform the most common function in Excel.

File, Home, Insert, Page Layout, Formula, Data, Review, View, and Help are the tabs consisting of the Excel ribbon.

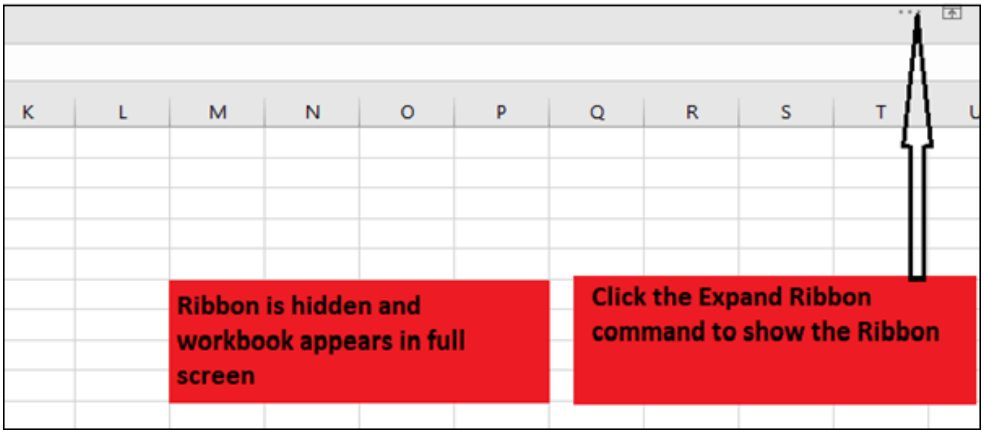


Each tab of Excel Ribbon contains its related operations list. For example, the formula tab contains all the mathematical, logical, text, string, finance, Date, and time functions.
To minimize and maximize the Ribbon
The Ribbon is designed to respond to our current function, but we can choose to minimize it if we find that it takes up too much screen space.

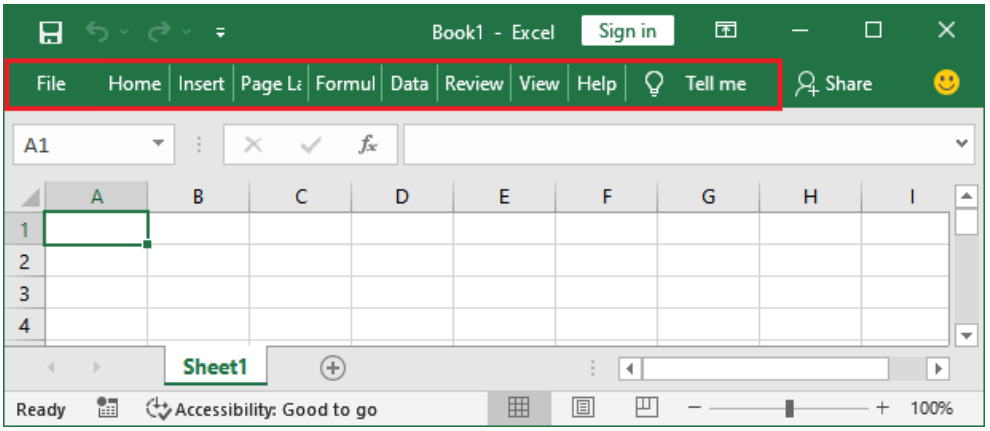
1. To click the Ribbon Display Options arrow in the upper-right corner of the Ribbon.



2. Select the desired minimizing options from the drop-down menu:
   - Auto-hide Ribbon: Auto-hide shows our workbook in full-screen mode and hides the Ribbon completely. To show the Ribbon, click the Expand Ribbon command at the top of the screen.

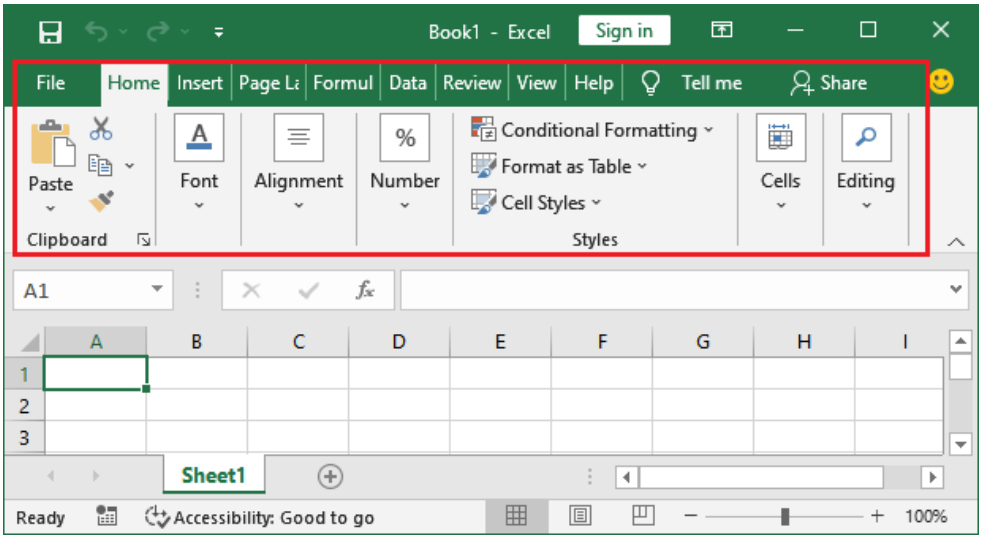


   - Show Tabs: This option hides all command groups when not in use, but tabs will remain there. To show the Ribbon, simply click on any of the tabs.



   - Show Tabs and Commands: This option maximizes the Ribbon. All of the tabs and commands will always be visible to the user. This option is

selected by default when we open Excel for the first time.

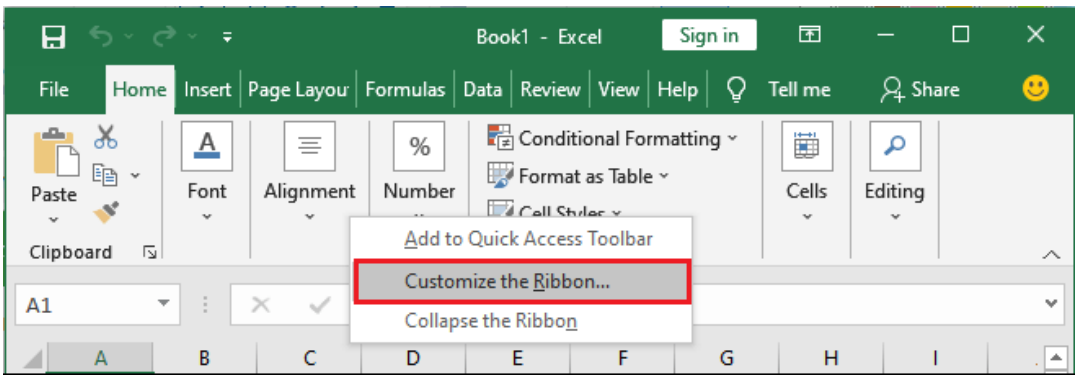


To Customize the Ribbon in Excel 2016

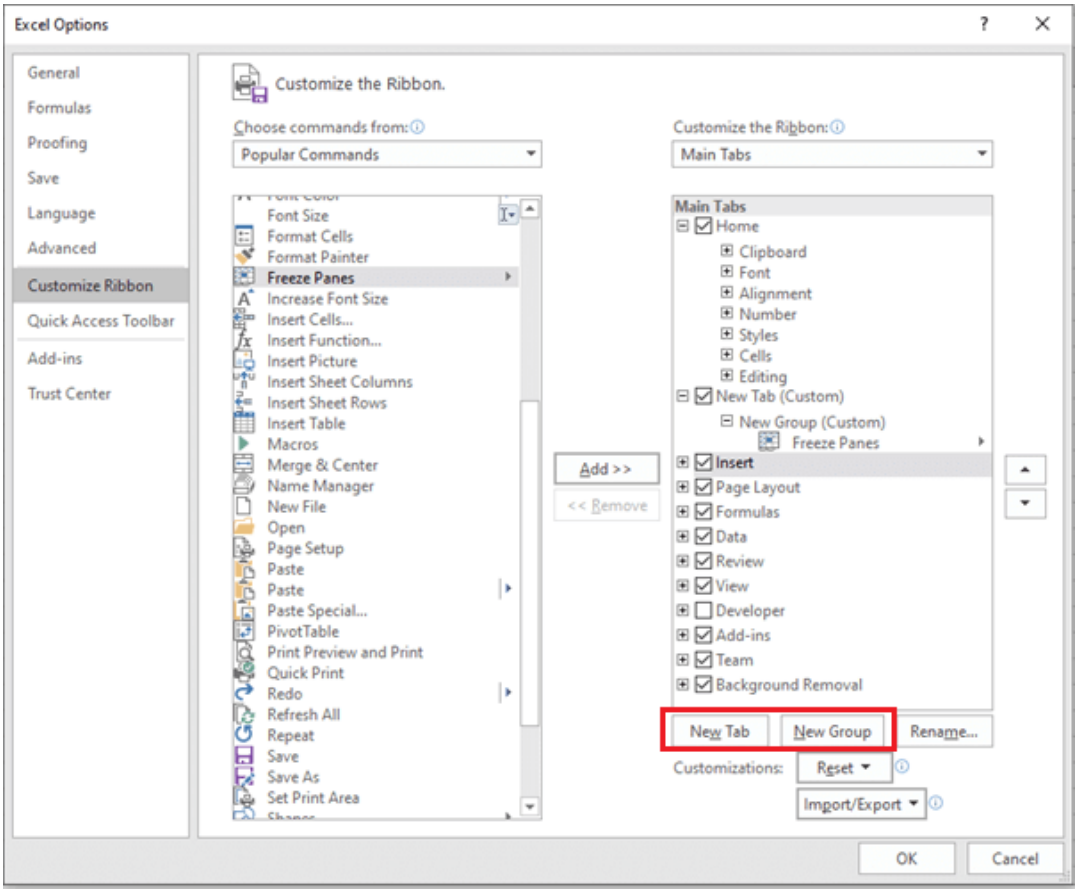
We can customize the Ribbon by creating our own tabs with whichever commands we want. Commands are always housed within a group, and we can create as many groups as we want to keep our tab organized. If we want, we can even add commands to any of the default tabs, as long as we create a custom group in the tab.

If we want, we can even add commands to any of the default tabs, as long as we create a custom group in the tab.

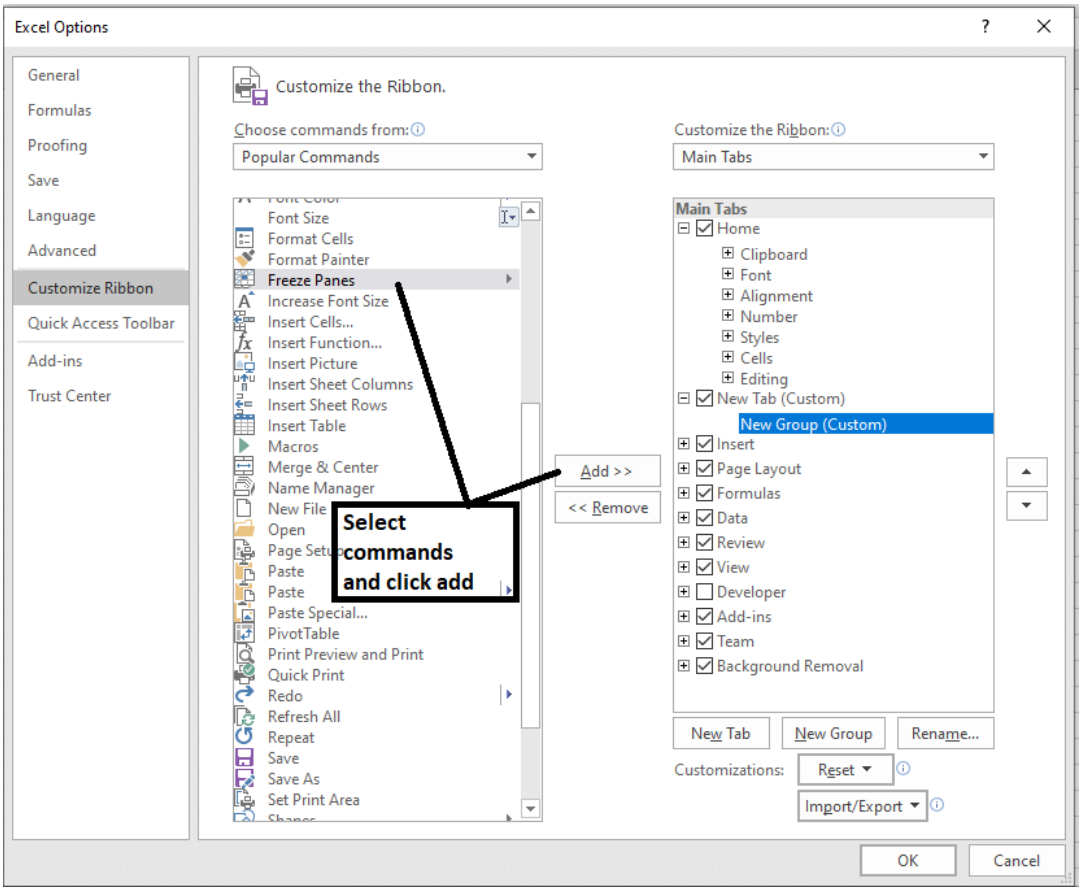
1. Right-click the Ribbon and then choose Customize the Ribbon from the drop-down menu.



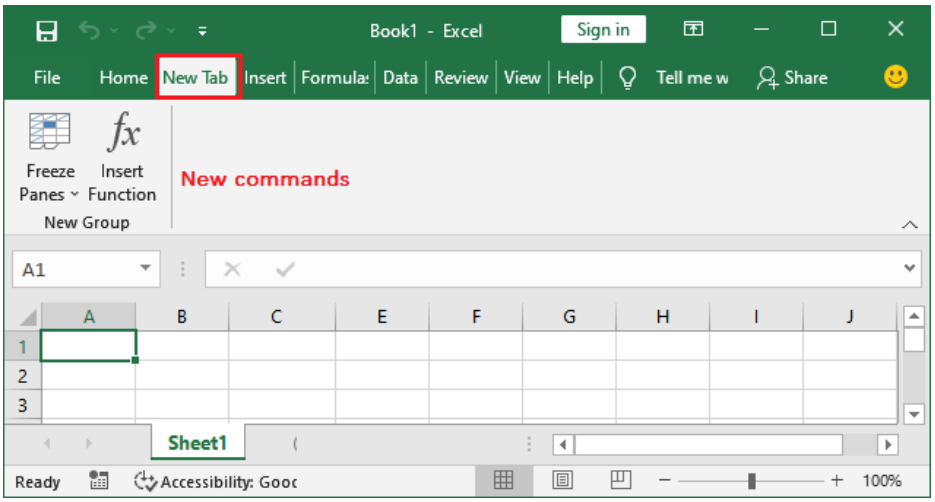
2. The Excel Options dialog box will occur. Locate and select New Tab or New group, whichever you want to add.



3. Now, select a command from the left panel and click the Add button to the new customized tab/group. You can also drag the commands directly into a group.



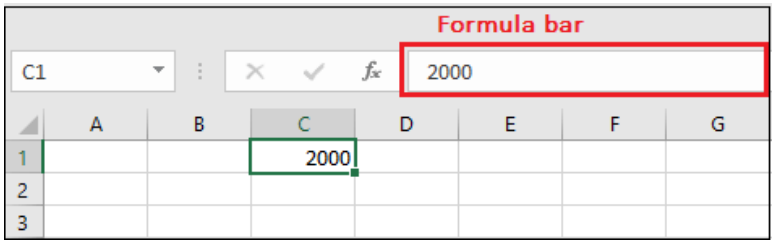
4. When you are done adding commands, click OK. The commands will be added to the Ribbon in a new tab like this.



Note: You can also rename the tab and group name.

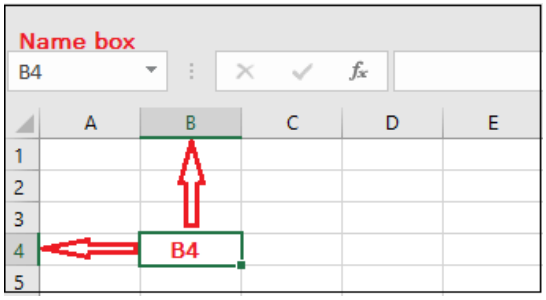
Formula Bar

In the formula bar, we can enter or edit data, a formula, or a function that will occur in a specific cell. It allows to write functions and formulas to manipulate the data.
In the image below, cell C1 is selected, and 2000 is entered into the formula bar. Note how the data is contained in both the formula bar and in cell C1.



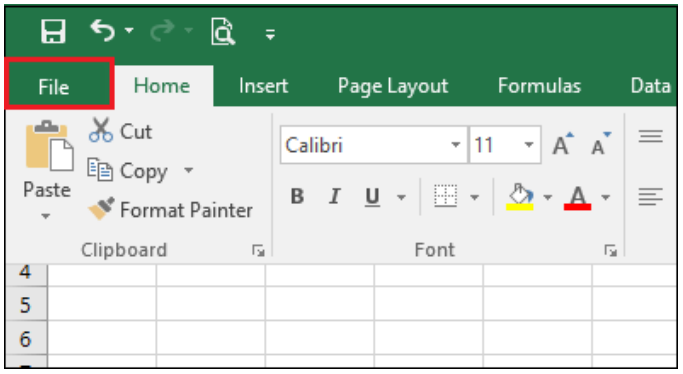
Name Box

The Name box presents the location or "name" of a selected cell.
In the image below, cell B4 is selected. Note that cell B4 is where column B and row 4 intersect.

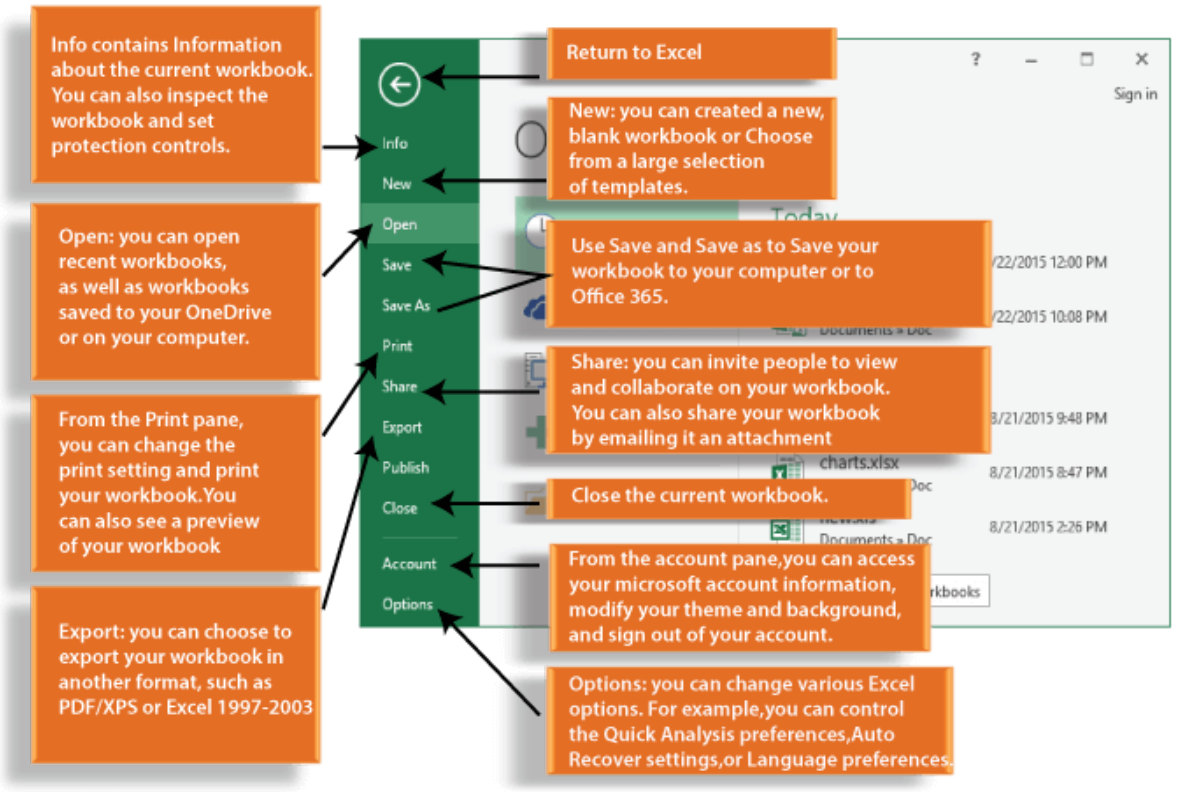


The Backstage View (The File Menu)

Click the File tab on the Ribbon. The Backstage view will emerge.



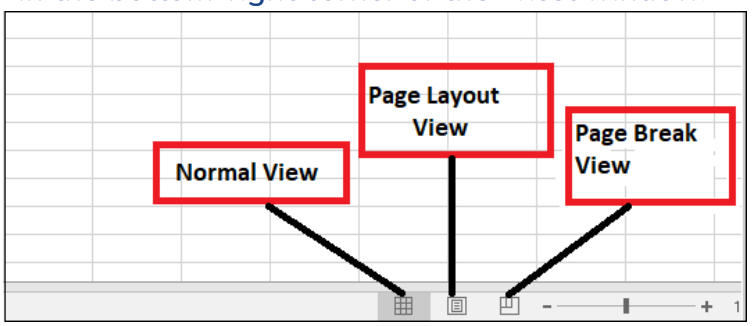
It is the backstage view of MS Excel and information about the options it contains.



The Worksheet Views

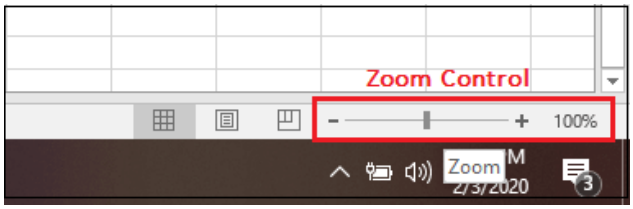
Excel 2016 has a variety of displaying options that change how our workbook is shown. We can choose to view any workbook in the Normal view, Page Layout view, or Page Break view. These views can be useful for several tasks, especially if we're planning to print the spreadsheet.

To change the worksheet views, locate and choose the desired worksheet view command in the bottom-right corner of the Excel window.



Zoom Control

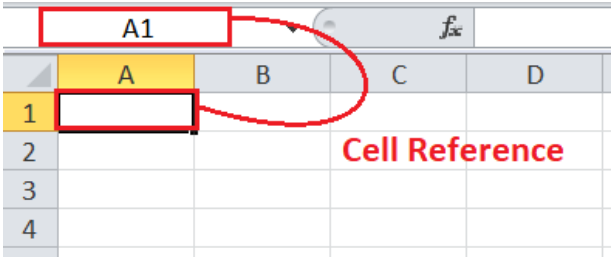
To use a Zoom control, click and drag the slider. The number to the right of the slider represents the zoom percentage. It is presented at the bottom right corner of the Excel worksheet.



By default, Excel view zoom percent is 100%.

6. When to use a relative cell reference in excel?

In Excel, a cell reference is defined as the name or address of a specific cell or range. It accordingly remains unique for each respective Excel cell. An Excel cell reference is formed by combining a particular column name and the corresponding row number. For example, A1 is the cell reference to the first cell in the sheet where the letter 'A' represents the first column and the numeric '1' represents the first row of the sheet.



The primary purpose of a cell reference in Excel is to tell an Excel formula where to look for the desired value/data to be used in the formula to produce the corresponding output. In Excel, we can use cell references to refer to the same sheet, another sheet, another workbook, and many other similar programs.

Relative Reference in Excel

Relative reference is the default approach used by Excel. It makes the Excel cells reference-free, giving the fill function freedom to continue its order without any restriction. In particular, a relative reference in Excel refers to a pointer to any specific cell or range of multiple cells within the same sheet, another sheet, or workbook. For example, the relative reference for the cell A1 can be given as below:

=A1

As shown above, the relative reference in Excel is nothing but only the combination of a respective column name and row number. If we copy-paste the relative references in different cells, their references automatically change depending on the relative position of rows and columns. Relative references typically change when copied to other locations because they describe the "offset" to other cells accordingly, rather than fixed addresses.

For example, if you copy the formula (=A1*B1) from the first row to the second row of the sheet, the formula will become (=A2*B2). The relative references are mainly useful if there is a need for using the same formula or calculation in multiple cells within the workbook (s).

When do the relative references in Excel change?

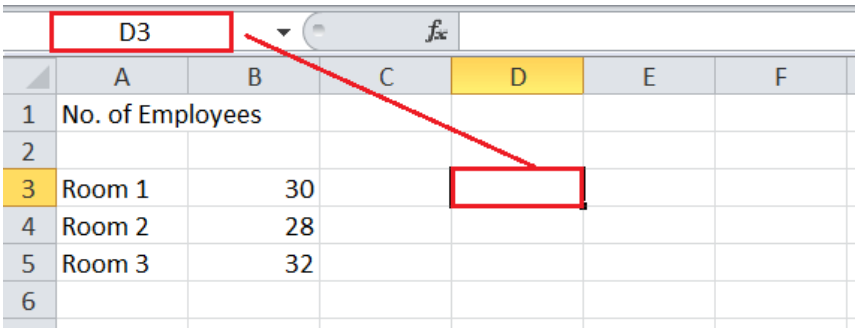
As discussed above, the relative references are the default reference type used by Excel. When we use relative references, they automatically change after copying them to another location in the sheet or workbook. Each referred cell with relative reference changes with left, right, top or bottom movement.
For example, suppose we give relative reference to cell D9 and perform the movement in the following ways within the sheet:

- Leftward: The given reference (D9) automatically changes to C9.
- Rightward: The given reference (D9) automatically changes to E9.
- Upward *(Top)*: The given reference (D9) automatically changes to D8.
- Downward *(Bottom)*: The given reference (D9) automatically changes to D10.

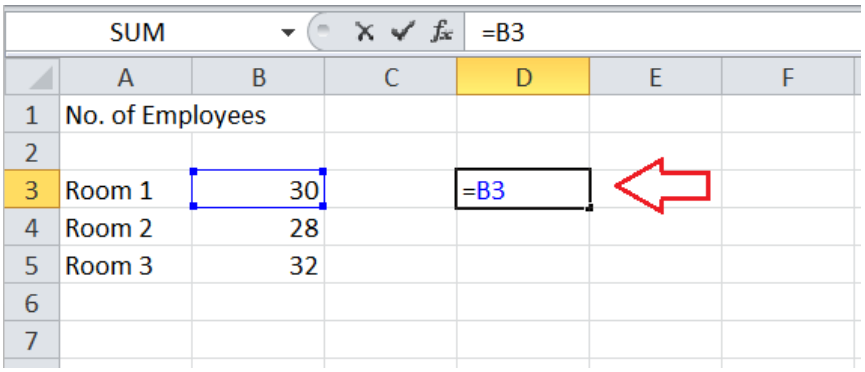
How to create/ make relative references in Excel?

To create or make a relative reference, we should include the equal sign before the cell reference to refer to any specific cell in the sheet. Depending on the requirement for our formula, we can either refer to a cell or a range. Below are the steps explaining how to create a basic relative reference in Excel:

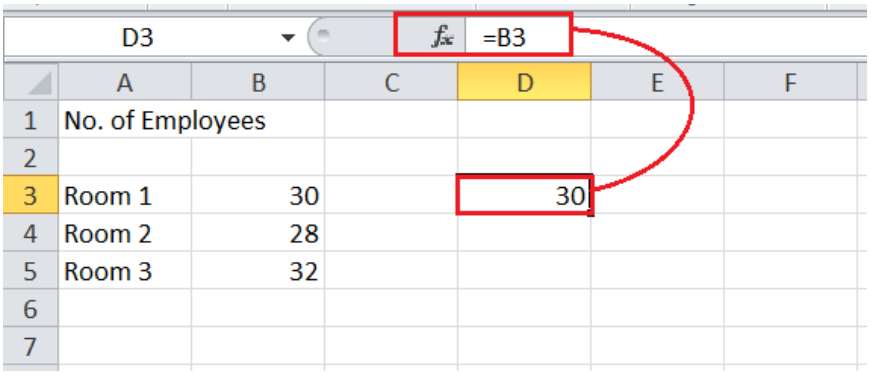
- First, we need to select a cell where we want to use relative reference for any specific cell. For example purpose, we select the cell D3 in our example sheet, as shown below:



- In the next step, we must start entering the equal sign (=) and then select or type the desired point of reference (cell or range). We type the equal sign "=" in cell D3 and select cell B3 as a reference point in our example.



- After pressing the Enter key, we see that the same value is displayed in cell D3 as cell B3. Moreover, if we change the value in cell B3, the value in cell D3 will change accordingly. That's because we have created a relative reference of cell B3 in cell D3.

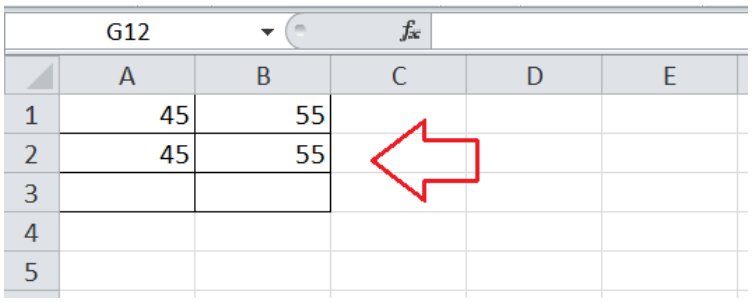


How to use relative references in Excel?

Let us now understand the concept of Excel relative referencing better with the help of the below examples:

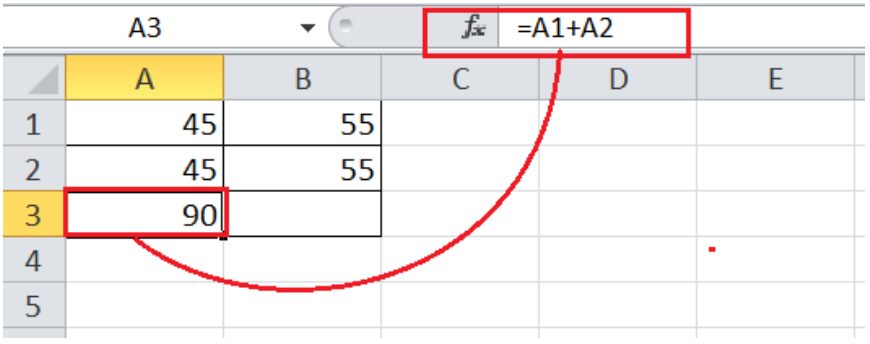
Relative Referencing in Excel: Example 1

Consider the following sheet as an example data set where numbers in four different cells, A1, A2, B1, and B2, are recorded.



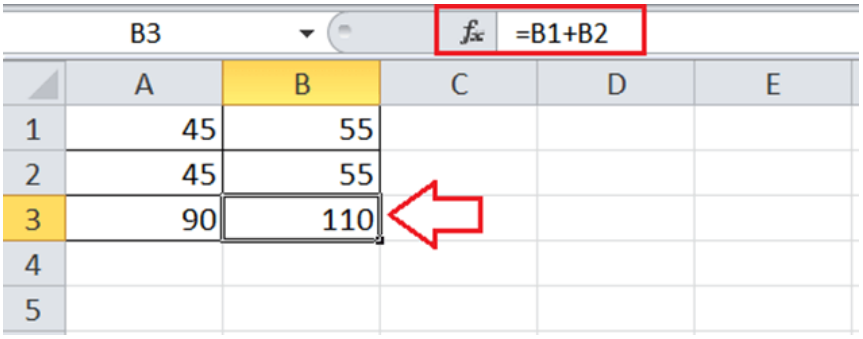
Suppose we need to SUM values in A1 and A2 in the below cell A3. Likewise, we also need to SUM values in B1 and B2 in cell B3.

- First, we calculate the sum of two numbers from A1 and A2 in cell A3. We select cell A3, type the enter sign (=), and then select cell A1. After that, we enter the addition operator, select cell A2, and press the Enter key on the keyboard. So, the formula (=A1+A2) gives the output SUM as 90.



- Next, we calculate the sum of two numbers or numerics from B1 and B2 in cell B3. Since we have a similar scenario in the next column B, we can again use the addition operator to SUM values and obtain results.
  However, we can get the result in another way which will be comparatively easier and more useful when there are more similar scenarios in the next columns.
- Instead of entering the entire formula again, we can usually copy-paste (or drag using the Fill Handle) the formula from cell A3 into cell B3. When we copy-paste the contents from cell A3 to cell B3, only the applied formula is copied from one

cell to another (not the result).



The above image shows that the formula has automatically adopted the respective cells accordingly. After being copied, the applied formula (=A1+A2) has automatically changed into formula (=B1+B2). The cell references automatically changed based on the relative position of the row and column. However, we get the appropriate results. That's because the destination cell B3 only contains the formula, not the source value. This is how Excel's relative referencing works.

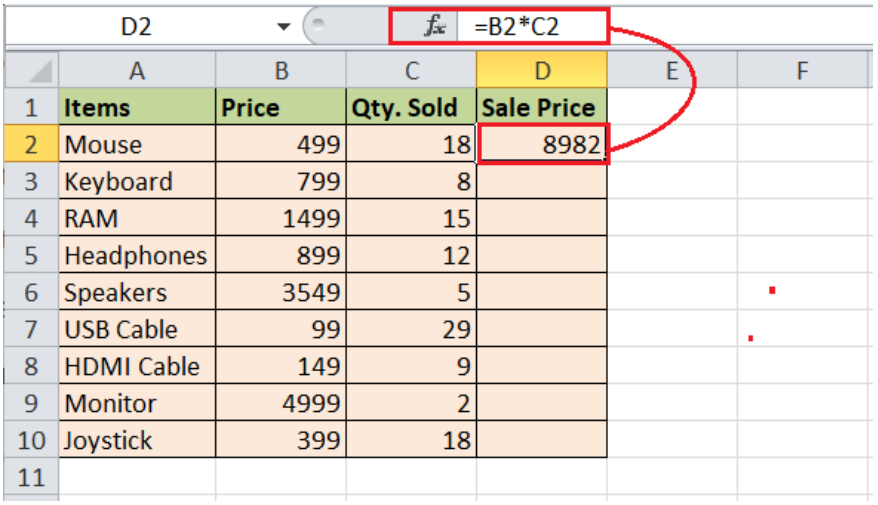
Relative Referencing in Excel: Example 2

Consider the following Excel sheet as an example data set where we list different items with their prices and sold quantities.

	A	B	C	D	E	F
1	**Items**	**Price**	**Qty. Sold**	**Sale Price**		
2	Mouse	499	18			
3	Keyboard	799	8			
4	RAM	1499	15			
5	Headphones	899	12			
6	Speakers	3549	5			
7	USB Cable	99	29			
8	HDMI Cable	149	9			
9	Monitor	4999	2			
10	Joystick	399	18			
11						

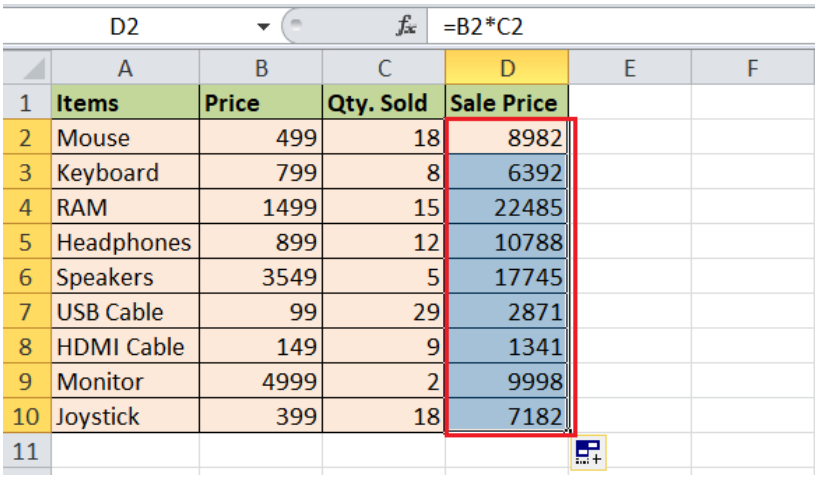
We need to calculate the Sale Price/Value for each item separately in column D. To do this, we need to multiply the sold quantities by their respective price.

- First, we calculate the Sale Price for the first item (i.e., Mouse). So, we select the corresponding resultant cell D2 and insert the multiplication formula. We first type equal sign (=), then we select a cell with Price (B2), insert the multiplication operator (*), select the cell with quantity sold (C2), and press the Enter key. This gives the Sale Price for the first item.



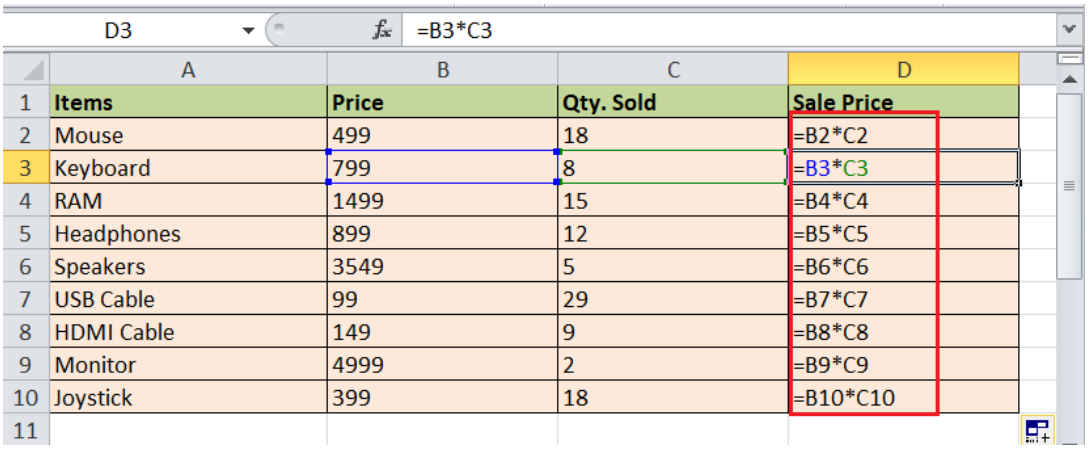
	A	B	C	D	E	F
1	**Items**	**Price**	**Qty. Sold**	**Sale Price**		
2	Mouse	499	18	8982		
3	Keyboard	799	8			
4	RAM	1499	15			
5	Headphones	899	12			
6	Speakers	3549	5			
7	USB Cable	99	29			
8	HDMI Cable	149	9			
9	Monitor	4999	2			
10	Joystick	399	18			
11						

- Next, we need to calculate the Sale Price for other items. We can apply the multiplication formula to other resultant cells similarly. However, it will take a lot of time. Therefore, we leverage the Relative Reference feature of Excel and usually copy-paste (or drag using Fill Handle) the formula from D2 to other remaining cells. This immediately calculates the Sale Price for other items in the column.



	A	B	C	D	E	F
1	**Items**	**Price**	**Qty. Sold**	**Sale Price**		
2	Mouse	499	18	8982		
3	Keyboard	799	8	6392		
4	RAM	1499	15	22485		
5	Headphones	899	12	10788		
6	Speakers	3549	5	17745		
7	USB Cable	99	29	2871		
8	HDMI Cable	149	9	1341		
9	Monitor	4999	2	9998		
10	Joystick	399	18	7182		
11						

Suppose we check the formula in any other specific resultant cell in column D. We notice that the cell references have changed relatively (based on relative positions of row and column) while keeping the same formula as the source cell.



	A	B	C	D
1	**Items**	**Price**	**Qty. Sold**	**Sale Price**
2	Mouse	499	18	=B2*C2
3	Keyboard	799	8	=B3*C3
4	RAM	1499	15	=B4*C4
5	Headphones	899	12	=B5*C5
6	Speakers	3549	5	=B6*C6
7	USB Cable	99	29	=B7*C7
8	HDMI Cable	149	9	=B8*C8
9	Monitor	4999	2	=B9*C9
10	Joystick	399	18	=B10*C10
11				

Important Points to Remember

- The relative reference does not contain a dollar ($) sign.

- Neither a row nor a column is fixed in Excel relative referencing. If a row or column is fixed, the reference will be referred to as a mixed reference. If both row and column are fixed, it becomes an absolute reference.
- We can change between different cell references by pressing the 'F4' function key after placing the cursor between the specific cell in the formula bar.