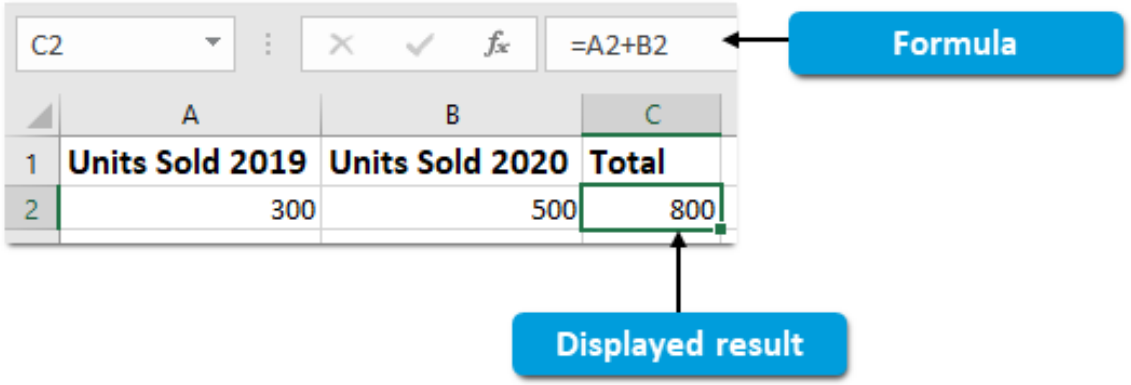
Create Worksheet Formulas

This course is based on the Microsoft Excel 2021-2024 Mastery Specialization by Logical Operations

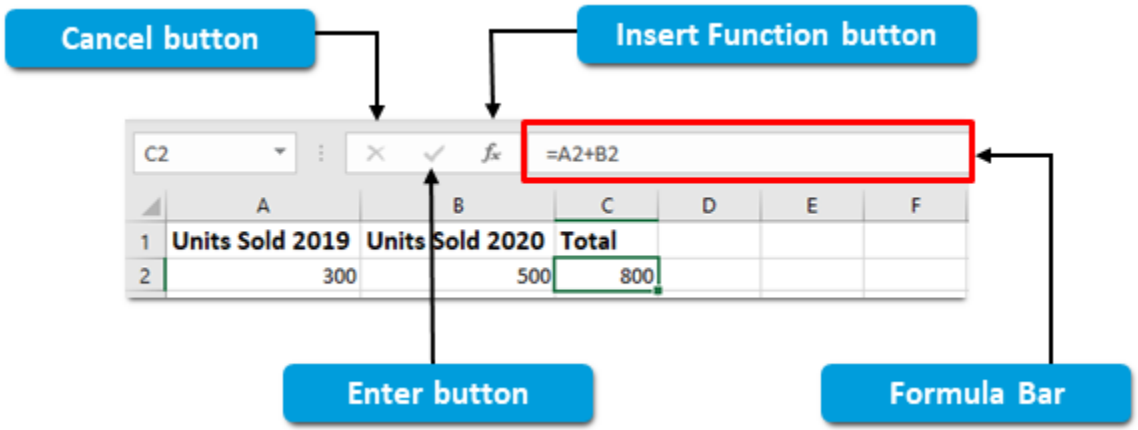
Excel Formulas

Excel formulas perform simple or complex mathematical computations in worksheets. You can use formulas to perform tasks such as adding up a row or a column of numbers, multiplying sales figures by commission rates, and applying tax to sales. One of the key benefits of using formulas in Excel is that you can change some of the values used in the formulas and, by default, Excel will automatically adjust the calculations accordingly.

Excel can perform calculations by using fixed numbers, or by referring to values in other cells. This is one of the truly powerful features of using Excel to perform calculations. Excel 2021 provides you with an incredible array of options for performing calculations in your workbooks and worksheets.

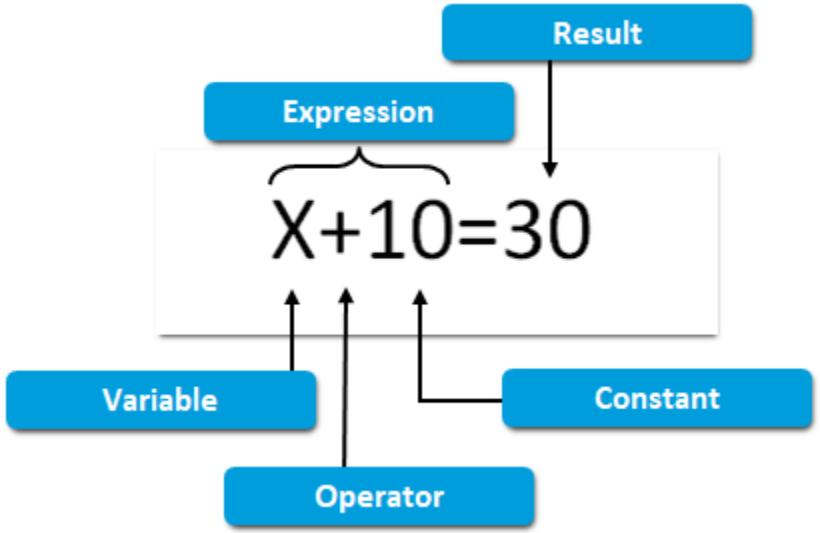


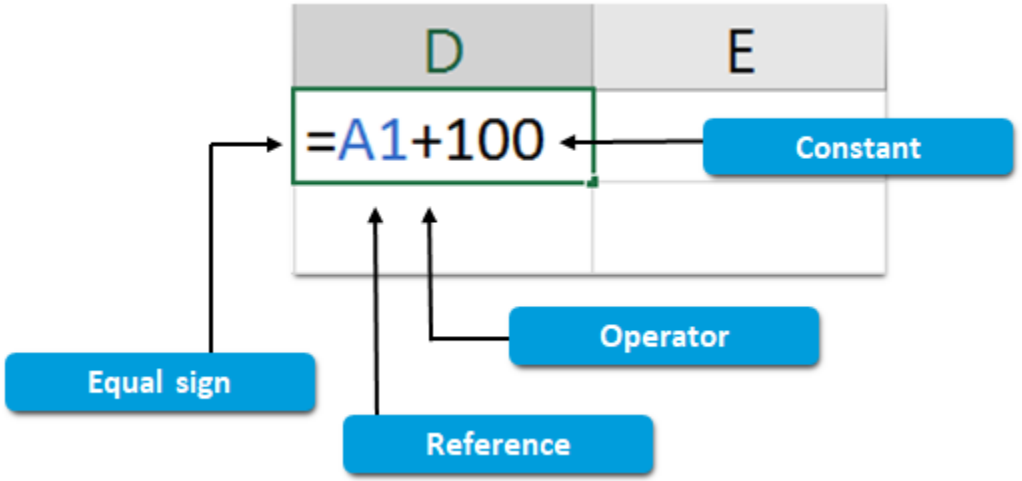
The Formula Bar



Formula Bar Option	Description
Cancel button	The **Cancel** button is displayed only when a cell is in **Edit** mode or **Enter** mode. Selecting the **Cancel** button will undo any changes you have made to a cell since selecting it and will keep that cell active. Basically, it reverts the cell back to its state before you began editing it.
Enter button	The **Enter** button is essentially the same as pressing **Ctrl+Enter**. When you select the **Enter** button, Excel enters whatever content is in the active cell and keeps the cell active.
Insert Function button	The **Insert Function** button opens the **Insert Function** dialog box, providing you with access to a wide variety of pre-existing Ex

Elements of Excel Formulas





Excel Formula Element	Description
Equal sign	The equal sign defines cell content as a formula. The equal sign tells Excel to perform a calculation based on the formula components and then to display the result of the calculation in the cell. All formulas in Excel must start with an equal sign.
Constants	Numbers and text that do not change unless manually altered.
References	Essentially, the variables in Excel formulas. When you include a reference to a cell or a range, Excel uses the value(s) from that cell or range to perform the calculation.
Mathematical operators	Symbols that specify the kind of calculation that Excel should perform on the elements of a formula.

Common Mathematical Operators

Excel uses a set of the most commonly used mathematical operators to perform a wide variety of calculations. These are simply symbols Excel uses to identify the calculations it should perform.

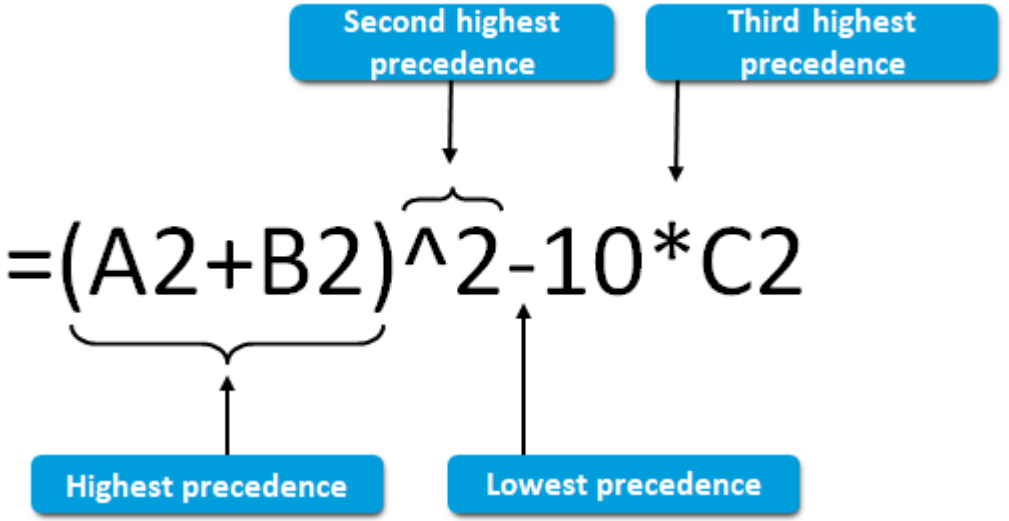
Mathematical Operator	Symbol	Function/Operation
Parentheses	( )	Groups a set of constants, references, and operators into a single value within a formula.
Caret	^	Exponentiation
Asterisk	*	Multiplication
Forward slash	/	Division
Plus sign	+	Addition
Minus sign	-	Subtraction

The Order of Operations

Excel gives precedence to certain mathematical operators over others. This is how Excel determines which operation to perform first, second, third, and so on in a complex formula. It is important that you understand how Excel will compute a formula before you create one to ensure that Excel will perform the calculation exactly as you want it to. The following is the order of operations, from first to last:

- Parentheses
- Exponents
- Multiplication and division
- Addition and subtraction

While often used for subtraction, the minus sign (–) can also be used to denote a negative value. In these cases, the minus sign takes greater precedence than exponents, allowing you to calculate the exponential value of a negative number. Percentage signs (%) also take higher precedence than exponents.



Reference Operators

Reference Operator	Symbol	Function
Comma	,	The comma is used as a union operator, which tells Excel to include each reference in a series of references. This is similar to how you would use a comma when writing a serial list; you are telling Excel to include each of the references. So, A1,B3,C5 tells Excel to include the values in each of these three cells.
Colon	:	The colon is used as a range operator, which you've already seen when selecting a range of cells. The colon tells Excel to include all cells in a range between the cell references on either side of the colon. For example, A1:A10 tells Excel to include the values in every cell from A1 to cell A10.
Space	N/A	A blank space is an intersection operator. This tells Excel to look for a value in the cell where two ranges intersect. For example, A9:J9 E2:E22 tells Excel to look for the value in the cell where these two ranges intersect, which in this case would be the value in cell E9. If you have a spreadsheet of salespeople as the rows and their quarterly sales as the columns, you can use an intersection to find how well Salesperson X did in Q3. Although you might be able to find this information by simply looking at the spreadsheet, this can become a hassle in larger spreadsheets that require scrolling through multiple pages.

Reference Operators

Excel reads a blank space only as an intersection operator if no other operator is present between cell or range references. If you enter another reference operator between the cell or range references, Excel will read the operator and ignore the spaces. So, A1:A3, A5, A6 is the same, to Excel, as A1:A3,A5,A6. Here, the spaces don't matter because of the commas. Excel will not look for the intersection, which in this case makes sense as the cells don't actually intersect.

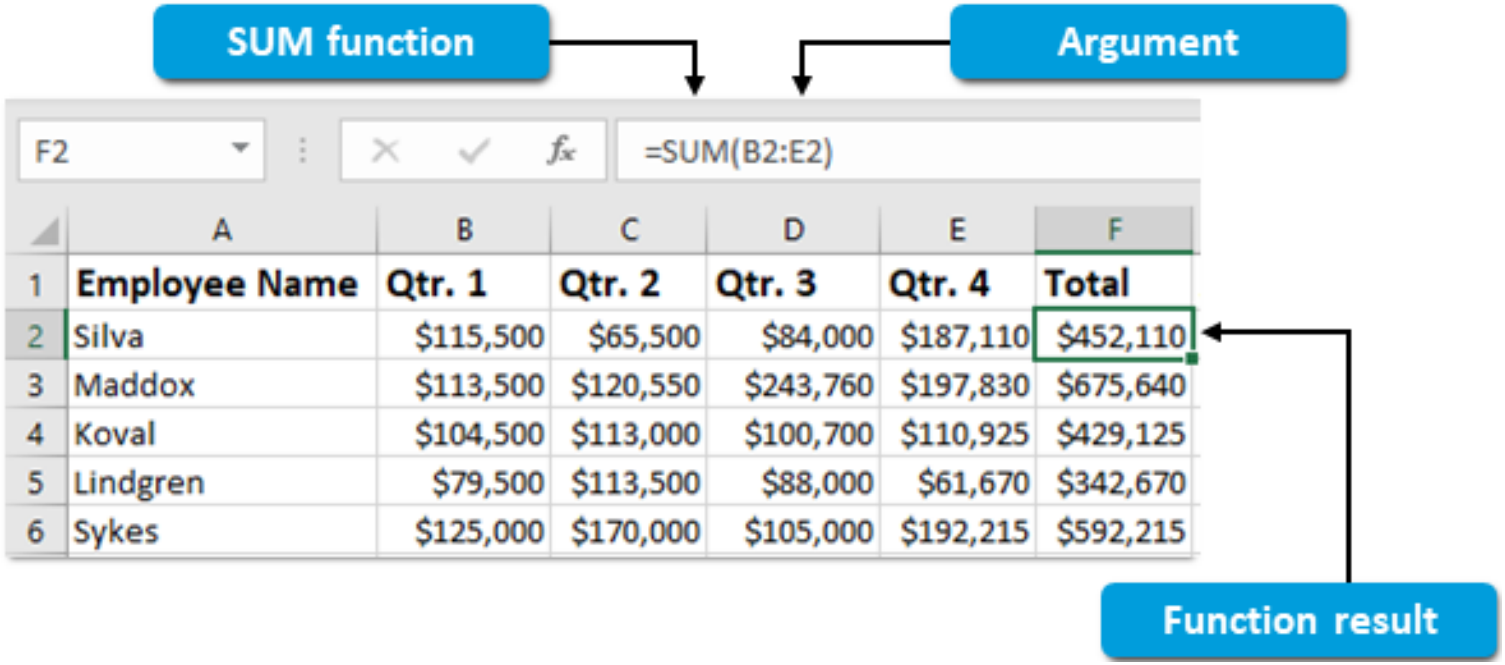
	A	B	C	D	E	F	G	H	I	J	K	L
1	**Employee Name**	**Region**	**Qtr. 1**	**Qtr. 2**	**Qtr. 3**	**Qtr. 4**	**Total**	**Average**	**Highest**	**Lowest**		Matthews' Q3
2	Silva	Northeast	$115,500	$65,500	$84,000	$187,110	$452,110	$113,028	$187,110	$65,500		=A9:J9 E2:E22
3	Maddox	Northeast	$113,500	$120,550	$243,760	$197,830	$675,640	$168,910	$243,760	$113,500		
4	Koval	West	$104,500	$113,000	$100,700	$110,925	$429,125	$107,281	$113,000	$100,700		
5	Lindgren	South	$79,500	$113,500	$88,000	$61,670	$342,670	$85,668	$113,500	$61,670		
6	Sykes	North	$125,000	$170,000	$105,000	$192,215	$592,215	$148,054	$192,215	$105,000		
7	Lee	West	$120,550	$274,060	$76,000	$142,320	$612,930	$153,233	$274,060	$76,000		
8	Gilgamos	West	$128,000	$243,760	$151,500	$92,215	$615,475	$153,869	$243,760	$92,215		
9	Matthews	South	$113,000	$292,225	$84,000	$102,270	$591,495	$147,874	$292,225	$84,000		
10	Anderson	North	$113,500	$243,240	$184,275	$147,150	$688,165	$172,041	$243,240	$113,500		
11	Pereira	Southwest	$116,500	$123,000	$106,900	$211,020	$557,420	$139,355	$211,020	$106,900		
12	Wagner	Northeast	$119,000	$138,500	$63,000	$88,950	$409,450	$102,363	$138,500	$63,000		
13	Roberts	South	$274,130	$296,120	$120,500	$118,335	$809,085	$202,271	$296,120	$118,335		
14	Avellone	Southwest	$156,000	$115,500	$88,500	$171,050	$531,050	$132,763	$171,050	$88,500		
15	Clarke	West	$251,120	$86,500	$76,000	$136,650	$550,270	$137,568	$251,120	$76,000		

Intersection operation

Insert Functions

Functions

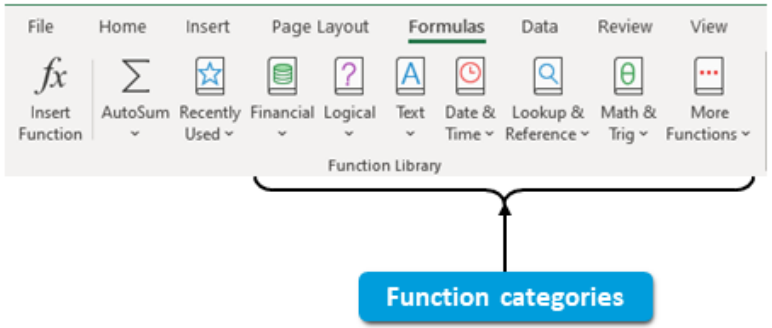
In Excel, functions are simply built-in, predefined formulas that you can quickly and easily insert into worksheet cells. Like formulas, all functions begin with an equal sign. Unlike formulas, in functions the equal sign is followed by the function name and then a set of arguments in parentheses, which are separated by commas. Arguments can be cell references, constants, formulas, or even other functions or logical values. Functions use their arguments in specific ways to calculate a result. The function name is typically the name, or an abbreviated version, of the actual mathematical function.



	A	B	C	D	E	F
1	Employee Name	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Total
2	Silva	$115,500	$65,500	$84,000	$187,110	$452,110
3	Maddox	$113,500	$120,550	$243,760	$197,830	$675,640
4	Koval	$104,500	$113,000	$100,700	$110,925	$429,125
5	Lindgren	$79,500	$113,500	$88,000	$61,670	$342,670
6	Sykes	$125,000	$170,000	$105,000	$192,215	$592,215

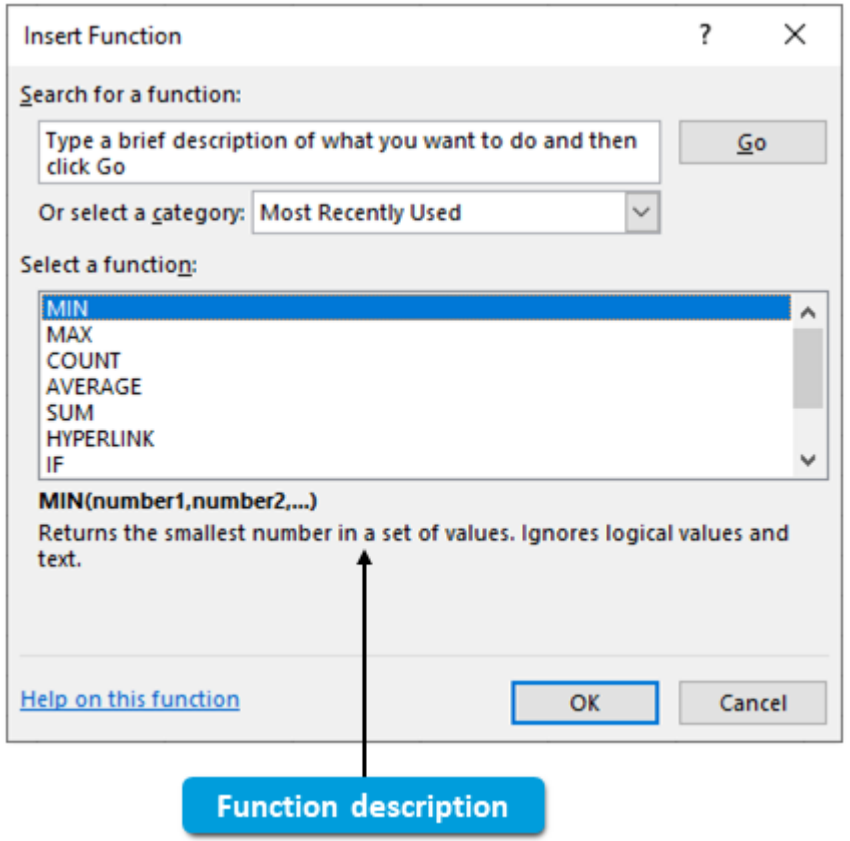
The Function Library Group

Category	Provides You with Access To
Recently Used	The functions you have most recently used. When you first install Excel, you can access a set of commonly used functions from this menu.
Financial	Functions used to perform business calculations, such as determining loan repayment figures, determining the future value or net present value of an investment, and calculating asset depreciation.
Logical	Functions that determine if an argument is true or false, or if it meets other logical conditions.
Text	Functions that change text values, such as making text all capital letters or converting numbers into dollar amounts.
Date & Time	Functions that allow you to incorporate dates and times into calculations. You might use these, for example, to determine how many work days occur between two specific dates.
Lookup & Reference	Functions that allow you to look up a particular cell value or reference from a range or table given specific criteria.
Math & Trig	Formulas that perform a number of different mathematical or trigonometric calculations.
More Functions	A set of menus that contain some higher-level and less commonly used functions, such as engineering and statistical functions.



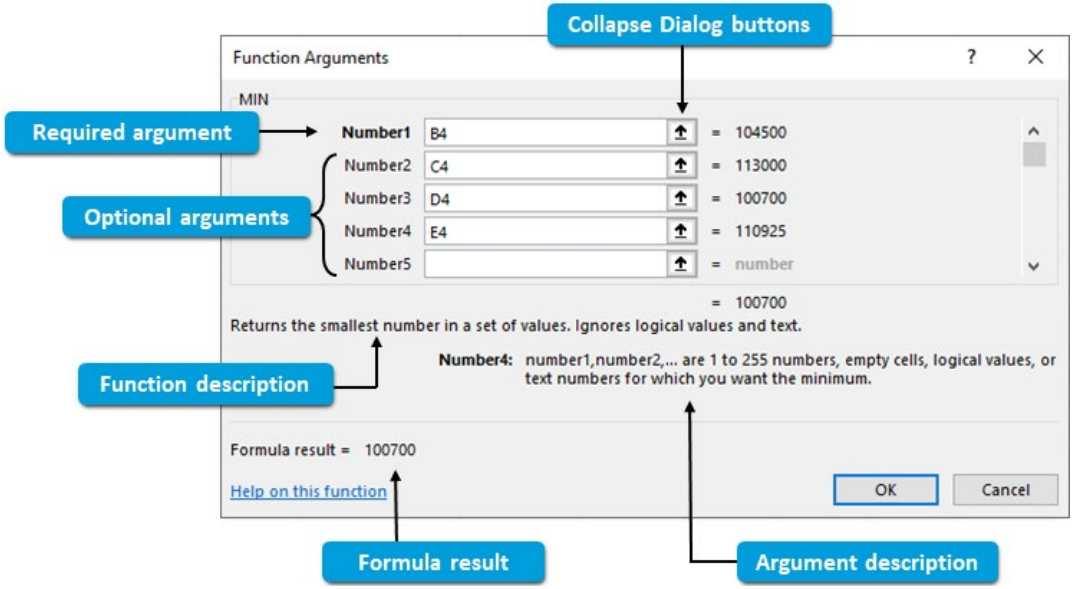
The Insert Function Dialog Box

Insert Function Dialog Box Element	Use This To
Search for a function field	Enter a description of what you would like a function to do. For example, you could type "add numbers together" or "find the average of a set of numbers." The **Insert Function** dialog box will use this as a search query to find the appropriate function.
Go button	Execute a function search.
Or select a category drop-down list	Filter the available functions by category. If you perform a search, this list defaults to the **Recommended** setting and the search results will appear in the **Select a function** list. Even if you've entered a search query, if you change the setting here to any category other than **Recommended**, the **Select a function** list displays all functions in the selected category, effectively ignoring the search query.
Select a function list	View a list of available functions depending on your search query or your selection in the **Or select a category** drop-down list.
Function description	View a brief description of the currently selected function.
Help on this function link	Open the **Excel 2021 Help** window to display an article about the currently selected function.



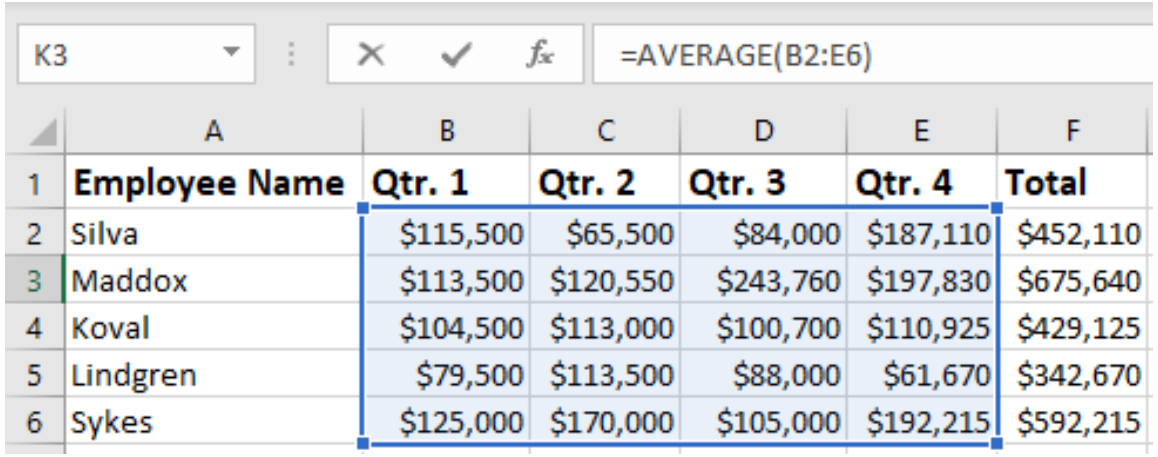
The Function Arguments Dialog Box

Function Arguments Dialog Box Element	Use This To
Required argument fields	Enter the required arguments for the function. The required argument names appear in bold text.
Optional argument fields	Enter the desired optional arguments for the function. The optional argument names appear in non-bold text.
Collapse Dialog button	Minimize the **Function Arguments** dialog box to graphically select cell and range references directly on your worksheets. This command appears in numerous dialog boxes, wherever you have the option of manually selecting a cell or range. Once you collapse a dialog box, this becomes the **Expand Dialog** button, which you can use to restore the dialog box to its full size.
Function description	View a brief description of the function.
Argument description	View a brief description of the currently selected argument.



Graphical Cell and Range Reference Entry

Excel 2021 provides you with a useful graphical method for entering cell and range references for a number of purposes, including for use in formulas and functions. Whenever you need to enter a cell or range reference, you have the option of typing the reference manually or selecting the reference graphically right from the worksheet. This is why the **Function Arguments** dialog box provides the **Collapse Dialog** buttons. These minimize the dialog box, providing you with easier access to your worksheets for the purpose of graphically selecting references. To graphically select a reference, you can simply select the cell or the range with mouse clicks or by dragging the mouse (or by using the appropriate equivalent action on a touchscreen device), and then either press the **Enter key** or select the **Expand Dialog** button in the minimized dialog box.



	A	B	C	D	E	F
1	**Employee Name**	**Qtr. 1**	**Qtr. 2**	**Qtr. 3**	**Qtr. 4**	**Total**
2	Silva	$115,500	$65,500	$84,000	$187,110	$452,110
3	Maddox	$113,500	$120,550	$243,760	$197,830	$675,640
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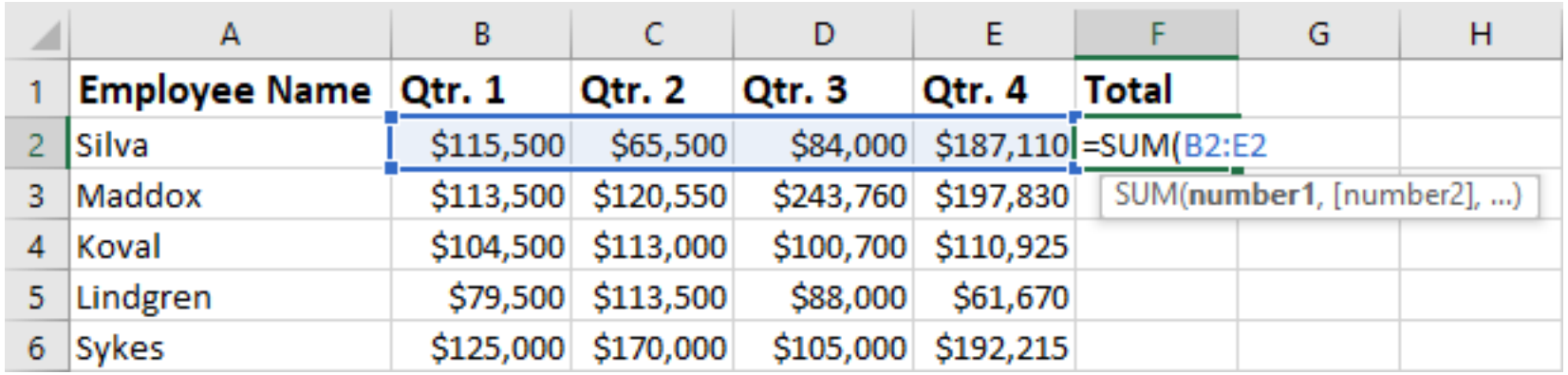
5	Lindgren	$79,500	$113,500	$88,000	$61,670	$342,670
6	Sykes	$125,000	$170,000	$105,000	$192,215	$592,215

The AutoSum Feature

The AutoSum feature will automatically try to guess which cells you would like to add together if you use it on a cell in a row or a column that contains values. AutoSum first looks for cells above, then looks for cells to the left of the active cell.

You can also manually edit the group of cells or the range that the AutoSum feature should include as arguments in the SUM function. If there are no values in the row and the column associated with a cell and you insert the SUM function, you must manually enter the arguments in the SUM function

You can access the AutoSum feature by selecting **Formulas → AutoSum** or by using the **Alt+=** keyboard shortcut. For ease of access purposes, Excel also displays the **AutoSum** button in the **Editing** group on the **Home** tab.

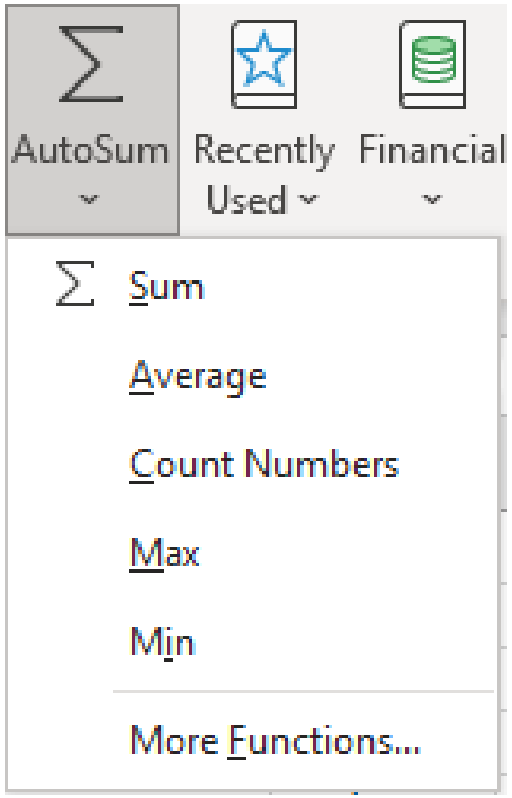


	A	B	C	D	E	F	G	H
1	**Employee Name**	**Qtr. 1**	**Qtr. 2**	**Qtr. 3**	**Qtr. 4**	**Total**		
2	Silva	$115,500	$65,500	$84,000	$187,110	=SUM(B2:E2		
3	Maddox	$113,500	$120,550	$243,760	$197,830			
4	Koval	$104,500	$113,000	$100,700	$110,925			
5	Lindgren	$79,500	$113,500	$88,000	$61,670			
6	Sykes	$125,000	$170,000	$105,000	$192,215			

SUM(**number1**, [number2], ...)

Other Commonly Used Functions

The **AutoSum** button also provides you with quick access to some other commonly used Excel functions. When you select the drop-down arrow, Excel displays a menu that allows you to insert one of these other common functions into the active cell.

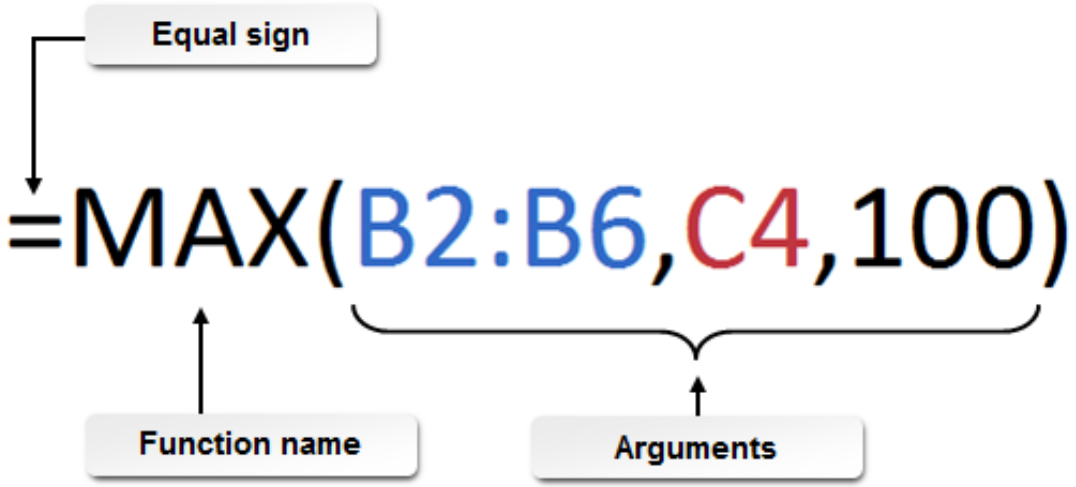


Function	Use To
SUM	Add the values entered in the cells that are specified in the arguments.
AVERAGE	Calculate the average of the values entered in the cells specified in the arguments.
COUNT	Find the number of cells, out of those that have been specified in the arguments, that contain numeric entries.
MAX	Find the largest single numeric value out of all of the values entered in the cells specified in the arguments.
MIN	Find the smallest single numeric value out of all of the values entered in the cells specified in the arguments.

Similar functions to COUNT include COUNTA, which finds the number of cells that contain any type of value, and COUNTBLANK, which finds the number of cells that contain no value at all.

Basic Function Syntax

A function's syntax is simply the structure necessary to properly express the function and to define its arguments. The function name is followed by a set of parentheses that contains the function's arguments; the arguments are separated by commas.



Remember that depending on the particular function you are using, arguments can include constants, cell or range references, logical values such as TRUE or FALSE, formulas, and even other functions.

- Functions can contain both required and optional arguments. In function syntax, optional arguments are notated by using square brackets [ ].

- Each function has a unique syntax and requires different specific arguments. If all of the arguments for a function are valid, the function will return a result in a cell. If one or more of the arguments in a function are invalid, Excel will return an error, which you will have to correct.

The SUM Function

Syntax: =SUM(number 1, [number 2], ...)

Description: Adds the values specified by the arguments. For this function, the arguments can be constants, cell or range references, or both.

To Add These Numbers	Enter This Function
The values in cells A1 through A10	=SUM(A1:A10)
The values in cells A1 through A10, in cell B3, and in cell D17	=SUM(A1:A10, B3, D17)
The values in cells A1 through A10, in cell B3, in cell D17, and the numbers 14 and 7	=SUM(A1:A10, B3, D17, 14, 7)

The AVERAGE Function

Syntax: =AVERAGE(number 1, [number 2], ...)

Description: Adds the values specified by the arguments and then divides the total by the number of individual values. In other words, the AVERAGE function calculates the average (arithmetic mean) of the specified values. For this function, the arguments can be constants, cell or range references, or both.

To Find the Average of These Numbers	Enter This Function
The values in cells A1 through A10	=AVERAGE(A1:A10)
The values in cells A1 through A10, in cell B3, and in cell D17	=AVERAGE(A1:A10, B3, D17)
The values in cells A1 through A10, in cell B3, in cell D17, and the numbers 14 and 7	=AVERAGE(A1:A10, B3, D17, 14, 7)

The COUNT Function

Syntax: =COUNT(value 1, [value 2], ...)

Description: Counts the number of cells specified in the arguments that contain a numeric entry. For this function, the arguments can be cell or range references, or both.

To Count the Number of Numeric Entries in These Cells	Enter This Function
A1 through A10	=COUNT(A1:A10)
A1 through A10, B7, and F11	=COUNT(A1:A10, B7, F11)
All cells from A1 through D10	=COUNT(A1:D10)

The MAX Function

Syntax: =MAX(number 1, [number 2], ...)

Description: Returns the largest numeric value out of all numeric values in the arguments. For this function, the arguments can be constants, cell or range references, or both.

To Return the Largest Numeric Value from These Sources	Enter This Function
The values in cells A1 through A10	=MAX(A1:A10)
The values in cells A1 through A10, B13, and C22	=MAX(A1:A10, B13, C22)
The values in cells A1 through A10, and the number 78	=MAX(A1:A10, 78)

The MIN Function

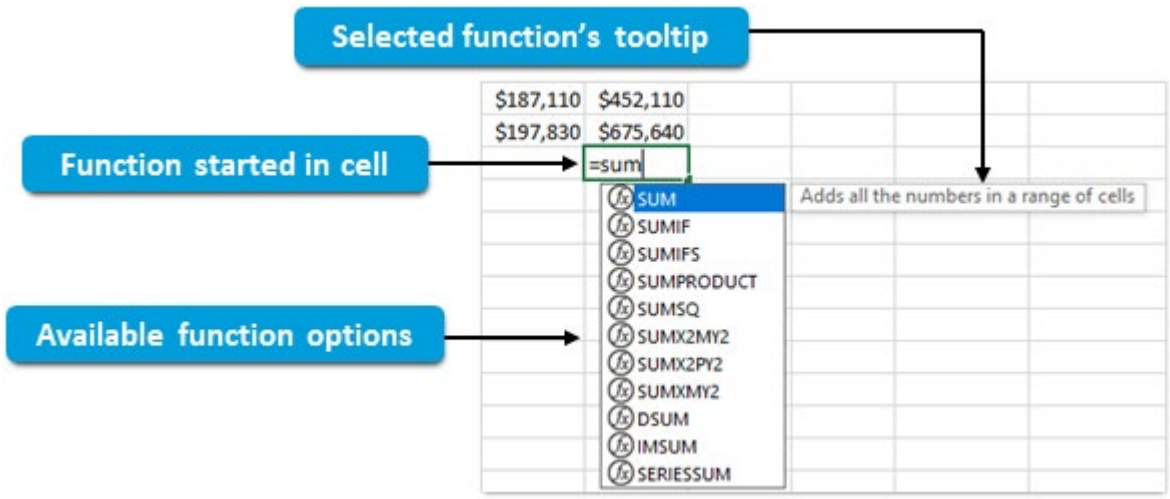
Syntax: =MIN(number 1, [number 2], ...)

Description: Returns the smallest numeric value out of all numeric values in the arguments. For this function, the arguments can be constants, cell or range references, or both.

To Return the Smallest Numeric Value from These Sources	Enter This Function
The values in cells A1 through A10	=MIN(A1:A10)
The values in cells A1 through A10, B13, and C22	=MIN(A1:A10, B13, C22)
The values in cells A1 through A10, and the number 78	=MIN(A1:A10, 78)

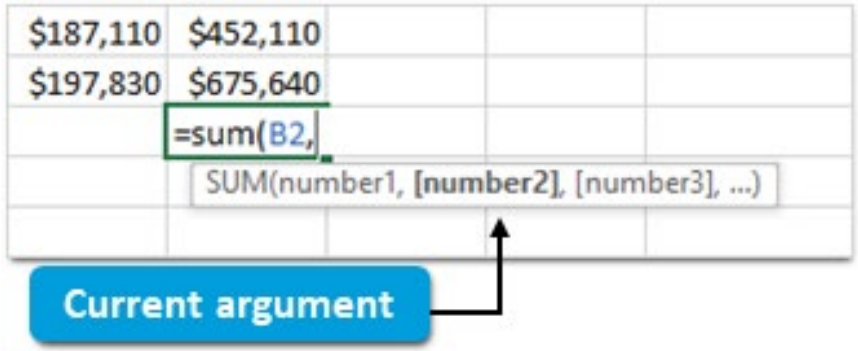
The Formula AutoComplete Feature

- The Formula AutoComplete feature is a dynamic feature that anticipates the function you want to use in a cell.



- The Formula AutoComplete feature also displays a tooltip that describes whatever function you select from the pop-up menu.

- The Formula AutoComplete feature also provides you with assistance when entering function arguments. As you enter the arguments for the selected formula, Excel displays a different tooltip that highlights the specific argument you're currently entering

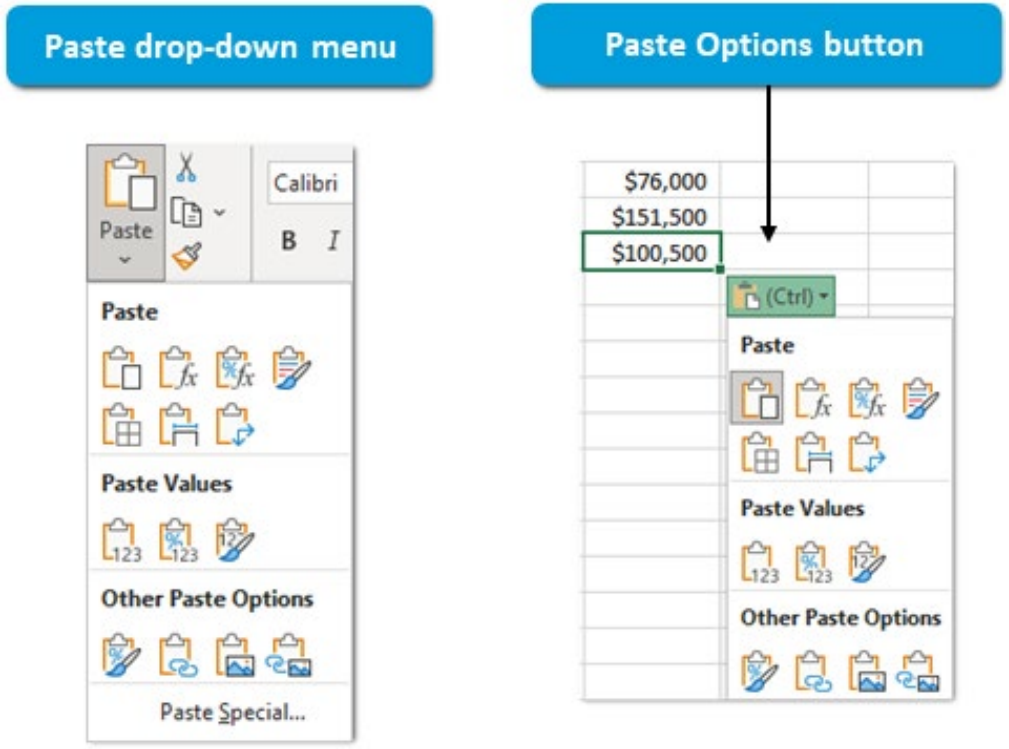


Reuse Formulas and Functions

The Paste Options

Excel 2021 provides you with a number of different options for pasting copied content into other cells. This is because there will be occasions where you want to paste certain elements of a cell's content into another cell, but not the exact contents.

When you copy a cell's contents to the clipboard, a number of paste options become available that you can access from the **Paste** drop-down arrow in the **Clipboard** group. These options are also available from the **Paste Options** button if you paste the content by using the **Paste** button or the **Ctrl + V** keyboard shortcut.



The paste options are not available if you cut a cell's content. They are available only when you copy and paste.

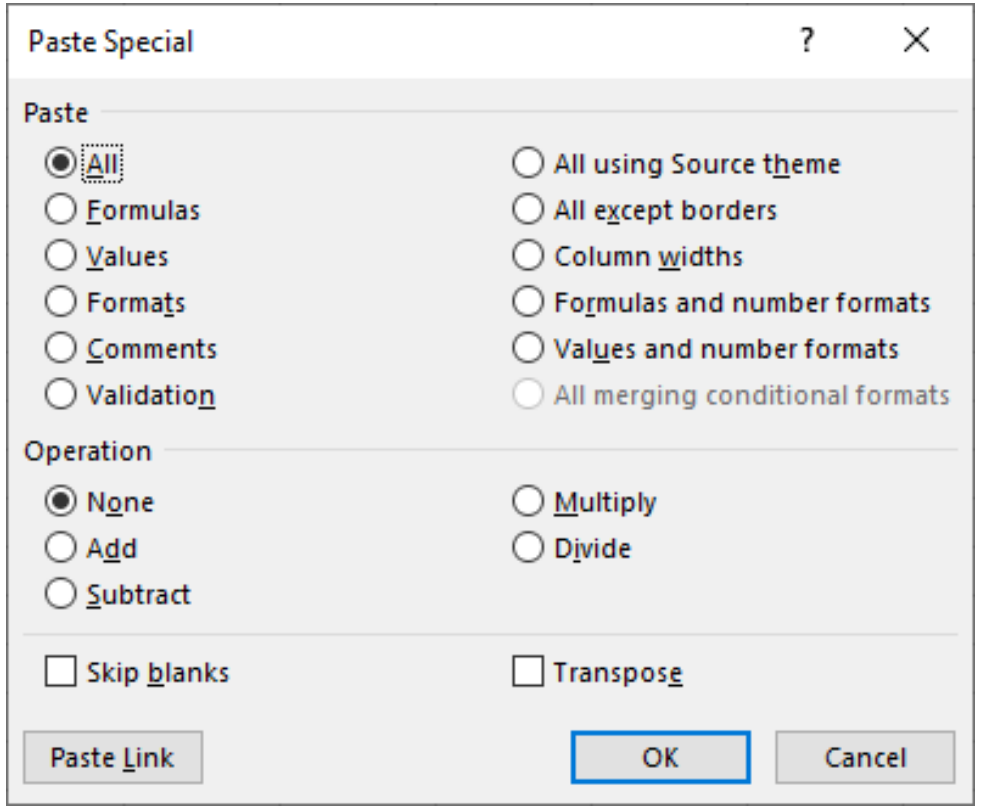
The Paste Options

Paste Option	Will Paste
Paste	All of the copied cells' contents.
Formulas	Just the formulas from the copied cells.
Formulas & Number Formatting	The formulas and any applied number formatting from the copied cells.
Keep Source Formatting	All of the copied cells' content along with all applied formatting.
No Borders	All of the copied cells' content and formatting except for the border formatting.
Keep Source Column Widths	All of the copied cells' content and formatting. This option will also adjust the column width for the column the destination cells are in to match the column width of the copied cell.
Transpose	All of the contents and formatting from a group of copied cells. This option will also switch rows to columns and vice versa.
Values	Just the values from the copied cells without formulas or formatting.
Values & Number Formatting	Just the values and any number formatting from the copied cells without formulas or other types of applied formatting.
Values & Source Formatting	Just the values and any applied formatting from the source cells without the formulas.
Formatting	Just the formatting from the copied cells without any cell content.
Paste Link	The content from the selected cells into the new cells and will create a link between the cells. If you make any changes to the copied cells, those changes will be reflected in the new cells. This option works only for certain types of content, such as formulas that contain absolute references.
Picture	The displayed content from the copied cells as a picture. The pasted content will no longer behave like values, formulas, functions, text, and so on.
Linked Picture	The displayed content from the copied cells as a picture and create a link between the picture and the copied cells. The pasted content will no longer behave like values, formulas, functions, text, and so on, but changes made in the copied cells will be reflected in the pasted picture.

The Paste Special Dialog Box

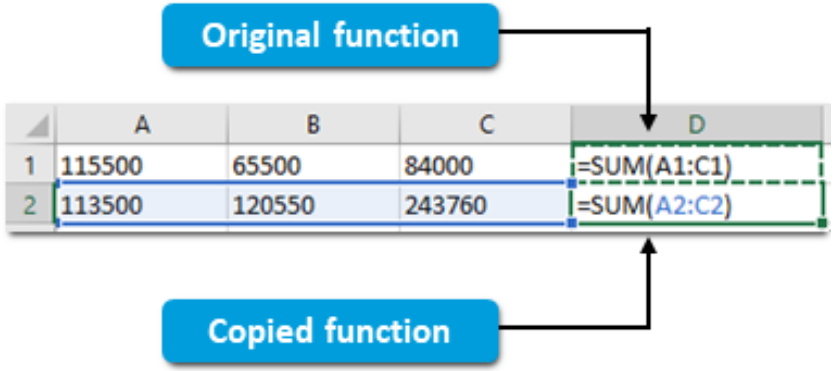
- Excel 2021 provides you with several other paste options that you can access by using the **Paste Special** dialog box.
- You can access the **Paste Special** dialog box by selecting the drop-down arrow on the **Paste** button on the **Home** tab, and then selecting **Paste Special**.

Paste Special Option	Description
Add	Adds the value in the copied cell to the value entered in the destination cell.
Subtract	Subtracts the value in the copied cell from the value entered in the destination cell.
Multiply	Multiplies the value in the destination cell by the value in the copied cell.
Divide	Divides the value in the destination cell by the value in the copied cell.
Skip blanks	If the range you copy includes blank cells, these will be omitted when you paste the content to the destination range of cells.



Relative References

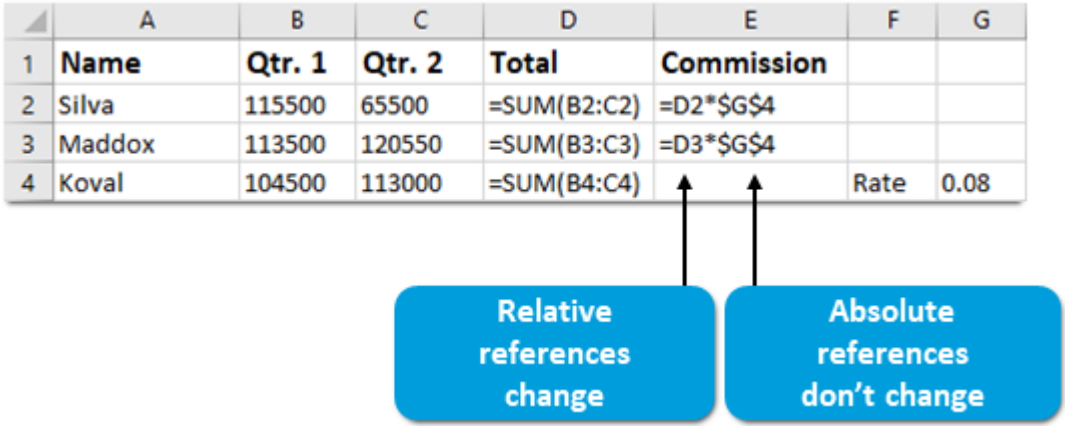
- In Excel, there are three types of references: relative, absolute, and mixed.
- A relative reference is a cell or a range reference that will change when you move or copy a formula from one cell to another. In other words, the reference is relative to the location of the cell.



In this example, the formula from cell D1 has been copied and pasted into cell D2. The formula in cell D1 adds the values in cells A1, B1, and C1. So when you copy and paste the formula into cell D2, it still looks for the values in the cells three spaces to the left, two spaces to the left, and one space to the left. This is why the reference has changed from A1:C1 to A2:C2, as those are now the cells the correct number of spaces away from the formula. If you were to paste the same formula into cell D3, the range reference would change to A3:C3, and so on.

Absolute References

Absolute references refer to particular cells and do not change when you move or copy formulas to other cells. In Excel, absolute references are indicated by using the dollar sign ($) before the row and column header. So, if **A1** is a relative reference, then **A1** is an absolute reference.



	A	B	C	D	E	F	G
1	**Name**	**Qtr. 1**	**Qtr. 2**	**Total**	**Commission**		
2	Silva	115500	65500	=SUM(B2:C2)	=D2*G4		
3	Maddox	113500	120550	=SUM(B3:C3)	=D3*G4		
4	Koval	104500	113000	=SUM(B4:C4)		Rate	0.08

In the following example, the cells in column **D** contain formulas with relative references. These were copied from cell **D2** to the other cells in the column. By default, the cells in column **D** would display the sales totals for each sales rep for the first two quarters. The formulas in column **E** are multiplying the sales totals from column **D** by a fixed rate. In this case, it's the sales commission rate in cell **G4**. Because the formula in cell **E2** contains an absolute reference to cell **G4**, when copied to cell **E3**, the formula still references the same cell. Notice, however, that the formula is referencing the sales total in cell **D3**, not **D2**, because that is a relative reference in the formula.

Mixed References

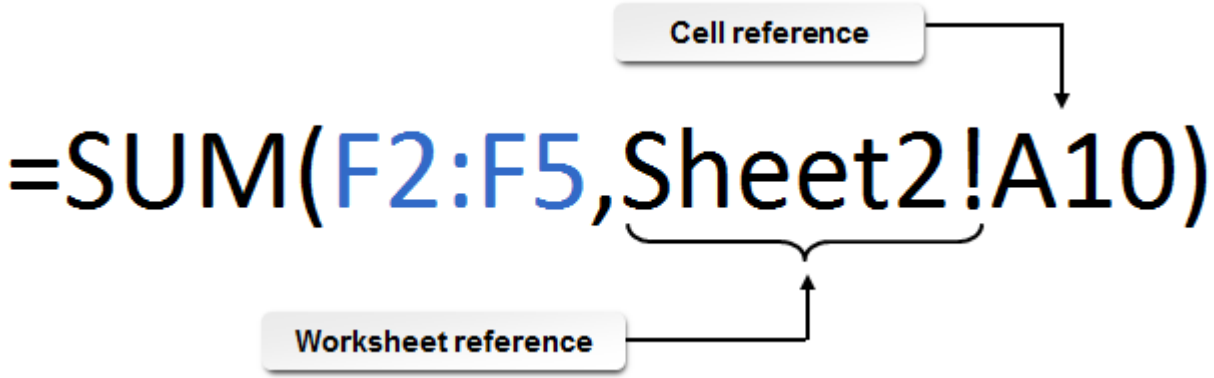
Mixed references are cell or range references in which either the column or the row header is absolute, but the other reference is relative. The cell reference **A$1** would be a mixed reference. In this example, the column header, **A**, is relative and will change if used in a formula that is copied or moved to another cell. But the row header, **$1**,

	A	B	C	D	E	F	G	H
1	**Product**	**Base Price**			**Price Per Year**	2013	2014	2015
2	Desktop	685			Desktop			
3	Smartphone	249			Smartphone			
4	Tablet	375			Tablet			
5								
6	**Year**	2013	2014	2015				
7	**Decrease**	0.1	0.15	0.18				

In the following example, the worksheet contains a list of three products, each with their base price. Rows 6 and 7 show the percentages that the prices have been marked down for the last three years. Columns E through H will calculate the price for each product, for each year, after the markdown is applied. The basic formula that would go in cell **F2** would be: **=B2*(1-B7)**. This multiplies the desktop's base price by its remaining percentage after the markdown is applied for the year 2013.

Worksheet References

Creating a reference to cells on another worksheet is as simple as adding the worksheet name and an exclamation point directly before the cell or range reference. Let's look at a simple example using the default worksheet names you would find in a new blank workbook. If you have a formula on **Sheet1** and you would like that formula to reference cell **D3** from the worksheet **Sheet2**, you would include the following reference in the formula: **Sheet2!D3**. Excel allows you to rename your worksheets, so be sure to include the correct worksheet name when creating references to cells on other worksheets.

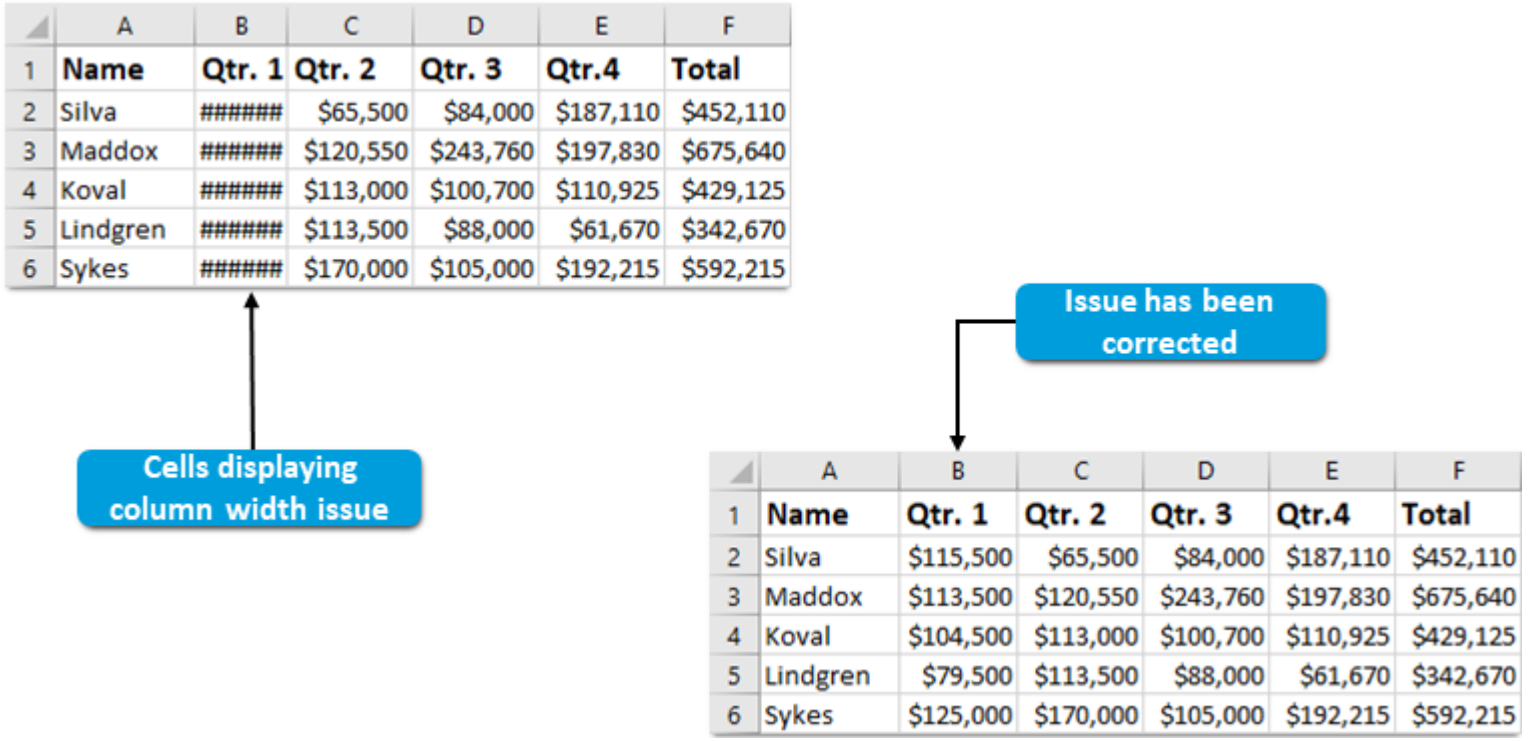


You can also graphically select cells and ranges on other worksheets for use as references in formulas. You do the same as you would for references on the same worksheet, except you switch to the correct worksheet to select the cell or range.

Excel Errors and Display Issues

There are a number of common issues that can cause errors in Excel, each returning a unique error message. It is important to understand what causes these errors and how to resolve them.

A series of number signs indicates that a column is too narrow to display all cell content.



	A	B	C	D	E	F
1	**Name**	**Qtr. 1**	**Qtr. 2**	**Qtr. 3**	**Qtr.4**	**Total**
2	Silva	######	$65,500	$84,000	$187,110	$452,110
3	Maddox	######	$120,550	$243,760	$197,830	$675,640
4	Koval	######	$113,000	$100,700	$110,925	$429,125
5	Lindgren	######	$113,500	$88,000	$61,670	$342,670
6	Sykes	######	$170,000	$105,000	$192,215	$592,215

	A	B	C	D	E	F
1	**Name**	**Qtr. 1**	**Qtr. 2**	**Qtr. 3**	**Qtr.4**	**Total**
2	Silva	$115,500	$65,500	$84,000	$187,110	$452,110
3	Maddox	$113,500	$120,550	$243,760	$197,830	$675,640
4	Koval	$104,500	$113,000	$100,700	$110,925	$429,125
5	Lindgren	$79,500	$113,500	$88,000	$61,670	$342,670
6	Sykes	$125,000	$170,000	$105,000	$192,215	$592,215

Excel Errors and Display Issues

The following table lists some of the common Excel error and display issue messages, what they mean, and possible solutions.

Error / Display Issue	What It Means	What to Do
#####	The most common cause of this display issue, which is sometimes referred to as "railroad tracks," is that a column is too narrow to display all cell content. You may also see this error if dates or times in your worksheets contain negative values.	Either adjust the column width to accommodate cell content or adjust your date or time entries to require fewer characters.
#VALUE!	An Excel formula has encountered an unexpected value (for example, text where it thinks numeric values should be).	Correct the data entry or the cell reference in the formula, or enter a different formula.
#DIV/0!	A formula you have entered is forcing Excel to divide a value by zero. This can happen either when zero is the value in the cell or a cell contains no value at all.	Correct the data entry or the cell reference in the formula, or enter a different formula.
#REF!	This error indicates an invalid reference. One common cause is deleting a cell that a formula references.	Update the formula or restore the deleted cell.
#NULL!	You have tried to reference the intersection of two ranges that do not actually intersect.	Correct the intersection reference.

Excel Errors and Display Issues

- One other common error indicator you'll encounter occasionally is a green triangle icon in the top-left corner of a cell. This indicates some other type of error involving formulas that still returns a valid value.

- When you select a cell containing an error indicator, Excel displays a drop-down menu. This menu indicates the type of error Excel flagged, provides you with access to options for correcting or ignoring the error, and provides access to Help resources about the particular error.

- Here, the user mistakenly multiplied a set of values instead of adding them, which doesn't match the surrounding data.