

# Excel Basic Formulas

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## 1. SUM

Formula: =SUM(5, 5) or =SUM(A1, B1) or =SUM(A1:B5)

The SUM formula does exactly what you would expect. It allows you to add 2 or more numbers together. You can use cell references as well in this formula.

The above shows you different examples. You can have numbers in there separated by commas and it will add them together for you, you can have cell references and as long as there are numbers in those cells it will add them together for you, or you can have a range of cells with a colon in between the 2 cells, and it will add the numbers in all the cells in the range.

## 2. COUNT

Formula: =COUNT(A1:A10)

The count formula counts the number of cells in a range that have numbers in them.

	A	B	C	D
1	1		<b>Formula Result</b>	<b>10</b>
2	2		<b>Formula</b>	=COUNT(A1:A10)
3	3			
4	4			
5	5			
6	6			
7	7			
8	8			
9	9			
10	10			

The count formula only works with numbers though:

	A	B	C	D
1	1		<b>Formula Result</b>	9
2	2		<b>Formula</b>	=COUNT(A1:A10)
3	3			
4	4			
5	5			
6	6			
7	7			
8	8			
9	doesn't work with text			
10	10			

It only counts the cells where there are numbers

### 3. COUNTA

Formula: =COUNTA(A1:A10)

Counts the number of non-empty cells in a range. It will count cells that have numbers and/or any other characters in them.

The COUNTA Formula works with all data types.

	A	B	C	D
1	1		<b>Formula Result</b>	10
2	2		<b>Formula</b>	=COUNTA(A1:A10)
3	3			
4	4			
5	5			
6	6			
7	7			
8	8			
9	This works with text			
10	10			

It counts the number of non-empty cells no matter the data type.



## 4. AVERAGE

Formula: =AVERAGE(number1, [number2],...)

The average function returns the average (arithmetic mean) of the arguments. For example, if the range A1:A20 contains numbers, the formula =AVERAGE(A1:A20) returns the average of those numbers. (**Range:** Two or more cells on a sheet. The cells in a range can be adjacent or nonadjacent.)

**number1:** Required. The first number, cell reference (cell reference: The set of coordinates that a cell occupies on a worksheet. For example, the reference of the cell that appears at the intersection of column B and row 3 is B3.), or range for which you want the average.

**number2, ...:** Optional. Additional numbers, cell references or ranges for which you want the average, up to a maximum of 255.

## 5. MAX function

This function Returns the largest value in a set of values.

Formula: **MAX**(number1, number2,...)

Argument	Description	Remarks
<b>number1</b> , <i>number2</i> ,...	1 to 255 numbers for which you want to find the maximum value.	<ul style="list-style-type: none"><li>You can specify arguments that are numbers, empty cells, logical values, or text representations of numbers. The following arguments cause errors: error values, or text that cannot be translated into numbers.</li><li>If an argument is an array or reference, only numbers in that array or reference are used. Empty cells, logical values, or text in the array or reference is ignored. If logical values and text must not be ignored, use <a href="#">MAXA function</a> instead.</li><li>If the arguments contain no numbers, this function returns 0 (zero).</li></ul>

## 6. MIN Function

This function Returns the smallest number in a set of values.

Formula: **MIN**(number1, *number2*,...)

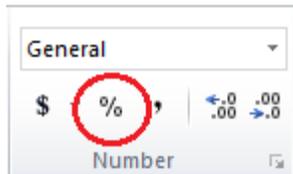
Argument	Description	Remarks
<b>number1</b> , <i>number2</i> ,...	1 to 255 numbers for which you want to find the minimum value.	<ul style="list-style-type: none"><li>• You can specify arguments that are numbers, empty cells, logical values, or text representations of numbers. The following arguments cause errors: error values, or text that cannot be translated into numbers.</li><li>• If an argument is an array or reference, only numbers in that array or reference are used. Empty cells, logical values, or text in the array or reference is ignored. If logical values and text should not be ignored, use <a href="#">MINA function</a> instead.</li><li>• If the arguments contain no numbers, this function returns 0 (zero).</li></ul>



## 7. Percentage

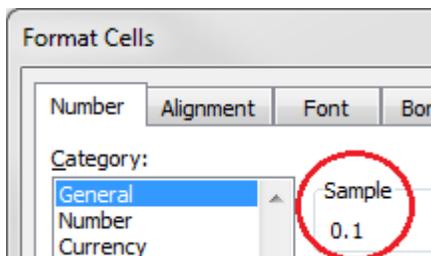
### Displaying values as percentages

To show a number as a percent in Excel, you need to apply the percentage number format. To apply this format, select the cells that need formatting, and then click the **Percent Style** button in the **Number** group on the ribbon's **Home** tab.



Of course, it's even faster to use the keyboard shortcut for applying the format, which is Ctrl + Shift + %.

In Excel, the underlying value is always stored in decimal form. So, even if you've used number formatting to display something as a percentage (10%), that's just what it is — formatting, or a symbolic representation of the underlying value. Excel always performs calculations on that underlying value, which is a decimal (0.1). To double-check the underlying value, select the cell, press Ctrl + 1, and look in the **Sample** box on the **General** category.



### Calculating percentages

As with any formula in Excel, you need to start by typing an equal sign (=) in the cell where you want your result, followed by the rest of the formula. So, I hear your next question in my head — which formula do I use to get the result I desire? Well, that depends. The basic formula for calculating a percentage is  $\text{part}/\text{total} = \text{percentage}$ , which might look something like this:

Clipboard		Font			
D2		fx =B2/C2			
	A	B	C	D	E
		<b>Actual Points</b>	<b>Possible Points</b>	<b>Grade</b>	
1					
2	<b>Student 1</b>	42	50	84%	
3	<b>Student 2</b>	25	50	50%	
4	<b>Student 3</b>	38	50	76%	

Now, let's say that you want to reduce a particular amount by 25%, like when you're trying to apply a discount. Here's a formula that would get you that result. (Think of the 1 in the formula below as a stand-in for 100%.)

Clipboard		Font			
D2		fx =B2*(1-C2)			
	A	B	C	D	E
		<b>Cost</b>	<b>Discount</b>	<b>Result</b>	
1					
2	<b>Week 1</b>	\$ 25.00	25%	\$18.75	
3	<b>Week 2</b>	\$ 45.00	25%	\$33.75	
4	<b>Week 3</b>	\$ 35.00	25%	\$26.25	

To increase the amount by 25%, replace the minus sign in the formula above with a plus sign.

The next example is slightly more complicated. Say the earnings for your department are \$2,342 in November and \$2,500 in December. What is the percentage change in earnings between these two months? To find the answer, divide the difference between December and November earnings (\$158) by the value of the November earning (\$2,342). Then, format the difference as a percentage with two decimal places.

Clipboard		Font			
D2		fx =(C2-B2)/B2			
	A	B	C	D	E
		<b>November Earnings</b>	<b>December Earnings</b>	<b>Difference</b>	
1					
2	<b>Department 1</b>	\$2,342	\$2,500	6.75%	
3	<b>Department 2</b>	\$3,490	\$3,000	-14.04%	
4	<b>Department 3</b>	\$2,134	\$4,011	87.96%	