**SUMIF function**

You use the **SUMIF** function to sum the values in a range that meet criteria that you specify. For example, suppose that in a column that contains numbers, you want to sum only the values that are larger than 5. You can use the following formula: **=SUMIF(B2:B25,">5")**

**Tips:**

* If you want, you can apply the criteria to one range and sum the corresponding values in a different range. For example, the formula **=SUMIF(B2:B5, "John", C2:C5)** sums only the values in the range C2:C5, where the corresponding cells in the range B2:B5 equal "John."
* To sum cells based on multiple criteria, follows  SUMIFS function.

**Important:**The SUMIF function returns incorrect results when you use it to match strings longer than 255 characters or to the string **#VALUE!**.

Syntax

SUMIF(range, criteria, [sum\_range])

The **SUMIF** function syntax has the following arguments:

* **range**   Required. The range of cells that you want evaluated by criteria. Cells in each range must be numbers or names, arrays, or references that contain numbers. Blank and text values are ignored. The selected range may contain dates in standard Excel format (examples below).
* **criteria**   Required. The criteria in the form of a number, expression, a cell reference, text, or a function that defines which cells will be added. Wildcard characters can be included - a question mark (?) to match any single character, an asterisk (\*) to match any sequence of characters. If you want to find an actual question mark or asterisk, type a tilde (**~**) preceding the character.

For example, criteria can be expressed as 32, ">32", B5, "3?", "apple\*", "\*~?", or TODAY().

**Important:**Any text criteria or any criteria that includes logical or mathematical symbols must be enclosed in double quotation marks (**"**). If the criteria is numeric, double quotation marks are not required.

* **sum\_range**   Optional. The actual cells to add, if you want to add cells other than those specified in the ***range*** argument. If the ***sum\_range*** argument is omitted, Excel adds the cells that are specified in the ***range*** argument (the same cells to which the criteria is applied).

***Sum\_range***should be the same size and shape as ***range***. If it isn't, performance may suffer, and the formula will sum a range of cells that starts with the first cell in ***sum\_range*** but has the same dimensions as ***range***. For example:

| ***range*** | ***sum\_range*** | **Actual summed cells** |
| --- | --- | --- |
| A1:A5 | B1:B5 | B1:B5 |
| A1:A5 | B1:K5 | B1:B5 |

Examples

**Example 1**

Copy the example data in the following table, and paste it in cell A1 of a new Excel worksheet. For formulas to show results, select them, press F2, and then press Enter. If you need to, you can adjust the column widths to see all the data.

| **Property Value** | **Commission** | **Data** |
| --- | --- | --- |
| $100,000 | $7,000 | $250,000 |
| $200,000 | $14,000 |  |
| $300,000 | $21,000 |  |
| $400,000 | $28,000 |  |
| **Formula** | **Description** | **Result** |
| =SUMIF(A2:A5,">160000",B2:B5) | Sum of the commissions for property values over $160,000. | $63,000 |
| =SUMIF(A2:A5,">160000") | Sum of the property values over $160,000. | $900,000 |
| =SUMIF(A2:A5,300000,B2:B5) | Sum of the commissions for property values equal to $300,000. | $21,000 |
| =SUMIF(A2:A5,">" & C2,B2:B5) | Sum of the commissions for property values greater than the value in C2. | $49,000 |

**Example 2**

Copy the example data in the following table, and paste it in cell A1 of a new Excel worksheet. For formulas to show results, select them, press F2, and then press Enter. If you need to, you can adjust the column widths to see all the data.

| **Category** | **Food** | **Sales** |
| --- | --- | --- |
| Vegetables | Tomatoes | $2,300 |
| Vegetables | Celery | $5,500 |
| Fruits | Oranges | $800 |
|  | Butter | $400 |
| Vegetables | Carrots | $4,200 |
| Fruits | Apples | $1,200 |
| **Formula** | **Description** | **Result** |
| =SUMIF(A2:A7,"Fruits",C2:C7) | Sum of the sales of all foods in the "Fruits" category. | $2,000 |
| =SUMIF(A2:A7,"Vegetables",C2:C7) | Sum of the sales of all foods in the "Vegetables" category. | $12,000 |
| =SUMIF(B2:B7,"\*es",C2:C7) | Sum of the sales of all foods that end in "es" (Tomatoes, Oranges, and Apples). | $4,300 |
| =SUMIF(A2:A7,"",C2:C7) | Sum of the sales of all foods that do not have a category specified. | $400 |

**SUMIFS function**

The SUMIFS function, one of the [math and trig functions](https://support.microsoft.com/en-us/office/math-and-trigonometry-functions-reference-ee158fd6-33be-42c9-9ae5-d635c3ae8c16), adds all of its arguments that meet multiple criteria. For example, you would use SUMIFS to sum the number of retailers in the country who (1) reside in a single zip code and (2) whose profits exceed a specific dollar value.

Syntax

**SUMIFS(sum\_range, criteria\_range1, criteria1, [criteria\_range2, criteria2], ...)**

* =SUMIFS(A2:A9,B2:B9,"=A\*",C2:C9,"Tom")
* =SUMIFS(A2:A9,B2:B9,"<>Bananas",C2:C9,"Tom")

| **Argument name** | **Description** |
| --- | --- |
| **Sum\_range**    (required) | The range of cells to sum. |
| **Criteria\_range1**    (required) | The range that is tested using ***Criteria1***.  ***Criteria\_range1***and ***Criteria1*** set up a search pair whereby a range is searched for specific criteria. Once items in the range are found, their corresponding values in ***Sum\_range*** are added. |
| **Criteria1**    (required) | The criteria that defines which cells in ***Criteria\_range1*** will be added. For example, criteria can be entered as **32**, **">32"**, **B4**, **"apples"**, or **"32"**. |
| **Criteria\_range2, criteria2, …**    (optional) | Additional ranges and their associated criteria. You can enter up to 127 range/criteria pairs. |

Examples

To use these examples in Excel, drag to select the data in the table, right-click the selection, and pick **Copy**. In a new worksheet, right-click cell A1 and pick **Match Destination Formatting** under **Paste Options**.

| **Quantity Sold** | **Product** | **Salesperson** |
| --- | --- | --- |
| 5 | Apples | Tom |
| 4 | Apples | Sarah |
| 15 | Artichokes | Tom |
| 3 | Artichokes | Sarah |
| 22 | Bananas | Tom |
| 12 | Bananas | Sarah |
| 10 | Carrots | Tom |
| 33 | Carrots | Sarah |
| **Formula** | **Description** |  |
| =SUMIFS(A2:A9, B2:B9, "=A\*", C2:C9, "Tom") | Adds the number of products that begin with **A** and were sold by **Tom**. It uses the wildcard character \* in ***Criteria1***, **"=A\*"** to look for matching product names in ***Criteria\_range1*** B2:B9, and looks for the name **"Tom"** in ***Criteria\_range2*** C2:C9. It then adds the numbers in ***Sum\_range*** A2:A9 that meet both conditions. The result is 20. |  |
| =SUMIFS(A2:A9, B2:B9, "<>Bananas", C2:C9, "Tom") | Adds the number of products that aren’t bananas and are sold by Tom. It excludes bananas by using **<>** in the ***Criteria1***, **"<>Bananas"**, and looks for the name **"Tom"** in ***Criteria\_range2*** C2:C9. It then adds the numbers in ***Sum\_range*** A2:A9 that meet both conditions. The result is 30. |  |

Common Problems

| **Problem** | **Description** |
| --- | --- |
| 0 (Zero) is shown instead of the expected result. | Make sure ***Criteria1,2*** are in quotation marks if you are testing for text values, like a person's name. |
| The result is incorrect when ***Sum\_range*** has TRUE or FALSE values. | TRUE and FALSE values for ***Sum\_range*** are evaluated differently, which may cause unexpected results when they're added.  Cells in ***Sum\_range*** that contain TRUE evaluate to 1. Those that contain FALSE evaluate to 0 (zero). |

Best practices

| **Do this** | **Description** |
| --- | --- |
| Use wildcard characters. | Using wildcard characters like the question mark (?) and asterisk (\*) in ***criteria1,2*** can help you find matches that are similar but not exact.  A question mark matches any single character. An asterisk matches any sequence of characters. If you want to find an actual question mark or asterisk, type a tilde (~) in front of the question mark.  For example, =SUMIFS(A2:A9, B2:B9, "=A\*", C2:C9, "To?") will add all instances with name that begin with "To" and ends with a last letter that could vary. |
| Understand the difference between SUMIF and SUMIFS. | The order of arguments differs between SUMIFS and SUMIF. In particular, the ***sum\_range*** argument is the first argument in SUMIFS, but it is the third argument in SUMIF. This is a common source of problems using these functions.  If you're copying and editing these similar functions, make sure you put the arguments in the correct order. |
| Use the same number of rows and columns for range arguments. | The ***Criteria\_range*** argument must contain the same number of rows and columns as the ***Sum\_range*** argument. |