

Excel Function Guide : If function

This guide covers one of Excel's most useful functions, the "If" function, as well as some of its related conditional functions. At its simplest, the "If" function generates one of two outputs depending on whether a specified condition is true or false. The "Countif" function will count the number of cells that meet a specified condition while "Sumif" will sum the cells in one column (or row) depending on the corresponding values in another column (or row). "Averageif" works like "Sumif" but averages the values rather than summing them. You can see some examples below.

This dataset shows target sales for different types of fruit in different regions. The task to be carried out is to increase the sales target figures so that where the fruit is "Oranges" the target will be increased by 100. For all other fruit the target will be increased by 50. The new targets are to appear in column D. If you have reproduced this dataset in an Excel worksheet, then in cell D2, enter the following formula: **=IF(B2="Oranges",C2+100,C2+50)** and copy down to row 12.

| | A | B | C |
|----|--------|---------|--------------|
| 1 | Region | Fruit | Sales Target |
| 2 | North | Apples | 750 |
| 3 | North | Oranges | 1200 |
| 4 | North | Pears | 950 |
| 5 | South | Apples | 1150 |
| 6 | East | Oranges | 300 |
| 7 | East | Lemons | 800 |
| 8 | East | Apples | 1350 |
| 9 | West | Lemons | 500 |
| 10 | West | Oranges | 1650 |
| 11 | West | Lemons | 900 |
| 12 | South | Lemons | 1500 |

The first element in the brackets is the condition that's being tested, in this case whether cell B2 contains the word "Oranges" (not case sensitive). If it does then the second element is applied so that the value in cell D2 will be 100 more than the value in cell C2. If the condition isn't met then the third element applies, so that cell D2 is now 50 more than cell C2. Note that because text is being referred to, it needs to be in double quotes.

Now the sales target is going to be revised according to a new rule. As before, if the fruit is "Oranges" then the target will be increased by 100 but now if the fruit is "Lemons" then the target will be increased by 50. For all the other fruit, the increase will be 25. In cell E2 enter the following: **=IF(B2="Oranges",C2+100,IF(B2="Lemons",C2+50,C2+25))**

The third element in the brackets is now another "If" function which is evaluated if the first condition (B2="Oranges") is not true. In that case, the second condition (B2="Lemons") is tested. If this turns out to be true, the target is increased by 50. However, if this condition also fails, then the final element (C2+25) is evaluated. Exclusively in the Office 365 version of Excel, there's an "Iifs" function. So in this version the formula could be written as **=IFS(B2="Oranges",C2+100,B2="Lemons",C2+50,TRUE,C2+25)**

The "Countif" function counts the number of cells in a range that meet a specified condition. To count the number of cells containing the word "Apples" enter this formula in any blank cell: **=COUNTIF(B2:B12,"Apples")**. For multiple conditions, use "Countifs". In a blank cell, enter: **=COUNTIFS(B2:B12,"Lemons",A2:A12,"West")** which counts the number of rows where both the region is "West" and the fruit is "Lemons".

The "Sumif" function will sum the values in one column depending on the values in another column. In a blank cell enter: **=SUMIF(B2:B12,"Lemons",C2:C12)**. This will sum the values in column C where the column B value is "Lemons". For multiple conditions, enter: **=SUMIFS(C2:C12,A2:A12,"West",B2:B12,"Lemons")**. This will sum the values in column C where the region is "West" and the fruit is "Lemons". Note that with the "Sumifs" function, the range of cells that's being summed is the first element in the brackets. With "Sumif" it's the last element.

There is also an "Averageif" and an "Averageifs" function. The structure is the same as for "Sumif" and "Sumifs" but now the cell range is averaged rather than summed.