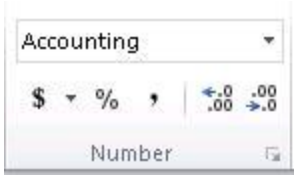
Advance Excel Assignment 2

1. What does the dollar ($) sign do?

We've noticed some of you searching for help using "$" – a dollar sign. In Excel, a dollar sign can denote a currency format, but it has another common use: indicating absolute cell references in formulas. Let's consider both uses of the dollar sign in Excel.

Dollar signs denoting currency

If you want to display numbers as monetary values, you must format those numbers as currency. To do this, you apply either the Currency or Accounting number format to the cells that you want to format. The number formatting options are available on the Home tab, in the Number group.

2. 

What's the difference between the two number formats? There are two main differences:

1. The Currency format displays the currency symbol adjacent to the number, whereas the Accounting format displays the symbol at the edge of the cell, regardless of the length of the number.
2. The Accounting format displays zeros as dashes and negative numbers in parentheses, whereas the Currency format displays zeros as zeros and denotes negative numbers by using a minus sign (-). For more information, see the article Display numbers as currency.

Dollar signs indicating absolute references

You probably know that a formula can refer to cells. That's one reason Excel formulas are so powerful — the results can change based on changes made in other cells. When a formula refers to a cell, it uses a cell reference. In the "A1" reference style (the default), there are three kinds of cell references: absolute, relative, and mixed.

Absolute cell references

When a formula contains an absolute reference, no matter which cell the formula occupies the cell reference does not change: if you copy or move the formula, it refers to the same cell as it did in its original location. In an absolute reference, each part of the reference (the letter that refers to the row and the number that refers to the column) is preceded by a "$" – for example, A1 is an absolute reference to cell A1. Wherever the formula is copied or moved, it always refers to cell A1.

Relative cell references

In contrast, a relative reference changes if the formula is copied or moved to a different cell (i.e., a cell other than where the formula was originally entered). The row and column portions of a relative reference are not preceded by a "$" – for example, **A1** is a relative reference to cell A1. If moved or copied, the reference changes by the same number of rows and coulmns as it was moved. So, if you move a formula with the relative reference **A1** one cell down and one cell to the right, the reference changes to **B2**.

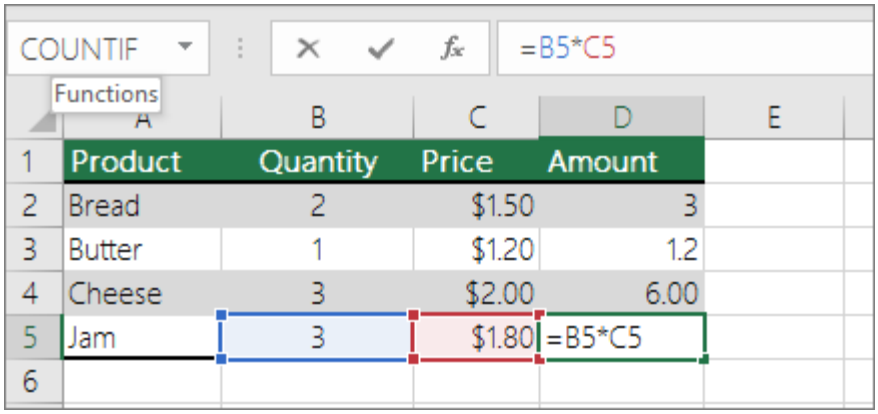
Mixed cell references

A mixed reference uses a dollar sign either in front of the row letter or in front of the column number, but not both – for example, A$1 is a mixed reference in which the row adjusts, but the column does not. So if you move a formula containing that reference one cell down and one cell to the right, it becomes B$1.

2. How to Change the Reference from Relative to Absolute (or Mixed)?

By default, a cell reference is a relative reference, which means that the reference is relative to the location of the cell. If, for example, you refer to cell A2 from cell C2, you are actually referring to a cell that is two columns to the left (C minus A)—in the same row (2). When you copy a formula that contains a relative cell reference, that reference in the formula will change.

As an example, if you copy the formula =B4*C4 from cell D4 to D5, the formula in D5 adjusts to the right by one column and becomes =B5*C5. If you want to maintain the original cell reference in this example when you copy it, you make the cell reference absolute by preceding the columns (B and C) and row (2) with a dollar sign ($). Then, when you copy the formula =B4*C4 from D4 to D5, the formula stays exactly the same.

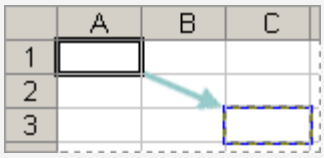


Less often, you may want to mixed absolute and relative cell references by preceding either the column or the row value with a dollar sign—which fixes either the column or the row (for example, $B4 or C$4).

To change the type of cell reference:

1. Select the cell that contains the formula.
2. In the formula bar fx, select the reference that you want to change.
3. Press F4 to switch between the reference types.

The table below summarizes how a reference type updates if a formula containing the reference is copied two cells down and two cells to the right.

For a formula being copied:	If the reference is:	It changes to:
	A1 (absolute column and absolute row)	A1 (the reference is absolute)
	A$1 (relative column and absolute row)	C$1 (the reference is mixed)
	$A1 (absolute column and relative row)	$A3 (the reference is mixed)
	A1 (relative column and relative row)	C3 (the reference is relative)

3. Explain the order of operations in excel?

In some cases, the order in which a calculation is performed can affect the return value of the formula, so it's important to understand how the order is determined and how you can change the order to obtain the results you want.

Calculation order

Formulas calculate values in a specific order. A formula in Excel always begins with an equal sign (=). Excel interprets the characters that follow the equal sign as a formula. Following the equal sign are the elements to be calculated (the operands), such as constants or cell references. These are separated by calculation operators. Excel calculates the formula from left to right, according to a specific order for each operator in the formula.

Operator precedence in Excel formulas

If you combine several operators in a single formula, Excel performs the operations in the order shown in the following table. If a formula contains operators with the same precedence—for example, if a formula contains both a multiplication and division operator—Excel evaluates the operators from left to right.

Operator	Description
: (colon) (single space) , (comma)	Reference operators
–	Negation (as in –1)
%	Percent
^	Exponentiation
* and /	Multiplication and division
+ and –	Addition and subtraction
&	Connects two strings of text (concatenation)
= < > <= >= <>	Comparison

- # Using parentheses in Excel formulas

To change the order of evaluation, enclose in parentheses the part of the formula to be calculated first. For example, the following formula produces 11 because Excel performs multiplication before addition. The formula multiplies 2 by 3 and then adds 5 to the result.

=5+2*3

In contrast, if you use parentheses to change the syntax, Excel adds 5 and 2 together and then multiplies the result by 3 to produce 21.

=(5+2)*3

In the following example, the parentheses that enclose the first part of the formula force Excel to calculate B4+25 first and then divide the result by the sum of the values in cells D5, E5, and F5.

=(B4+25)/SUM(D5:F5)

4. What, according to you, are the top 5 functions in excel and write a basic syntax for any of two?

Here is the list of the top 10 basic formulas and functions in Excel.

SUM.

COUNT.

COUNTA.

COUNTBLANK.

AVERAGE.

MIN Excel.

MAX Excel.

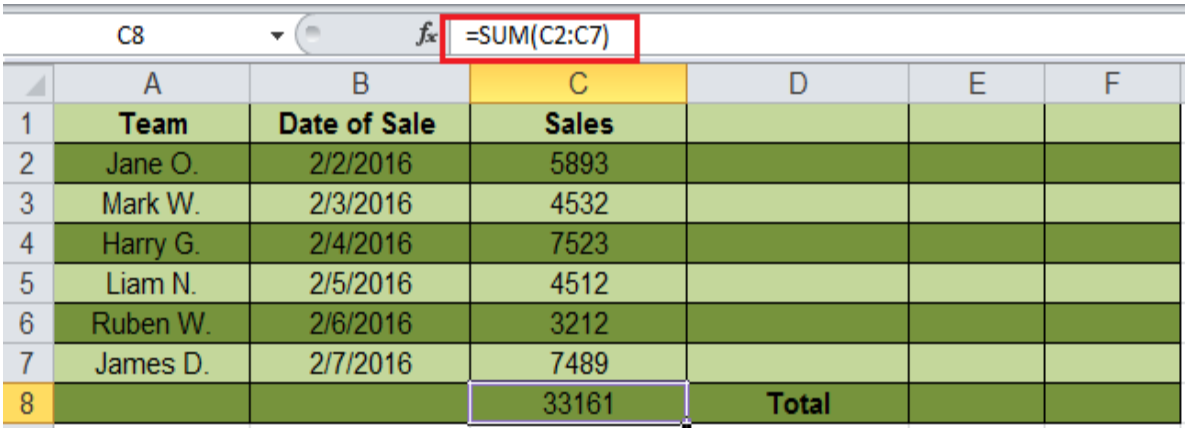
LEN Excel.

Top 5 Powerful Excel Functions That Make Work Easier

1. The SUM Function

The *sum* function is the most used function when it comes to computing data on Excel. This function works to sum a group of numbers in a specific set of cells. This means you don't need to type a long cumbrous formula just to calculate the sum of all the data you need. Because of its popularity, newer versions of Microsoft Excel have a button specifically for this function.

This function is performed by typing the formula on the function bar and highlighting the cells you want summed before clicking "Enter". You also need to be careful in highlighting cells, as Excel will sum everything you include. If this happens, you can easily click the "Undo" button to reset the values back to its original state.

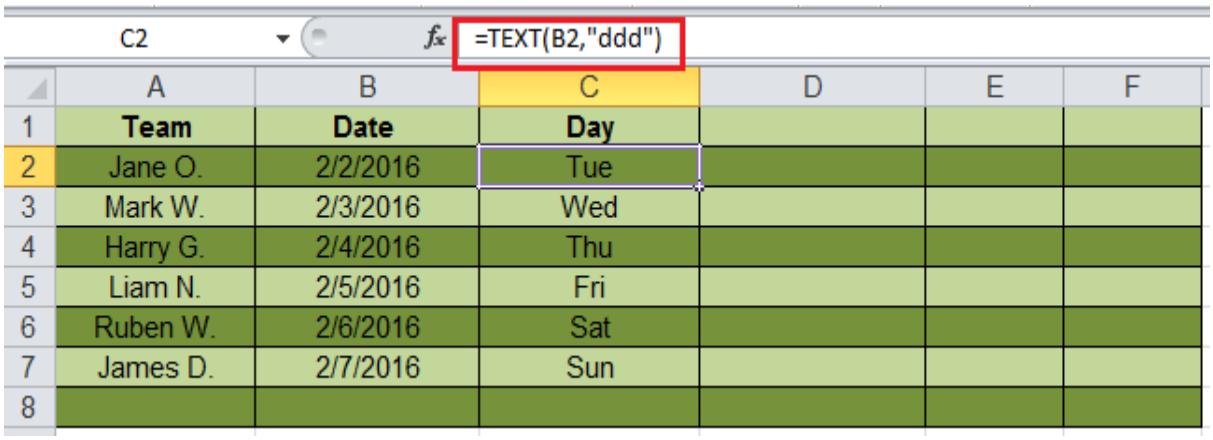


	A	B	C	D	E	F
1	**Team**	**Date of Sale**	**Sales**			
2	Jane O.	2/2/2016	5893			
3	Mark W.	2/3/2016	4532			
4	Harry G.	2/4/2016	7523			
5	Liam N.	2/5/2016	4512			
6	Ruben W.	2/6/2016	3212			
7	James D.	2/7/2016	7489			
8			33161	**Total**		

The syntax formula for *sum* function is "=SUM" (number1, number2, etc.).
In this image, the *sum* function for the cells C2 through C7 is obtained through the formula "=SUM(C2:C7)", giving you the result of 33161.

2. The TEXT Function

Text function is a useful tool that helps convert a date (or number) into a text string in a particular format. It falls in the category of string formulas that converts numerical values to a string. It is handy when users need to view numeric data in a readable format. Take note that the "TEXT" formula only works to convert numeric values to text. Therefore, its results cannot be calculated.



	A	B	C	D	E	F
1	**Team**	**Date**	**Day**			
2	Jane O.	2/2/2016	Tue			
3	Mark W.	2/3/2016	Wed			
4	Harry G.	2/4/2016	Thu			
5	Liam N.	2/5/2016	Fri			
6	Ruben W.	2/6/2016	Sat			
7	James D.	2/7/2016	Sun			
8						

The syntax formula for text function is "=TEXT" (value, format_text).

- "Value" refers to the particular number you wish to convert to text.
- "Format_text" defines the format of the conversion.

In this example, the user uses a text formula to find the abbreviated day for the date "=TEXT (B2, "ddd")".

3. The VLOOKUP Function

VLookup is powerful Excel function that is often overlooked. Users will find it useful when they need to find specific data on a large table. You can also use VLookup to search for names, phone number, or specific data on your sheet. Instead of manually looking for the names and wasting time scrolling through hundreds of data, the VLookup function makes this process faster and more efficient.

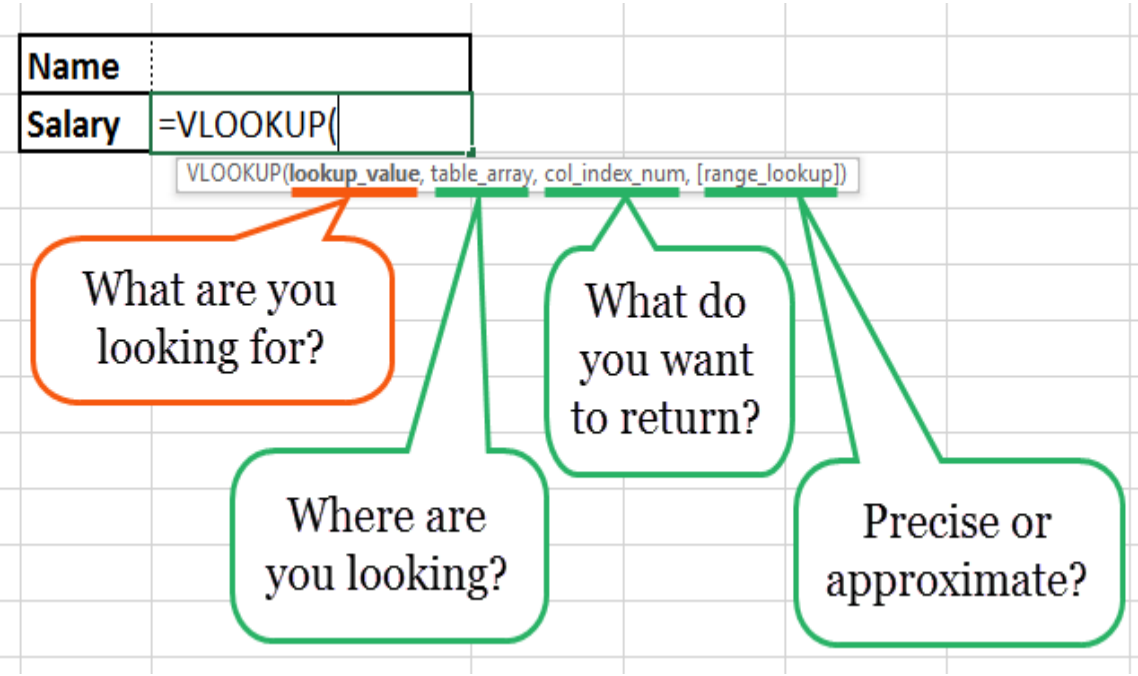


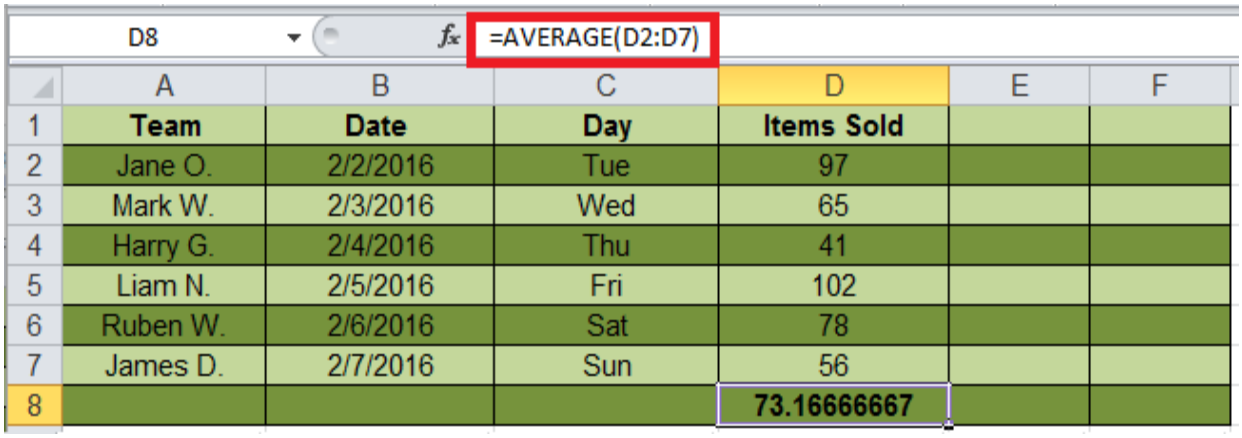
Image: spreadsheeto.com

*The VLookup formula is "=VLOOKUP" (lookup_value, table_array, col_index_num, *range_lookup*).*

- "lookup_value" is the data you want to find.
- "table_array" is the data column where you want to limit your search.
- "col_index_num" is the column number within the table that you want to return a value from.
- "range_lookup" is an optional argument that allows you to search for the exact match of your lookup value without sorting the table.

4. The AVERAGE Function

The average function is an extremely useful tool for getting the average value in a range of cells. Like the sum function, it is frequently used in computing and analyzing data on spreadsheet. Basically, the average function works to find the "arithmetic mean" for a group of cells. Aside from the average function, Excel also has the median and mode function.



	A	B	C	D	E	F
1	**Team**	**Date**	**Day**	**Items Sold**		
2	Jane O.	2/2/2016	Tue	97		
3	Mark W.	2/3/2016	Wed	65		
4	Harry G.	2/4/2016	Thu	41		
5	Liam N.	2/5/2016	Fri	102		
6	Ruben W.	2/6/2016	Sat	78		
7	James D.	2/7/2016	Sun	56		
8				**73.16666667**		

The syntax formula for the average function is "AVERAGE" (number1, number2, etc.).

- "Number 1" refers to the first number in the range where you want the average.
- "Number 2" is the additional reference of the average range. You can get an average of up to a maximum of 255 cells.

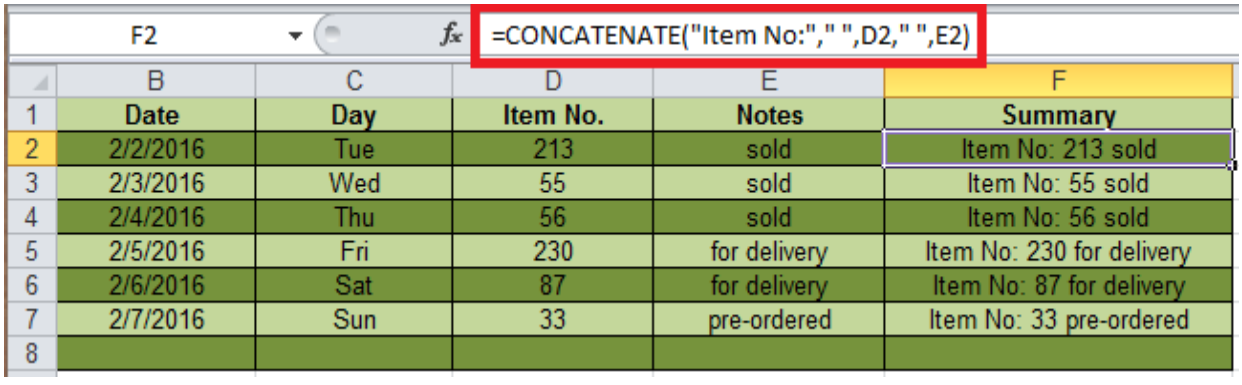
Additional Examples:

"=AVERAGE (A2:A10)" – computes the average of numbers in cells A2 through A10.

"=AVERAGE (B2: B10, 7)" – computes the average of the numbers in cells B2 through B10 and the number 7.

5. The CONCATENATE Function

This function is a good time saver when you need to combine data from 2 or more cells. Unlike the merge tool which physically merges two or more cells into a single cell, the concatenate function only combines the contents of the combined cells. In the latest version of Excel (2016), the concatenate function has been replaced with concat function and will be incorporated in more future versions of Excel.



	B	C	D	E	F
1	**Date**	**Day**	**Item No.**	**Notes**	**Summary**
2	2/2/2016	Tue	213	sold	Item No: 213 sold
3	2/3/2016	Wed	55	sold	Item No: 55 sold
4	2/4/2016	Thu	56	sold	Item No: 56 sold
5	2/5/2016	Fri	230	for delivery	Item No: 230 for delivery
6	2/6/2016	Sat	87	for delivery	Item No: 87 for delivery
7	2/7/2016	Sun	33	pre-ordered	Item No: 33 pre-ordered
8					

The syntax formula for the *concatenate* function is "CONCATENATE" (text1, [text2…text_n]),

- "Text1, Text2…text_n" are the data you want to combine.

5. When would you use the subtotal function?

Description

Returns a subtotal in a list or database. It is generally easier to create a list with subtotals by using the Subtotal command in the Outline group on the Data tab in the Excel desktop application. Once the subtotal list is created, you can modify it by editing the SUBTOTAL function.

Syntax

SUBTOTAL(function_num,ref1,[ref2],...)

The SUBTOTAL function syntax has the following arguments:

- **Function_num Required.** The number 1-11 or 101-111 that specifies the function to use for the subtotal. 1-11 includes manually-hidden rows, while 101-111 excludes them; filtered-out cells are always excluded.

Function_num (includes hidden rows)	Function_num (ignores hidden rows)	Function
1	101	AVERAGE
2	102	COUNT
3	103	COUNTA
4	104	MAX
5	105	MIN
6	106	PRODUCT
7	107	STDEV
8	108	STDEVP
9	109	SUM
10	110	VAR
11	111	VARP

- Ref1 Required. The first named range or reference for which you want the subtotal.

- Ref2,... Optional. Named ranges or references 2 to 254 for which you want the subtotal.

Remarks

- If there are other subtotals within ref1, ref2,... (or nested subtotals), these nested subtotals are ignored to avoid double counting.
- For the function_num constants from 1 to 11, the SUBTOTAL function includes the values of rows hidden by the Hide Rows command under the Hide & Unhide submenu of the Format command in the Cells group on the Home tab in the Excel desktop application. Use these constants when you want to subtotal hidden and nonhidden numbers in a list. For the function_Num constants from 101 to 111, the SUBTOTAL function ignores values of rows hidden by the Hide Rows command. Use these constants when you want to subtotal only nonhidden numbers in a list.

- The SUBTOTAL function ignores any rows that are not included in the result of a filter, no matter which function_num value you use.
- The SUBTOTAL function is designed for columns of data, or vertical ranges. It is not designed for rows of data, or horizontal ranges. For example, when you subtotal a horizontal range using a function_num of 101 or greater, such as SUBTOTAL(109,B2:G2), hiding a column does not affect the subtotal. But, hiding a row in a subtotal of a vertical range does affect the subtotal.
- If any of the references are 3-D references, SUBTOTAL returns the #VALUE! error value.

Data		
120		
10		
150		
23		
Formula	**Description**	**Result**
=SUBTOTAL(9,A2:A5)	The sum of the subtotal of the cells A2:A5, using 9 as the first argument.	303
=SUBTOTAL(1,A2:A5)	The average of the subtotal of the cells A2:A5, using 1 as the first argument.	75.75
Notes		
The SUBTOTAL function always requires a numeric argument (1 through 11, 101 through 111) as its first argument. This numeric argument is applied to the subtotal of the values (cell ranges, named ranges) that are specified		

- 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.

6. What is the syntax of the vlookup function? Explain the terms in it?

Use VLOOKUP when you need to find things in a table or a range by row. For example, look up a price of an automotive part by the part number, or find an employee name based on their employee ID.
In its simplest form, the VLOOKUP function says:
=VLOOKUP(What you want to look up, where you want to look for it, the column number in the range containing the value to return, return an Approximate or Exact match – indicated as 1/TRUE, or 0/FALSE).
There are four pieces of information that you will need in order to build the

VLOOKUP syntax:

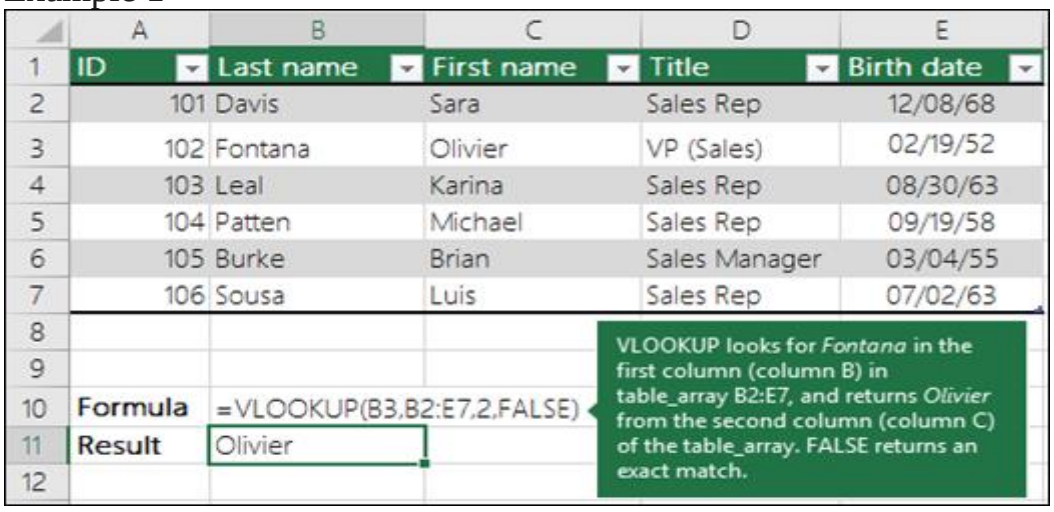
1. The value you want to look up, also called the lookup value.
2. The range where the lookup value is located. Remember that the lookup value should always be in the first column in the range for VLOOKUP to work correctly. For example, if your lookup value is in cell C2 then your range should start with C.
3. The column number in the range that contains the return value. For example, if you specify B2:D11 as the range, you should count B as the first column, C as the second, and so on.
4. Optionally, you can specify TRUE if you want an approximate match or FALSE if you want an exact match of the return value. If you don't specify anything, the default value will always be TRUE or approximate match.

Now put all of the above together as follows:
=VLOOKUP(lookup value, range containing the lookup value, the column number in the range containing the return value, Approximate match (TRUE) or Exact match (FALSE)).

Examples

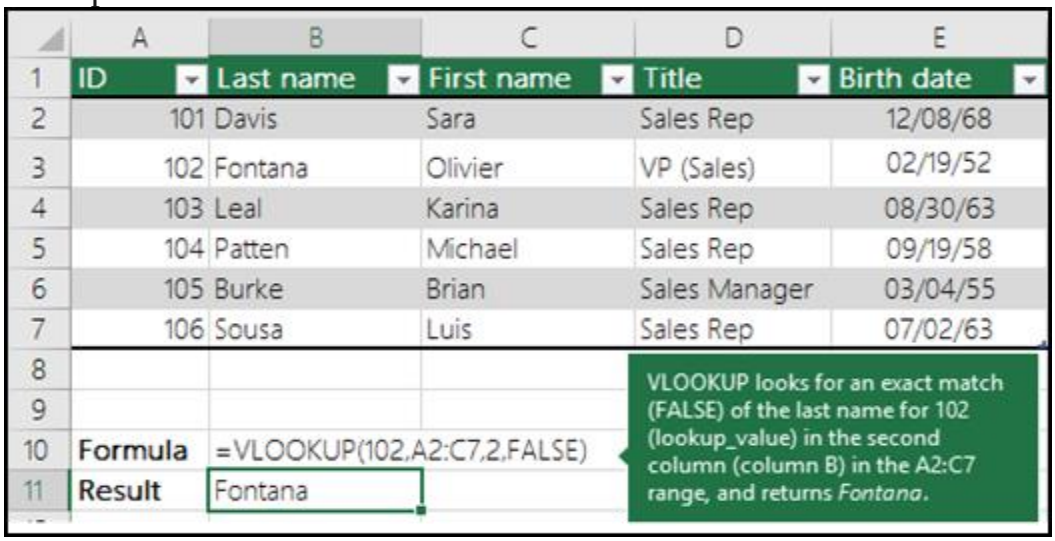
Here are a few examples of VLOOKUP:

Example 1



	A	B	C	D	E
1	ID	Last name	First name	Title	Birth date
2	101	Davis	Sara	Sales Rep	12/08/68
3	102	Fontana	Olivier	VP (Sales)	02/19/52
4	103	Leal	Karina	Sales Rep	08/30/63
5	104	Patten	Michael	Sales Rep	09/19/58
6	105	Burke	Brian	Sales Manager	03/04/55
7	106	Sousa	Luis	Sales Rep	07/02/63
8					
9					
10	Formula	=VLOOKUP(B3,B2:E7,2,FALSE)			
11	Result	Olivier			
12					

Example 2



	A	B	C	D	E
1	ID	Last name	First name	Title	Birth date
2	101	Davis	Sara	Sales Rep	12/08/68
3	102	Fontana	Olivier	VP (Sales)	02/19/52
4	103	Leal	Karina	Sales Rep	08/30/63
5	104	Patten	Michael	Sales Rep	09/19/58
6	105	Burke	Brian	Sales Manager	03/04/55
7	106	Sousa	Luis	Sales Rep	07/02/63
8					
9					
10	Formula	=VLOOKUP(102,A2:C7,2,FALSE)			
11	Result	Fontana			