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

The dollar sign **fixes the reference to a given cell, so that it remains unchanged no matter where the formula moves**. In other words, using $ in cell references allows you to copy the formula in Excel without changing references.

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

To change the reference from relative to absolute, you need to add the dollar sign before the column notation and the row number.

For example, A1 is a relative cell reference, and it would become absolute when you make it $A$1.

If you only have a couple of references to change, you may find it easy to change these references manually. So you can go to the formula bar and edit the formula (or select the cell, press F2, and then change it).

However, a faster way to do this is by using the – F4.

When you select a cell reference (in the formula bar or in the cell in edit mode) and press F4, it changes the reference.

Suppose you have the reference =A1 in a cell.

Here is what happens when you select the reference and press the F4 key.

* **Press F4 key once:** The cell reference changes from A1 to $A$1 (becomes ‘absolute’ from ‘relative’).
* **Press F4 key two times:** The cell reference changes from A1 to A$1 (changes to mixed reference where the row is locked).
* **Press F4 key three times:** The cell reference changes from A1 to $A1 (changes to mixed reference where the column is locked).
* **Press F4 key four times:**The cell reference becomes A1 again.

1. Explain the order of operations in excel?
2. 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 |

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for any of two?

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The most frequently used functions in Excel are:

* AutoSum;
* IF function;
* LOOKUP function;
* VLOOKUP function;
* HLOOKUP function;
* MATCH function;
* CHOOSE function;
* DATE function;
* DAYS function;
* FIND & FINDB functions;
* INDEX function;

The VLookup formula is “=VLOOKUP” (lookup value, table array, col\_index\_num, \*range\_lookup\*).

The syntax formula for sum function is “=SUM” (number1, number2, etc.)

1. When would you use the subtotal function?
2. 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.

Example

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.

| **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 |  |

1. What is the syntax of the vlookup function? Explain the terms in it?
2. 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)).

Here are a few examples of VLOOKUP:

### **Example 1**

=VLOOKUP (B3,B2:E7,2,FALSE)

VLOOKUP looks for Fontana in the first column (column B) in the table_array B2:E7, and returns Olivier from the second column (column C) of the table_array.  False returns an exact match.

### **Example 2**

=VLOOKUP (102,A2:C7,2,FALSE)

VLOOKUP looks for an exact match (FALSE) of the last name for 102 (lookup_value) in the second column (column B) in the A2:C7 range, and returns Fontana.

### **Example 3**

=IF(VLOOKUP(103,A1:E7,2,FALSE)="Souse","Located","Not found")

IF checks to see if VLOOKUP returns Sousa as the last name of employee correspoinding to 103 (lookup_value) in A1:E7 (table_array). Because the last name corresponding to 103 is Leal, the IF condition is false, and Not Found is displayed.

### **Example 4**

=INT(YEARFRAC(DATE(2014,6,30),VLOOKUP(105,A2:E7,5,FLASE),1))



VLOOKUP looks for the birth date of the employee corresponding to 109 (lookup_value) in the A2:E7 range (table_array), and returns 03/04/1955. Then, YEARFRAC subtracts this birth date from 2014/6/30 and returns a value, which is then converted by INY to the integer 59.

### **Example 5**

IF(ISNA(VLOOKUP(105,A2:E7,2,FLASE))=TRUE,"Employee not found",VLOOKUP(105,A2:E7,2,FALSE))



IF checks to see if VLOOKUP returns a value for last name from column B for 105 (lookup_value). If VLOOKUP finds a last name, then IF will display the last name, otherwise IF returns Employee not found. ISNA makes sure that if VLOOKUP returns #N/A, then the error is replaced by Employee not found, instead of #N/A.



In this example, the return value is Burke, which is the last name corresponding to 105.