LOOKUP

⊞ Show All

Returns a value either from a one-row or one-column range or from an array. The LOOKUP function has two syntax forms: the vector form and the array form.

If you want to	Then see	Usage
Look in a one-row or one-column range (known as a vector) for a value and return a value from the same position in a second one-row or one-column range	Vector form	Use the vector form when you have a large list of values to look up or when the values may change over time.
Look in the first row or column of an array for the specified value and return a value from the same position in the last row or column of the array	Array form	Use the array form when you have a small list of values and the values remain constant over time.

NOTE   You can also use the LOOKUP function as an alternative to the IF function for elaborate tests or tests that exceed the limit for nesting of functions. See the examples in the array form.

Vector form

A vector is a range of only one row or one column. The vector form of LOOKUP looks in a one-row or one-column range (known as a vector) for a value and returns a value from the same position in a second one-row or one-column range. Use this form of the LOOKUP function when you want to specify the range that contains the values that you want to match. The other form of LOOKUP automatically looks in the first column or row.

LOOKUP(**lookup_value**,**lookup_vector**,**result_vector**)

Lookup_value A value that LOOKUP searches for in the first vector. Lookup_value can be a number, text, a logical value, or a name or reference that refers to a value.

Lookup_vector A range that contains only one row or one column. The values in lookup_vector can be text, numbers, or logical values.

 IMPORTANT   The values in lookup_vector must be placed in ascending order: ...,-2, -1, 0, 1, 2, ..., A-Z, FALSE, TRUE; otherwise, LOOKUP may not give the correct value. Uppercase and lowercase text are equivalent.

Result_vector A range that contains only one row or column. It must be the same size as lookup_vector.

Remarks

- If LOOKUP can't find the lookup_value, it matches the largest value in lookup_vector that is less than or equal

to lookup_value.

- If lookup_value is smaller than the smallest value in lookup_vector, LOOKUP gives the #N/A error value.

Example

The example may be easier to understand if you copy it to a blank worksheet.

⊞ How to copy an example

	A	B
1	**Frequency**	**Color**
2	4.14	red
3	4.19	orange
4	5.17	yellow
5	5.77	green
6	6.39	blue
	Formula	**Description (Result)**
	=LOOKUP (4.19,A2:A6,B2:B6)	Looks up 4.19 in column A, and returns the value from column B that's in the same row (orange)
	=LOOKUP (5.00,A2:A6,B2:B6)	Looks up 5.00 in column A, matches the next smallest value (4.19), and returns the value from column B that's in the same row (orange)
	=LOOKUP (7.66,A2:A6,B2:B6)	Looks up 7.66 in column A, matches the next smallest value (6.39), and returns the value from column B that's in the same row (blue)
	=LOOKUP (0,A2:A6,B2:B6)	Looks up 0 in column A, and returns an error because 0 is less than the smallest value in the lookup_vector A2:A7 (#N/A)

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Array form

The array form of LOOKUP looks in the first row or column of an array for the specified value and returns a value from the same position in the last row or column of the array. Use this form of LOOKUP when the values that you want to match are in the first row or column of the array. Use the other form of LOOKUP when you want to specify the location of the column or row.

TIP   In general, it's best to use the HLOOKUP or VLOOKUP function instead of the array form of LOOKUP. This form of LOOKUP is provided for compatibility with other spreadsheet programs.

LOOKUP(**lookup_value**,**array**)

Lookup_value A value that LOOKUP searches for in an array. Lookup_value can be a number, text, a logical value,

or a name or reference that refers to a value.

- If LOOKUP can't find the lookup_value, it uses the largest value in the array that is less than or equal to lookup_value.

- If lookup_value is smaller than the smallest value in the first row or column (depending on the array dimensions), LOOKUP returns the #N/A error value.

Array A range of cells that contains text, numbers, or logical values that you want to compare with lookup_value.

The array form of LOOKUP is very similar to the HLOOKUP and VLOOKUP functions. The difference is that HLOOKUP searches for lookup_value in the first row, VLOOKUP searches in the first column, and LOOKUP searches according to the dimensions of array.

- If array covers an area that is wider than it is tall (more columns than rows), LOOKUP searches for lookup_value in the first row.

- If array is square or is taller than it is wide (more rows than columns), LOOKUP searches in the first column.

- With HLOOKUP and VLOOKUP, you can index down or across, but LOOKUP always selects the last value in the row or column.

 IMPORTANT   The values in array must be placed in ascending order: ...,-2, -1, 0, 1, 2, ..., A-Z, FALSE, TRUE; otherwise, LOOKUP may not give the correct value. Uppercase and lowercase text are equivalent.

Example 1

The example may be easier to understand if you copy it to a blank worksheet.

⊞ How to copy an example

	A	B
1	**Formula**	**Description (Result)**
	=LOOKUP("C", {"a","b","c","d";1,2,3,4})	Looks up "C" in the first row of the array, finds the largest value that is less than or equal to it ("c"), and then returns the value in the last row that's in the same column (3)
	=LOOKUP("bump", {"a",1;"b",2;"c",3})	Looks up "bump" in the first row of the array, finds the largest value that is less than or equal to it ("b"), and then returns the value in the last column that's in the same row (2)

Example 2

The example may be easier to understand if you copy it to a blank worksheet.

⊞ How to copy an example

The following example uses an array of numbers to assign a letter grade to a test score.

	A
1	Score
2	45
3	90
4	78

Formula	Description (Result)
=LOOKUP(A2,{0,60,70,80,90},{"F","D","C","B","A"})	Looks up the value in A2 (45) in the first row of the array, finds the largest value that is less than or equal to it (60), and then returns the value in the last row of the array that's in the same column (F)
=LOOKUP(A3,{0,60,70,80,90},{"F","D","C","B","A"})	Looks up the value in A3 (90) in the first row of the array, finds the largest value that is less than or equal to it (90), and then returns the value in the last row of the array that's in the same column (A)
=LOOKUP(A4,{0,60,70,80,90},{"F","D","C","B","A"})	Looks up the value in A4 (78) in the first row of the array, finds the largest value that is less than or equal to it (80), and then returns the value in the last row of the array that's in the same column (C)
=LOOKUP(A2, {0,60,63,67,70,73,77,80,83,87,90,93,97},{"F","D-","D","D+","C-","C","C+","B-","B","B+","A-","A","A+"})	Looks up the value in A2 (45) in the first row of the array, finds the largest value that is less than or equal to it (60), and then returns the value in the last row of the array that's in the same column (F)
=LOOKUP(A3, {0,60,63,67,70,73,77,80,83,87,90,93,97},{"F","D-","D","D+","C-","C","C+","B-","B","B+","A-","A","A+"})	Looks up the value in A3 (90) in the first row of the array, finds the largest value that is less than or equal to it (90), and then returns the value in the last row that's in the same column (A-)
=LOOKUP(A4, {0,60,63,67,70,73,77,80,83,87,90,93,97},{"F","D-","D","D+","C-","C","C+","B-","B","B+","A-","A","A+"})	Looks up the value in A4 (78) in the first row of the array, finds the largest value that is less than or equal to it (80), and then returns the value in the last row that's in the same column (C+)

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See Also

- HLOOKUP
- INDEX
- Lookup and reference functions
- MATCH
- VLOOKUP