

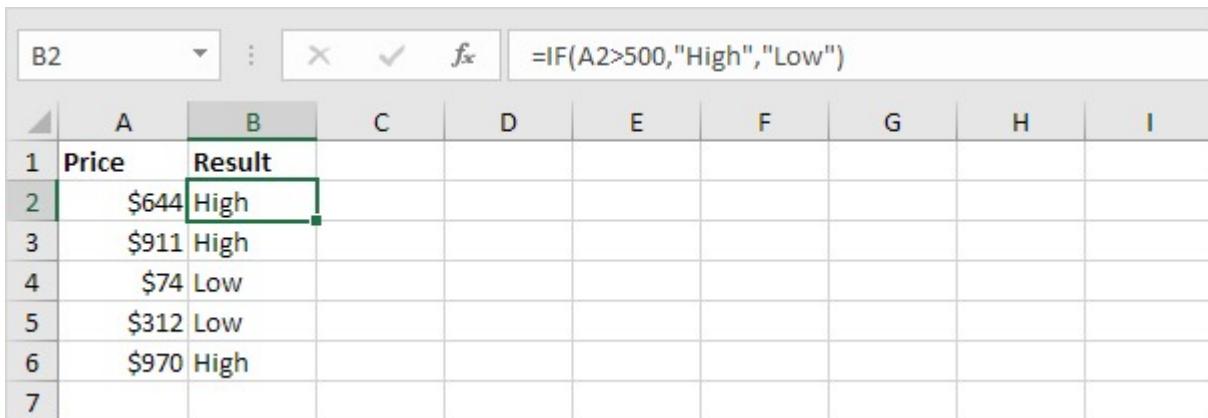
IF function in Excel

The IF function is one of the most used functions in Excel. This page contains many easy to follow IF examples.

◆ Simple IF examples

The IF function checks whether a condition is met, and returns one value if true and another value if false.

1a. For example, take a look at the IF function in cell B2 below.



A screenshot of Microsoft Excel showing a table with two columns: 'Price' and 'Result'. The 'Price' column contains values \$644, \$911, \$74, \$312, and \$970. The 'Result' column contains the text 'High' for all rows except row 4 where it is 'Low'. The formula =IF(A2>500,"High","Low") is visible in the formula bar above the table. Cell B2, which contains 'High', is selected and highlighted with a green border.

	B	C	D	E	F	G	H	I
1	Price	Result						
2	\$644	High						
3	\$911	High						
4	\$74	Low						
5	\$312	Low						
6	\$970	High						
7								

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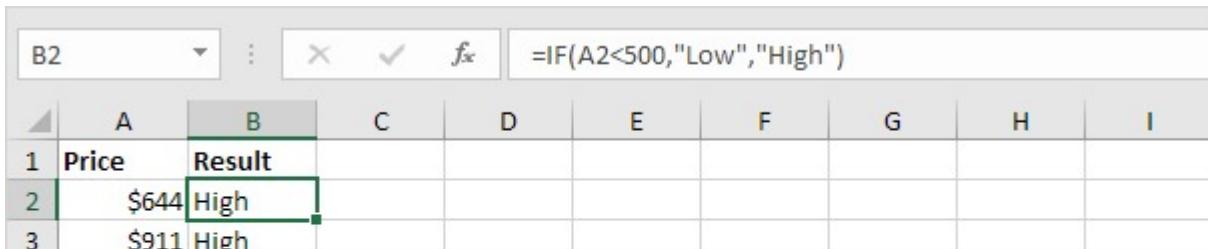
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Explanation: if the price is greater than 500, the IF function returns High, else it returns Low.

1b. The following IF function produces the exact same result.



A screenshot of Microsoft Excel showing a table with two columns: 'Price' and 'Result'. The 'Price' column contains values \$644 and \$911. The 'Result' column contains the text 'High' for both rows. The formula =IF(A2<500,"Low","High") is visible in the formula bar above the table. Cell B2, which contains 'High', is selected and highlighted with a green border.

	B	C	D	E	F	G	H	I
1	Price	Result						
2	\$644	High						
3	\$911	High						

4	\$74	Low
5	\$312	Low
6	\$970	High
7		

Note: you can use the following [comparison operators](#): = (equal to), > (greater than), < (less than), >= (greater than or equal to), <= (less than or equal to) and <> (not equal to).

2. Always enclose text in double quotation marks.

B2		
A	B	C
1	Country	Result
2	USA	=IF(A2="USA",5,0)
3	UK	0
4	USA	5
5	UK	0
6	UK	0
7		

3a. The formula below calculates the progress between two points in time.

C2		
A	B	C
1	Start	End
2	17	119
3	25	141
4	13	131
5	30	-30
6	14	107
7		93

3b. You can use the IF function to display an empty string if the end value hasn't been entered yet (see row 5).

C2		
A	B	C
1	Start	End
2	17	119
3	25	141
4	13	131
5	30	
6	14	107
7		93

Explanation: if the end value is not empty (<> means not equal to), the IF function calculates the progress between the start and end value, else it displays an empty string (two double quotes with nothing in between).

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◆ And/Or Criteria

Use the IF function in combination with the [AND function](#) and the [OR function](#) and become an Excel expert.

1. For example, take a look at the IF function in cell D2 below.

=IF(AND(B2>=60,C2>=90),"Pass","Fail")				
	A	B	C	D
1	Name	Score 1	Score 2	Result
2	Richard	93	80	Fail
3	Jennifer	60	91	Pass
4	James	58	75	Fail
5	Lisa	79	94	Pass
6	Sharon	41	33	Fail
7				

Explanation: the AND function returns TRUE if the first score is greater than or equal to 60 and the second score is greater than or equal to 90, else it returns FALSE. If TRUE, the IF function returns Pass, if FALSE, the IF function returns Fail.

2. For example, take a look at the IF function in cell D2 below.

=IF(OR(B2>=60,C2>=60),"Pass","Fail")				
	A	B	C	D
1	Name	Score 1	Score 2	Result
2	Richard	93	80	Pass
3	Jennifer	60	91	Pass
4	James	58	75	Pass
5	Lisa	79	94	Pass
6	Sharon	41	33	Fail
7				

Explanation: the OR function returns TRUE if at least one score is greater than or equal to 60, else it returns FALSE. If TRUE, the IF function returns Pass, if FALSE, the IF function

returns Fail.

3. For example, take a look at the IF function in cell D2 below.

D2		:	=IF(AND(A2="Table",OR(B2="Green",B2="Blue")),0.5*C2,0.9*C2)						
	A	B	C	D	E	F	G	H	I
1	Product	Color	Price	Sale					
2	Table	Red	\$300	\$270					
3	Chair	Blue	\$500	\$450					
4	Table	Green	\$100	\$50					
5	Lamp	Yellow	\$100	\$90					
6	Table	Blue	\$350	\$175					
7	Table	Green	\$500	\$250					
8	Chair	Black	\$600	\$540					
9									

Explanation: the AND function above has two arguments separated by a comma (Table, Green or Blue). The AND function returns TRUE if Product equals "Table" and Color equals "Green" or "Blue". If TRUE, the IF function reduces the price by 50%, if FALSE, the IF function reduces the price by 10%.

◆ Nested IF

The IF function in Excel can be nested, when you have multiple conditions to meet. The FALSE value is being replaced by another IF function to make a further test.

1. For example, take a look at the nested IF formula in cell C2 below.

C2		:	=IF(B2=1,"Bad",IF(B2=2,"Good",IF(B2=3,"Excellent","Not Valid")))						
	A	B	C	D	E	F	G	H	I
1	Name	Score	Result						
2	Richard	3	Excellent						
3	Jennifer	1	Bad						
4	James	2	Good						
5	Lisa	25	Not Valid						
6	Sharon	2	Good						
7									

Explanation: if the score equals 1, the nested IF formula returns Bad, if the score equals 2, the nested IF formula returns Good, if the score equals 3, the nested IF formula returns Excellent, else it returns Not Valid. If you have Excel 2016 or later, simply use the [IFS function](#).

2. For example, take a look at the nested IF formula in cell C2 below.

C2		:	=IF(B2<60,"F",IF(B2<70,"D",IF(B2<80,"C",IF(B2<90,"B","A"))))						
	A	B	C	D	E	F	G	H	I
1	Name	Score	Grade						

2	Richard	41	F
3	Jennifer	95	A
4	James	82	B
5	Lisa	73	C
6	Sharon	60	D
7			

Explanation: if the score is less than 60, the nested IF formula returns F, if the score is greater than or equal to 60 and less than 70, the formula returns D, if the score is greater than or equal to 70 and less than 80, the formula returns C, if the score is greater than or equal to 80 and less than 90, the formula returns B, else it returns A.

◆ More about IF

The IF function is a great function. Let's take a look at a few more cool examples.

1. For example, use IF and AND to test if a value is between two numbers.

Explanation: the AND function returns TRUE if the person is older than 12 and younger than 20, else it returns FALSE. If TRUE, the IF function returns Yes, if FALSE, the IF function returns No.

2. You can combine IF with AVERAGE, SUM and other Excel functions. The sky is the limit!

Explanation: the AND function returns TRUE if the input value is greater than 100 and the average of the values in the [named range](#) Data1 is greater than 100, else it returns FALSE. If TRUE, the IF function returns the sum of Data2, if FALSE, the IF function returns 0.

Confused? You can always use the Evaluate Formula tool to step through your IF formula.

This Excel tool helps you understand a formula.

3. For example, select cell G3 above.

4. On the Formulas tab, in the Formula Auditing group, click Evaluate Formula.

5. Click Evaluate multiple times.

Note: try it yourself. Download the Excel file and choose one of the IF formulas explained on this page. You can use this tool to step through all kinds of formulas.

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