Excel Core Functions

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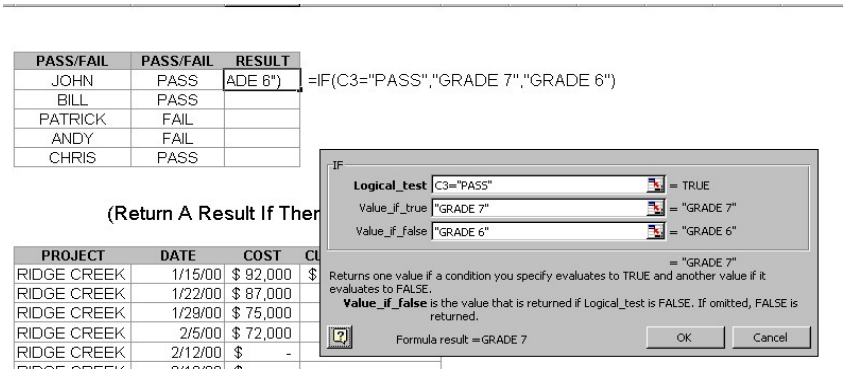
If Statements

IF return a value if one condition is TRUE and returns another value if the condition is FALSE. The IF function is one of the most commonly used logical functions and can be embedded within itself to perform up to seven logical tests. IF statements can be used to track grades, calculate shipping costs, etc.

<u>To create a single IF Function:</u>

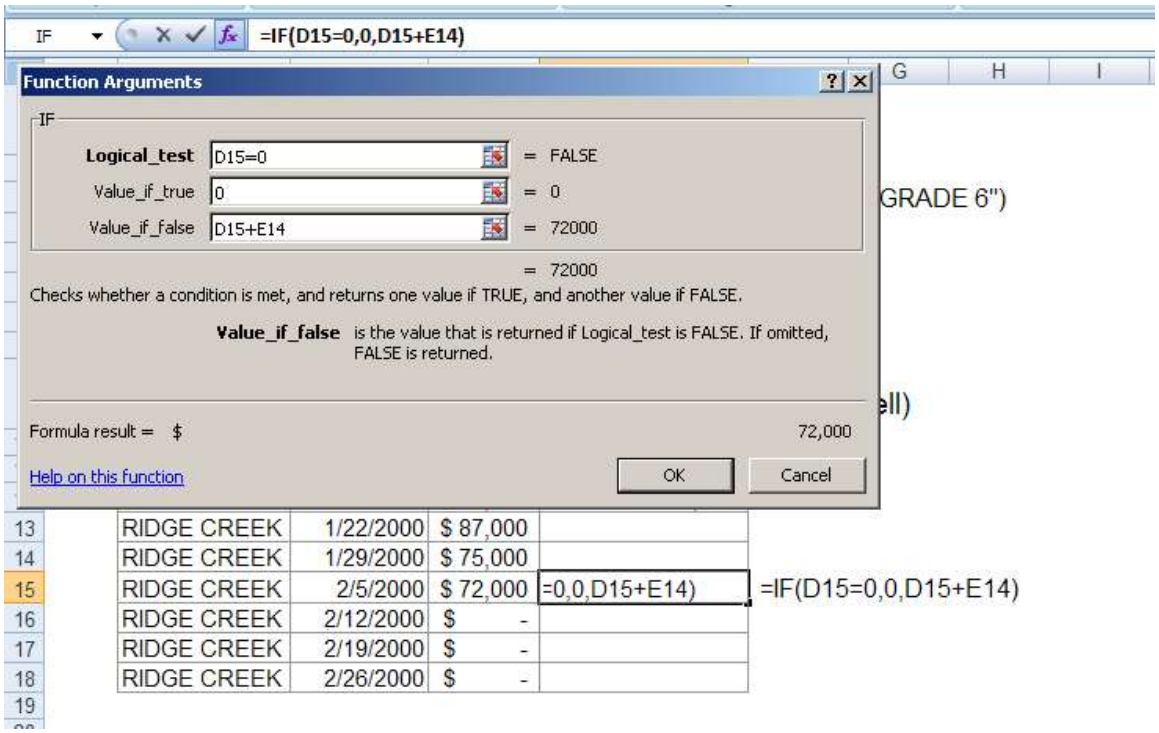
- Select the cell you want the statement to appear in
- Choose the *fx* from the Formula Bar
- Choose "Select a function", "IF" from the right hand side of "Most Recently Used" "Function category"
- Click on OK
- Move the IF box so you can see the section of the spreadsheet you are working on
- In logical test text box, select cell you want to test (click on the actual cell in the spreadsheet
- In this example, type in a ="PASS"
- Tab or click in "Value if true" text box, type in that value
- Tab or click in "Value if false text box, type in that value



IF

	B	C	D	
2	**PASS/FAIL**	**PASS/FAIL**	**RESULT**	
3	JOHN	PASS	GRADE 7	=IF(C3="PASS","GRADE 7","GRADE 6")
4	BILL	PASS	GRADE 7	
5	PATRICK	FAIL	GRADE 6	
6	ANDY	FAIL	GRADE 6	
7	CHRIS	PASS	GRADE 7	

To create a single IF Function where there's a number in the cell:

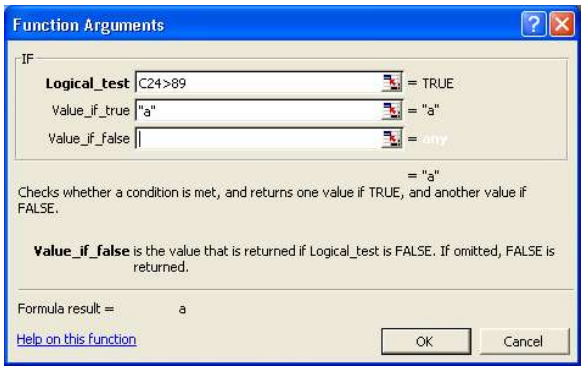


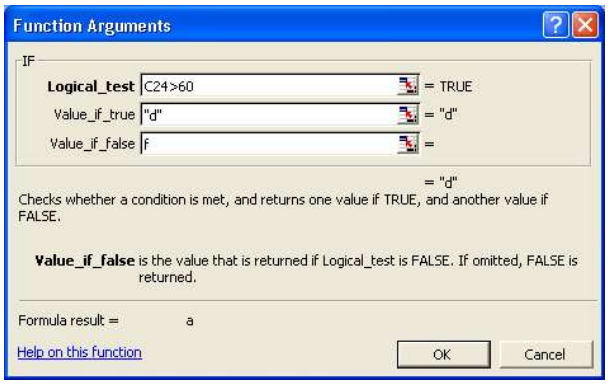
IF (Return A Result If There's A Number In The Cell)

	A	B	C	D	
	PROJECT	DATE	COST	CUMULATIVE COST	
	RIDGE CREEK	1/15/00	$ 92,000	$ 92,000	=IF(D12=0,0,D12)
	RIDGE CREEK	1/22/00	$ 87,000	$ 179,000	=IF(D13=0,0,D13+E12)
	RIDGE CREEK	1/29/00	$ 75,000	$ 254,000	
	RIDGE CREEK	2/5/00	$ 72,000	$ 326,000	=IF(D15=0,0,D15+E14)
	RIDGE CREEK	2/12/00	$ -	$ -	
	RIDGE CREEK	2/19/00	$ -	$ -	
	RIDGE CREEK	2/26/00	$ -	$ -	

To create a nested IF statement:

When your curser is in the first “Value if false” text box, click on the IF from the dropdown menu on the formula bar and continue entering if statements until all embedded statements are entered.





NESTED IF *(Automate Grades)*

	B	C	D	
23	NAME	AVG. SCORE	GRADE	
24	John	92	A	=IF(C24>88,"A",IF(C24>79,"B",IF(C24>69,"C",IF(C24>59,"D","F"))))
25	Andy	87	B	**Grade Key:**
26	Sandy	75	C	A = 89-100
27	Bill	72	C	B = 80-88
28	Al	65	D	C = 70-79
29	Albert	61	D	D = 69-60
30	Mitch	58	F	F = 59-below

AND Statement

The Microsoft Excel AND function returns TRUE if all conditions are TRUE. It returns FALSE if any of the conditions are FALSE.

OR Statement

The Microsoft Excel OR function returns TRUE if any conditions are TRUE. It returns FALSE if all of the conditions are FALSE.

Today
Gives the current date. This field is updated every time the spreadsheet is updated (like on load).

Date
Creates the date by given Year, Month, Day.

Count vs. Counta vs. Countif
Count - Counts the number of cells that contain numbers and numbers within the list of arguments. Use COUNT to get the number of entries in a number field in a range or array of numbers.

Counta - Counts the number of cells that are not empty and the values within the list of arguments. Use COUNTA to count the number of cells that contain data in a range or array.

Countif - Counts the number of cells within a range that meet the given criteria.

Examples
Suppose A3:A6 contain "apples", "oranges", "peaches", "apples", respectively:

COUNTIF(A3:A6,"apples") equals 2

Suppose B3:B6 contain 32, 54, 75, 86, respectively:

COUNTIF(B3:B6,">55") equals 2

Trim
Removes all spaces from text except for single spaces between words. Use TRIM on text that you have received from another application that may have irregular spacing. This is especially useful when doing text matching.

Example
TRIM(" First Quarter Earnings ") = "First Quarter Earnings"

Concatenation
Sometimes, a number is best placed within a sentence on a spreadsheet. To do this, use the “&” symbol to add strings and numbers together.

Example:
- In A1 Type 2
- In A2 Type 2
- In A3 Type =A1+A2
- In A4 Type =”The quantity” & A1 & “+” & A2 & “=” & A3

Ceiling, Floor
These functions make round up (ceiling) or down (floor) depending how they are called.

Example
How many cars are needed if each car can fit 4 people and we have 23 people?

Example
How many dollars do we have if we have 235 pennies?

Lookup

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 you want to match.

Example

	A	B	C
1	**Frequency**	**Color**	
2	4.14234	red	
3	4.19342	orange	
4	5.17234	yellow	
5	5.77343	green	
6	6.38987	blue	
7	7.31342	violet	
8			

LOOKUP(4.91,A2:A7,B2:B7) equals "orange"

LOOKUP(5.00,A2:A7,B2:B7) equals "orange"

LOOKUP(7.66,A2:A7,B2:B7) equals "violet"

LOOKUP(7.66E-14,A2:A7,B2:B7) equals #N/A, because 7.66E-14 is less than the smallest value in the lookup_vector A2:A7

Vlookup

Searches for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify in the table. Use VLOOKUP instead of HLOOKUP when your comparison values are located in a column to the left of the data you want to find.

Example

	A	B	C	D
1	**Air at 1 atm pressure**			
2	**Density**	**Viscosity**	**Temp**	
3	**(kg/cubic m)**	**(kg/m*s)*1E+05**	**(degrees C)**	
4	0.457	3.55	500	
5	0.525	3.25	400	
6	0.616	2.93	300	
7	0.675	2.75	250	
8	0.746	2.57	200	
9	0.835	2.38	150	
10	0.946	2.17	100	
11	1.09	1.95	50	
12	1.29	1.71	0	

VLOOKUP (1, A4:C12, 1) equals 0.946 / VLOOKUP (1, A4:C12, 2) equals 2.17
VLOOKUP (1, A4:C12, 3) equals 100 / VLOOKUP (.746, A4:C12, 3) equals 200
VLOOKUP (0.1, A4:C12, 2) equals #N/A, because 0.1 is less than the smallest value in column A
VLOOKUP (2, A4:C12, 2) equals 1.71

Left, Right, Mid

	A	B	C	D
1	The quick brown fox	The qui	=LEFT(A1,7)	
2	The quick brown fox	own fox	=RIGHT(A2,7)	
3	The quick brown fox	quick b	=MID(A3,5,7)	
4				
5				

Left

LEFT returns the first character or characters in a text string, based on the number of characters you specify.

Right

RIGHT returns the last character or characters in a text string, based on the number of characters you specify.

Mid

MID returns the characters from the middle of a text string, given a starting position and length.

Find

The Excel FIND function returns the position (as a number) of one text string inside another. When the text is not found, FIND returns a #VALUE error.

=FIND("quick",A1) This equals 5

Len

The Excel LEN function returns the length of a given text string as the number of characters. LEN will also count characters in numbers, but number formatting is not included.

=LEN("Begin the day with a friendly voice") This equals 35

Referencing Cells in Excel

We are quite familiar with referencing particular cells in Excel. When we copy formulas, the cell references change with the new cell location. What if we didn't want to change the location of the cell? We can tell Excel to use an absolute reference. This is denoted by putting a $ in front of both the column and the row.

Example

Compound Interest	5%
$1,000.00	$ 50.00
$1,050.00	$ 52.50
$1,102.50	$ 55.13
$1,157.63	$ 57.88
$1,215.51	$ 60.78
$1,276.28	$ 63.81
$1,340.10	$ 67.00
$1,407.10	$ 70.36
$1,477.46	$ 73.87

Now what happens if we want 5% and 6%?

Copying the formula over creates a mess because it is looking at the 5% interest column! To make sure that it is only looking at the Money column, put a $ in front of the column. Now the formula will always look in the right place as the formula is being copied to the right.

Naming Cells and Ranges

In Excel, you can create names that refer to:

- Cell(s) on the worksheet
- Specific value
- Formula

After you define Excel names, you can:

- Use those names in a formula, instead of using a constant value or cell references.
- Type a name, to quickly go to that named range of cells