

“What is the purpose of the Excel AND function?”

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RECOMMENDED CITATION

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The Excel AND function is a logical function that allows users to check if multiple conditions are true at the same time. Its purpose is to return a TRUE value only if all the specified conditions are met, and a FALSE value if any of the conditions are not met. This function is useful for data analysis and decision making, as it allows users to easily determine if all conditions are fulfilled before taking action or making a conclusion.

Excel AND Function

AND Function

The **AND** function is a premade function in Excel, which returns **TRUE** or **FALSE** based on two or more **conditions**.

It is typed `=AND` and takes two or more conditions.

Note: The AND function is often used together with the IF function.

`=AND(, , ...)`

The **conditions** are referred to as , , and so on.

The conditions can check things like:

If a number is **greater than** another number > If a number is **smaller than** another number < If a number or text is **equal** to something =

Note: The different parts of the function are separated by a symbol, like comma , or semicolon ;

The symbol depends on your Language Settings.

Example AND Function

Check if the Pokemon type is fire **and** has speed **greater than** 70:

The function returns "TRUE" or "FALSE".

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45		
3	Ivysaur	Grass	60		
4	Venusaur	Grass	80		
5	Charmander	Fire	65		
6	Charmeleon	Fire	80		
7	Charizard	Fire	100		
8	Squirtle	Water	43		
9	Wartortle	Water	58		
10	Blastoise	Water	78		
11					

Example **AND** function, step by step:

Select the cell D2 Type =AND Double click the **AND** command

	A	B	C	D	E	F	G	H	I
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed					
2	Bulbasaur	Grass	45	=AND					
3	Ivysaur	Grass	60	<ul style="list-style-type: none"> AND BITAND RAND RANDARRAY RANDBETWEEN STANDARDIZE 	Checks whether all arguments are TRUE, and returns TRUE if all arguments are TRUE				
4	Venusaur	Grass	80						
5	Charmander	Fire	65						
6	Charmeleon	Fire	80						
7	Charizard	Fire	100						
8	Squirtle	Water	43						
9	Wartortle	Water	58						
10	Blastoise	Water	78						
11									

Specify the first condition B2="Fire" Type , Specify the second condition C2>70 Hit enter

Note: You can add more conditions by repeating steps 5-6 before hitting enter.

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	=AND(B2="Fire"; C2>70)	
3	Ivysaur	Grass	60	AND (logical1; [logical2]; [logical3]; ...)	
4	Venusaur	Grass	80		
5	Charmander	Fire	65		
6	Charmeleon	Fire	80		
7	Charizard	Fire	100		
8	Squirtle	Water	43		
9	Wartortle	Water	58		
10	Blastoise	Water	78		
11					

Since the value in cell B2 is not "Fire" the first condition is **FALSE**.

Since the value in cell C2 is less than 70 the second condition is also **FALSE**.

All conditions need to be **TRUE** for the AND function to return **TRUE**.

Note: Text values needs to be in quotes: " "

The function can be repeated with the filling function for each row to perform the same check for each Pokemon:

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	=AND(B2="Fire"; C2>70)	
3	Ivysaur	Grass	60	=AND(B3="Fire"; C3>70)	
4	Venusaur	Grass	80	=AND(B4="Fire"; C4>70)	
5	Charmander	Fire	65	=AND(B5="Fire"; C5>70)	
6	Charmeleon	Fire	80	=AND(B6="Fire"; C6>70)	
7	Charizard	Fire	100	=AND(B7="Fire"; C7>70)	
8	Squirtle	Water	43	=AND(B8="Fire"; C8>70)	
9	Wartortle	Water	58	=AND(B9="Fire"; C9>70)	
10	Blastoise	Water	78	=AND(B10="Fire"; C10>70)	
11					

Now, each row has a check for Fire Type **and** Speed greater than 70:

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	FALSE	
3	Ivysaur	Grass	60	FALSE	
4	Venusaur	Grass	80	FALSE	
5	Charmander	Fire	65	FALSE	
6	Charmeleon	Fire	80	TRUE	
7	Charizard	Fire	100	TRUE	
8	Squirtle	Water	43	FALSE	
9	Wartortle	Water	58	FALSE	
10	Blastoise	Water	78	FALSE	
11					

Only Charmeleon and Charizard both have Fire type and speed greater than 70, so the function returns "TRUE".

Example AND Function (with IF)

Combining the AND function with an IF function lets you check **multiple** conditions for the IF function:

Note: The IF function lets you specify the return values.

The IF function is typed `=IF` and has 3 parts:

`=IF(logical_test, ,)`

The AND function takes the place of the `logical_test` condition.

Here, the **IF** function returns "Yes" or "No".

Example **AND** function as the condition for **IF** function, step by step:

Select cell C2 Type `=IF` Double click the **IF** command

	A	B	C	D	E	F	G	H	I
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed					
2	Bulbasaur	Grass	45	=IF					
3	Ivysaur	Grass	60	<ul style="list-style-type: none"> IF Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE IFERROR IFNA IFS 					
4	Venusaur	Grass	80						
5	Charmander	Fire	65						
6	Charmeleon	Fire	80						
7	Charizard	Fire	100						
8	Squirtle	Water	43						
9	Wartortle	Water	58						
10	Blastoise	Water	78						
11									

Type **AND** Double click the **AND** command

	A	B	C	D	E	F	G	H	I
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed					
2	Bulbasaur	Grass	45	=IF(AND					
3	Ivysaur	Grass	60	<ul style="list-style-type: none"> AND Checks whether all arguments are TRUE, and returns TRUE if all arguments are TRUE BITAND RAND RANDARRAY RANDBETWEEN STANDARDIZE 					
4	Venusaur	Grass	80						
5	Charmander	Fire	65						
6	Charmeleon	Fire	80						
7	Charizard	Fire	100						
8	Squirtle	Water	43						
9	Wartortle	Water	58						
10	Blastoise	Water	78						
11									

Specify the first condition `B2="Fire"Type` , Specify the second condition `C2>70Type`) , Specify the value "Yes" for when both conditions are **TRUE**Type , Specify the value "No" for when either, or both, conditions are **FALSE**Type) and hit enter

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	=IF(AND(B2="Fire"; C2>70); "Yes"; "No")	
3	Ivysaur	Grass	60	IF (logical_test; [value_if_true]; [value_if_false])	
4	Venusaur	Grass	80		
5	Charmander	Fire	65		
6	Charmeleon	Fire	80		
7	Charizard	Fire	100		
8	Squirtle	Water	43		
9	Wartortle	Water	58		
10	Blastoise	Water	78		
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The function can be repeated with the filling function for each row to perform the same check for each Pokemon:

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	=IF(AND(B2="Fire"; C2>70); "Yes"; "No")	
3	Ivysaur	Grass	60	=IF(AND(B3="Fire"; C3>70); "Yes"; "No")	
4	Venusaur	Grass	80	=IF(AND(B4="Fire"; C4>70); "Yes"; "No")	
5	Charmander	Fire	65	=IF(AND(B5="Fire"; C5>70); "Yes"; "No")	
6	Charmeleon	Fire	80	=IF(AND(B6="Fire"; C6>70); "Yes"; "No")	
7	Charizard	Fire	100	=IF(AND(B7="Fire"; C7>70); "Yes"; "No")	
8	Squirtle	Water	43	=IF(AND(B8="Fire"; C8>70); "Yes"; "No")	
9	Wartortle	Water	58	=IF(AND(B9="Fire"; C9>70); "Yes"; "No")	
10	Blastoise	Water	78	=IF(AND(B10="Fire"; C10>70); "Yes"; "No")	
11					

Now each row has a check for both being Fire type and Speed greater than 70:

	A	B	C	D	E
1	Name	Type 1	Speed	Fire Type AND more than 70 Speed	
2	Bulbasaur	Grass	45	No	
3	Ivysaur	Grass	60	No	
4	Venusaur	Grass	80	No	
5	Charmander	Fire	65	No	
6	Charmeleon	Fire	80	Yes	
7	Charizard	Fire	100	Yes	
8	Squirtle	Water	43	No	
9	Wartortle	Water	58	No	
10	Blastoise	Water	78	No	
11					

Only Charmeleon and Charizard both have Fire type and speed greater than 70, so the function returns "Yes".

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