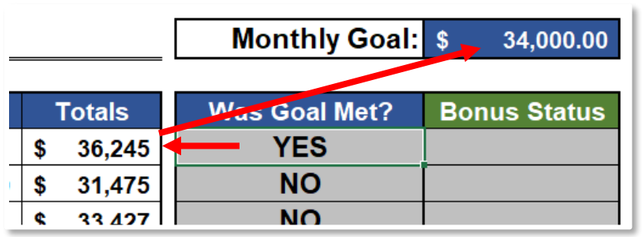
Master Excel Advanced Functions/Formulas

IF() FUNCTION

The IF function is one of the most popular functions in Excel. It allows you to make logical comparisons between values and return one of two results based on the outcome.

=IF(LOGICAL_TEST, TRUE, FALSE)



=IF(F5>=I2,"YES", "NO")

In the example above, we are checking if cell F5 ($36,245) is greater than or equal to cell I2 ($34,000). If TRUE, then we return YES. If FALSE, we return NO.

NESTING FUNCTIONS

"**Nesting**" refers to joining multiple functions together in one formula.

=IF(**AND(TEST, TEST, TEST)**, TRUE, FALSE)

Nesting is used to perform additional functions within a primary function. For example, in the above formula we start with an IF() function, but we need to test for multiple conditions. A standard IF() function only allows for one test to be performed. By nesting an AND() function we can perform multiple test to fulfill the requirements.

=IF(AND(MIN(B5:E5)>=8000, H5="YES"), "BONUS", "NO BONUS")

RELATIVE VS. ABSOLUTE CELL REFERENCES

There are three types of cell references used in Excel Formulas.

RELATIVE = A1

ABSOLUTE = $A$1

MIXED = A$1 or $A1

=IF(F5>=$I$2,"YES", "NO")

By default, Excel uses a relative reference. When a formula containing relative cell references is copied to a new location, the relative reference will change based on the new location.

If a formula containing absolute references is copied to a new location, the absolute reference will not change.

SHORTCUT KEY

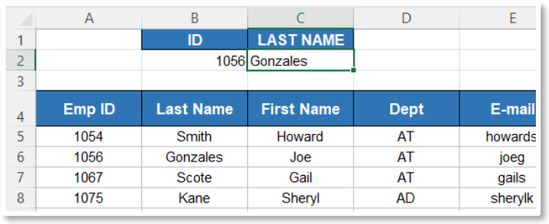
- Highlight the cell reference in the formula.
- Press function key **F4**

VLOOKUP() FUNCTION

=VLOOKUP(LOOKUP_VALUE, TABLE_RANGE, COL_INDEX, [RANGE_LOOKUP])

The VLOOKUP function allows you to find values from a table or range by the row. For example, you have a list of Employee IDs and need to find the Last Name associated with each ID.

=VLOOKUP(B2,$A$5:$I$41,2,FALSE)



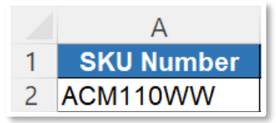
	A	B	C	D	E
1		ID	LAST NAME		
2		1056	Gonzales		
3					
4	Emp ID	Last Name	First Name	Dept	E-mail
5	1054	Smith	Howard	AT	howards
6	1056	Gonzales	Joe	AT	joeg
7	1067	Scote	Gail	AT	gails
8	1075	Kane	Sheryl	AD	sherylk

INDEX()/MATCH() FUNCTIONS

The VLOOKUP() function is great but has some limitations. For example, the VLOOKUP can only look up a value from left to right. In order to overcome this limitation you can use the INDEX()/MATCH() function pair. By nesting the MATCH function within the INDEX() function you can look left to right or right to left for the matching value.

LEFT()/RIGHT()/MID() FUNCTIONS

The LEFT(), RIGHT() and MID() functions are text based functions. Each function allows you to pull several characters from a cell based on position and how many characters are needed.



	A
1	SKU Number
2	ACM110WW

- SUPPLIER = LEFT 3 Characters **(ACM)**

=LEFT(A2,3)

- PART # = MIDDLE 3 Characters **(110)**

=MID(A2,4,3)

- PRODUCT CODE = RIGHT 2 Characters **(WW)**

=RIGHT(A2,2)

SUMIF() FUNCTION

=SUMIF(RANGE, CRITERIA, [SUM_RANGE])

The SUMIF function can be used to SUM a range of cells in a table based on criteria. For example, you only want to SUM the SALES column if the STORE # column is equal to 3000.

=SUMIF(B3:B272, 3000, D3:D272)