Excel Formula – a quick list

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Say we have a data set that looks like this:

	A	B	C
1	**Name**	**Pay This Year**	**Pay Next Year**
2	Forrest, Mark	$21,000.0	$15,000.0
3	Deed, Jane	$19,000.0	$14,000.0
4	Hill, Mary	$29,000.0	$22,000.0
5	Smith, Joe	$39,000.0	$30,000.0
6	Powell, Ed	$30,000.0	$25,000.0
7	Brown, Tom	$47,000.0	$40,000.0
8	Jones, Julia	$58,000.0	$50,000.0
9	Dale, Dee	$52,000.0	$45,000.0

Basic math

To add up the **total:** *=SUM(cell range)*

=SUM(B2:B9)

To find the **change/difference**: *=New value – old value*

=B2-C2

Percent change: *=(New value – Old value)/Old value*

=(B2-C2)/C2

Percent of total: *=Part/Whole*

If the total was in cell B11, for example, you would use the $ to anchor your formula (ie. =B2/B11

To find the **average** in a range of numbers: *=AVERAGE(cell range)*

=AVERAGE(B2:B9)

To find the **median** in a range of numbers: *=MEDIAN(cell range)*

=MEDIAN(B2:B9)

To find the **maximum value** in a range of numbers: *=MAX(cell range)*

=MAX(B2:B9)

To find the **minimum value** in a range of numbers: *=MAX(cell range)*

=MIN(B2:B9)

Simple formatting tricks

To change a cell from all upper or lower case to **proper case,** where the first letter of each word is capitalized: *=PROPER(cell)*

=PROPER(A2)

To change a cell from all upper or lower case to **upper case**: *=UPPER(cell)*

=UPPER(A2)

To change a cell from all upper or lower case to **lower case**: *=LOWER(cell)*

=LOWER(A2)

Conditional statements

You can use **conditional statements** to test your data and return information depending on whether that test has a true or false answer. This is great for data cleaning and also for adding categories to your data: *=IF(logical test, "Result if the answer is true for this cell", "Result if the answer is false for this cell")*

=IF(B2< 25000, "Too small", "A-OK")

The value in cell B2 is checked. If it is less than the $25,000, the phrase "Too small" will be the result. If the value in Column B is higher than $25,000 it fails the test and "A-OK" would be the result.

To **compare two columns of data** to see if they contain the same information: *=EXACT(cell1, cell2)*

Simply list the two cells you are comparing. If they are exactly the same, the result will be "TRUE" and if they are different, the result will be "FALSE."

=EXACT(B2, C2)

The above formula would compare salaries for a person to see if they were the same.

Pulling things apart

String functions – to **split apart** a name (or any other text)**:**

The **LEFT** function will start form the left and return the number of characters you specify: *=IF(cell with text, number of characters you want returned)*

=LEFT(A2, 6)

The **RIGHT** function acts just like the LEFT function except it allows you to begin from the opposite side of the field. You will most likely use this function less than the others. *=RIGHT(cell with text, number of characters you want returned)*

=RIGHT(A2, 4)

The **MID** function allows you to start from somewhere other than the far left or the far right of the field. It allows you to extract information from the middle:
=MID(cell with text, start position, number of characters you want returned)

=MID(A2, 9, 4)

Often last names aren't the same length so you can't use a simple number. Rather, you need to look out for a pattern within the data and use that to help you slice and dice. First and last names are often separated with a comma. You can use the **SEARCH** function to find the position of any character, such as a comma within a cell. Please note, the formula will return a number. This number specifies the location of the character you are searching within the cell.
=SEARCH("text you want to find", where you want to find it)

=SEARCH(",", A2)

Sometimes you're going to want to use more than one string function together to get the job done. We call this **nesting function**s. For example, to efficiently separate the last name from the example spreadsheet above you need to use the position of the comma to help extract the proper information. You will combine the SEARCH with the LEFT function. The -1 will make it so that the comma is not included in the result:

=LEFT(A2, SEARCH(",", A2) -1)

To separate the first name from the example spreadsheet above you'll use SEARCH in conjunction with MID. The +2 ensures that only the name is returned and not the comma and space that precedes the name.

=MID(A2, SEARCH(",", A2)+2, 20)

Putting things together

String things together by using the **CONCATENATE** function: =CONCATENATE(text, text, text, text)

	A	B	C	D
1	ADDRESS	CITY	STATE	ZIP
2	101 W FIRST	MINETONKA	MN	76758
3	222 ADELAIDE ST	ST. LOUIS	MO	63110
4	2336 S 39TH ST	POYNETTE	WI	53960
5	W7495 HWY B	COLUMBIA	MO	65201

If you wanted to put all of those pieces of each address into one line, you could concatenate like this:

=CONCAATENATE(A2, " ", B2, " ", C2, " ", D2)