Microsoft Excel - Formulas

Formulas and Functions

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Formula

A formula is a calculation of some type that uses variety of operators and worksheet functions to work with values and text.

A formula always begins with an **equal sign** (**=**) and can contain any of these elements:

- mathematical operators (such as + and *)
- cell references (including named cells and ranges)
- values or text
- functions (such as SUM and AVERAGE)

After you enter a formula, the cell displays the calculated result of the formula

Formulas Operators

Examples of formulas that use various operators:

Formula	Explanation
=B1+B2	It sums the values in cells B1 and B2
=50*3	It multiplies 50 times 3. This formula uses only values, and it always returns the same result.
=A3	It displays the value in cell A3. No calculation is performed on A3.
=SUM(B1:B12)	It adds the values in the range B1:B12, using the SUM function.
= 5^3	It raises 5 to the power of 3.
=4^(1/2)	It raises 4 to the power of 1/2. This is mathematically equivalent to calculating the square root of 4.

Note that every formula begins with an equal sign (=).

The initial equal sign allows Excel to distinguish a formula from plain text.

Formulas Operators

Formulas uses a variety of operators. Operators are symbols that indicate what mathematical or logical operation you want the formula to perform.

Operator	Name
+	Addition
-	Subtraction
*	Multiplication
/	Division
^	Exponential
&	Concatenation
>	Logical comparison (greater than)
<	Logical comparison (less than)
>=	Logical comparison (greater than or equal to)
<=	Logical comparison (less than or equal to)
<>	Logical comparison (not equal to)

Important rule: **operator precedence**.

Operators in an expression that have higher precedence are executed before operators with lower precedence.

E.g.: the two formulas below produce different results
=(B2-B3)*B4
=B2-B3*B4

Function

A function is a predefined formula that performs calculations using specific values in a particular order.

In order to work correctly, a function must be written a specific way, which is called the **syntax**. The basic syntax for a function:

- **equal sign** (**=**). A function always begins with an equal sign
- **function name**
- one or more **arguments**. Arguments can refer to both individual cells and cell ranges and must be enclosed within **parentheses**. You can include one argument or multiple arguments, depending on the syntax required for the function.
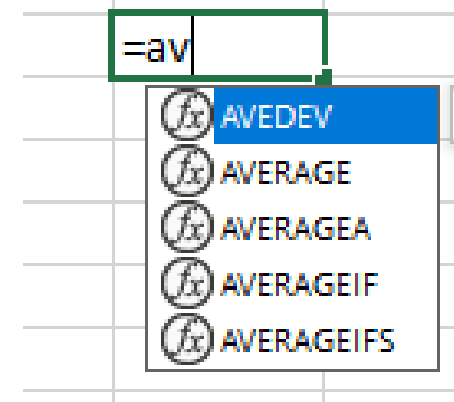
=AVERAGE(B1:B9)

=ROUND(C1,1)

How to Enter a Function

Excel provides more than one way to enter a formula in a cell:

- Enter a function **manually**

- Enter a function using the **Function Library**

To insert a function into a formula is to use the Insert Function dialog box. To access it: Choose Formulas ⇨ Function Library ⇨ Insert Function.