

# **EXCEL FORMULAS & FUNCTIONS**

**By Mohit Sinha**

# Excel Formulas:

Excel formulas are like recipes for your spreadsheet cells. You tell them what to do with numbers and text, like adding them up, finding averages, or extracting specific bits of information. They make Excel super powerful for calculations and data analysis.

# Cell Referencing:

Cell referencing in Excel is like giving an address to each cell. It's a way for formulas to tell Excel exactly which cells to use for calculations.

## Examples of Cell Referencing:

- Simple: A1, B3, C12 - refer to specific cells.
- In Formulas: =A1+B1 adds values in A1 and B1.
- Automatic Updates: When you copy formulas, references often adjust for their new location (relative).
- Lock them down! (\$): Use \$ before column letter or row number (e.g., \$A\$1) to keep the reference the same when copying.
- 

## Examples of Excel formulas:

- SUM: =SUM(A1:A10)
- AVERAGE: =AVERAGE(B2:B15)
- COUNT: =COUNT(C1:C20)
- CONCATENATE: =CONCATENATE(D2," ",E2)
- IF statement: =IF(F1>100,"High","Low")
- VLOOKUP: =VLOOKUP(G2,A1:C10,2,FALSE)

# Cell Referencing:

There are three main types of cell referencing in Excel:

- Regular: These adjust when copied (e.g., A1 becomes B2 when moved one right and down one).  
Example: =A1+B1 in cell C1 refers to cells A1 and B1. If you copy this formula to cell D2, it automatically changes to =A2+B2.
- Absolute (\$): Lock them in place no matter where you copy (e.g., \$A\$1 stays A1). Example: =\$A\$1 always refers to cell A1, even if copied to a different location.
- Mixed (\$): Lock either the row or column (e.g., \$A1 moves down rows, A\$1 moves across columns).

Example: \$A1 (absolute column, relative row) refers to cell A1 in any row when copied. A\$1 (relative column, absolute row) refers to cell A1 in any column when copied.

**NOTE:** Use Formula's tab > show Formula option to display all the formulas in the worksheet

# Functions :

Excel functions are pre-built shortcuts that perform specific calculations or manipulations on your data. Think of them like timesaving tools you can use instead of writing out complex formulas yourself..

Excel functions as supercharged tools in your spreadsheet toolbox

- Math: Add, subtract, average, count - all with a single function!
- Logic: Make decisions based on your data (e.g., "if sales are high, then discount = 10%").
- Text manipulation: Extract parts of text, combine text, change text to uppercase/lowercase.
- Data lookup: Find specific data points in your spreadsheet.
- Dates & Times: Work with dates and times in various ways (e.g., calculate age based on birthdate).



# Inserting Function:

Inserting a function in Excel is like calling in a specialist for your spreadsheet. It lets you tap into Excel's pre-built functions to perform specific calculations or data manipulations.

1. Choose your cell: Click on the cell where you want the function's result to appear.
2. The Function Wizard: There are two main ways to insert a function:
  - Function Button: Click the "Insert Function" button ( $\Sigma$  fx) in the Formulas tab. This opens a window with a searchable list of functions.
  - Start typing (=): Type an equal sign (=) followed by the function name (e.g., =SUM). Excel will often suggest functions as you type.
3. Pick your function: Double-click the desired function or select it and click "OK."
4. Feed it data (arguments): The "Function Arguments" window appears. Here, you tell the function what data to work with by entering cell references or values directly.
5. Let it work! Click "OK" and the function performs the calculation, displaying the result in your chosen cell.



