📘 Module 3: Essential Formulas

🎯 Purpose of Formulas in Excel

Formulas in Excel allow users to perform **automatic calculations** using values in cells. They're used to:

- Analyse and summarise data
- Automate repetitive calculations
- Maintain data consistency and reduce human error

✍️ Where to Write a Formula

You can type a formula:

- Directly in the **cell** (start with `=`)
- Or in the **formula bar** (top of the Excel window)

> ✅ All formulas must start with an equal sign (=)

✅ BASIC FORMULA OPERATIONS

📌 Why Are We Using Cell Referencing?

Using **cell references** in formulas helps:

- Auto-update results if input values change
- Apply the same logic across rows/columns
- Avoid manual errors and save time

📌 Apply Formula to Multiple Rows

1. Enter the formula in the first row.
2. Hover at the **bottom-right corner** → shows a **+ symbol**
3. **Drag down** to copy the formula across cells

👣 Apply Across Records (AutoFill):

1. Enter `=SUM(A2:A5)` in the first row.
2. Select the cell.
3. Drag the **bottom-right corner (the small + sign)** down to apply the formula across rows.

This auto-updates cell references if **relative referencing** is used.

📎 Types of Cell References

Type	Example	What it does
Relative	A1	Changes as you copy the formula
Absolute	$A$1	Fixed column and row
Mixed (Column Lock)	$A1	Column stays fixed, row changes
Mixed (Row Lock)	A$1	Row stays fixed, column changes

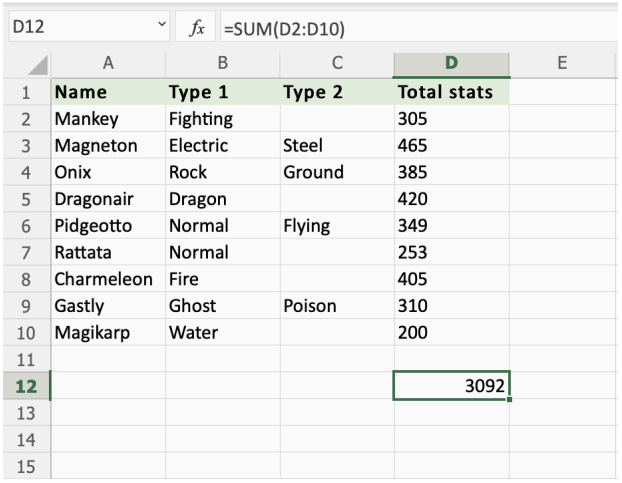
➕ SUM FORMULA

🧾 Syntax: =SUM(number1, number2, ...)

Or for a range: =SUM(D2:D10)

✅ Basic Usage:

Adds up all numeric values in the specified cells or range.



	A	B	C	D	E
1	**Name**	**Type 1**	**Type 2**	**Total stats**	
2	Mankey	Fighting		305	
3	Magneton	Electric	Steel	465	
4	Onix	Rock	Ground	385	
5	Dragonair	Dragon		420	
6	Pidgeotto	Normal	Flying	349	
7	Rattata	Normal		253	
8	Charmeleon	Fire		405	
9	Gastly	Ghost	Poison	310	
10	Magikarp	Water		200	
11					
12				3092	
13					
14					
15					

➕ Adding a Constant Value to Each Cell in a Column

Scenario:

Add ₹50 delivery charge to every product price.

Assume:

- Prices in `A2:A10`
- Delivery fee in cell `B1 = 50`
- Formula in `C2`: `=A2 + $B$1`

Now drag down the formula from `C2`. The `A2` part changes (A3, A4...), but `$B$1` stays constant.

🧠 **Tip:** Use `$` for constants or fixed references in repeated formulas.

✖ PRODUCT FORMULA

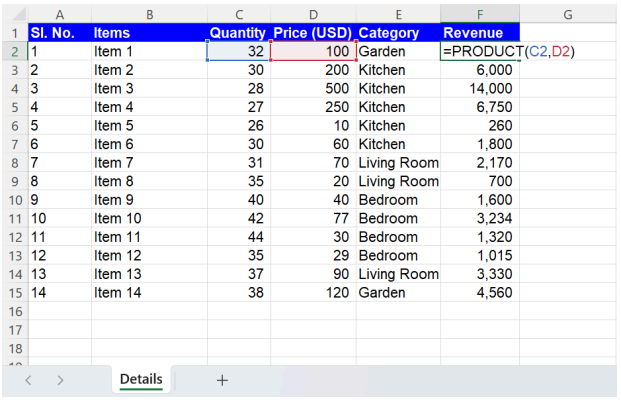
🧾 Syntax: =PRODUCT(number1, number2, ...)

Or: =PRODUCT(A1:A3)

✅ Usage:

Multiplies all values in the specified range.

Example:



	A	B	C	D	E	F	G
1	Sl. No.	Items	Quantity	Price (USD)	Category	Revenue	
2	1	Item 1	32	100	Garden	=PRODUCT(C2,D2)	
3	2	Item 2	30	200	Kitchen	6,000	
4	3	Item 3	28	500	Kitchen	14,000	
5	4	Item 4	27	250	Kitchen	6,750	
6	5	Item 5	26	10	Kitchen	260	
7	6	Item 6	30	60	Kitchen	1,800	
8	7	Item 7	31	70	Living Room	2,170	
9	8	Item 8	35	20	Living Room	700	
10	9	Item 9	40	40	Bedroom	1,600	
11	10	Item 10	42	77	Bedroom	3,234	
12	11	Item 11	44	30	Bedroom	1,320	
13	12	Item 12	35	29	Bedroom	1,015	
14	13	Item 13	37	90	Living Room	3,330	
15	14	Item 14	38	120	Garden	4,560	
16							
17							
18							

Details +

➗ AVERAGE FORMULA

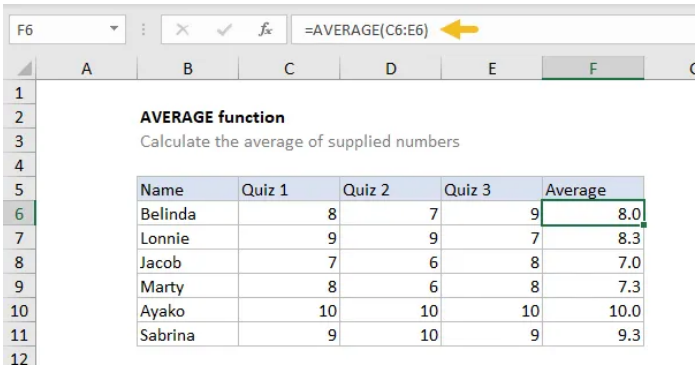
🧾 Syntax: =AVERAGE(number1, number2, ...)

Or: =AVERAGE(A1:A5)

✅ Usage:

Calculates the **mean value** from the range.

Example:



	A	B	C	D	E	F
1						
2		AVERAGE function				
3		Calculate the average of supplied numbers				
4						
5		Name	Quiz 1	Quiz 2	Quiz 3	Average
6		Belinda	8	7	9	8.0
7		Lonnie	9	9	7	8.3
8		Jacob	7	6	8	7.0
9		Marty	8	6	8	7.3
10		Ayako	10	10	10	10.0
11		Sabrina	9	10	9	9.3
12						

🧠 **Tip:** Use with relative references unless averaging with a **fixed bonus** (e.g., `=AVERAGE(A2, $B$1)`).

🧠 KEY TAKEAWAYS

- Use **Relative Reference** for formulas that adapt per row/column.
- Use **Absolute Reference** (`$`) to fix a cell in all copied formulas.
- Use **Mixed Reference** for semi-dynamic formulas in tables.
- **SUM**, **PRODUCT**, and **AVERAGE** work similarly and support ranges, constants, and relative/absolute referencing.
- **Drag Down (Fill Handle)** is your best friend for repeating patterns efficiently.

🧱 Part 2: Mathematical Functions in Excel

🧾 Before You Begin: Formula Tips

✅ Formula Suggestion Feature

When you type `=` followed by letters (e.g., `=S`), Excel automatically shows a **dropdown list of matching functions**, such as:

=SUM
=SUBTOTAL
=SQRT

You can press `Tab` to autocomplete a function from the list.

🔍 Use of `:` in Formulas

The colon `:` is used to **define a range** between two cells.

For example:

- `A1:A5` → refers to cells A1, A2, A3, A4, and A5
- `B2:D2` → includes B2, C2, and D2

Used in almost all functions like `SUM`, `MIN`, `MAX`, etc.

➕ SUM()

📘 Definition:

Adds values in a selected range.

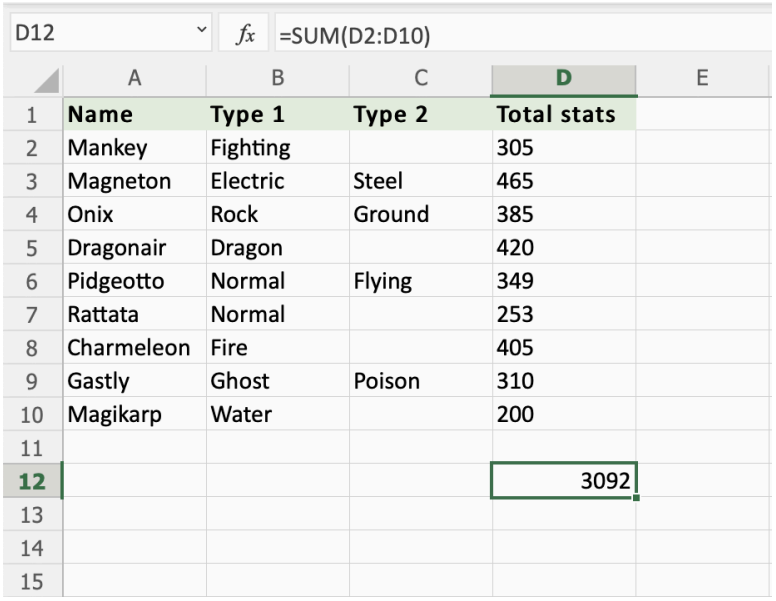
🧾 Example: =SUM(D2:D10)

✅ Use Case:

Find total marks, total sales, etc.

🔁 Fill Down:

- Use **fill handle** (bottom-right corner) to apply the formula across rows.
- Excel automatically adjusts the cell references (if not using `$`).



	A	B	C	D	E
1	**Name**	**Type 1**	**Type 2**	**Total stats**	
2	Mankey	Fighting		305	
3	Magneton	Electric	Steel	465	
4	Onix	Rock	Ground	385	
5	Dragonair	Dragon		420	
6	Pidgeotto	Normal	Flying	349	
7	Rattata	Normal		253	
8	Charmeleon	Fire		405	
9	Gastly	Ghost	Poison	310	
10	Magikarp	Water		200	
11					
12				3092	
13					
14					
15					

🔻 MIN() and 🔺 MAX()

📘 Definitions:

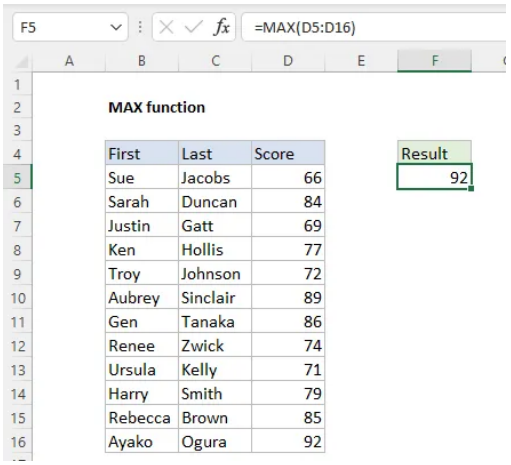
- **MIN()** returns the **smallest** value in the range.
- **MAX()** returns the **largest** value in the range.

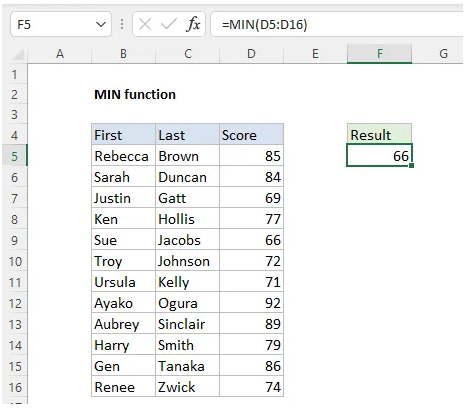
🧾 Example:

=MIN(D5:D16)
=MAX(D5:D16)

✅ Use Case:

- Find the lowest/highest score in a test.
- Identify the minimum or maximum sales in a month.





📊 AVERAGE() / AVG()

📘 Definition:

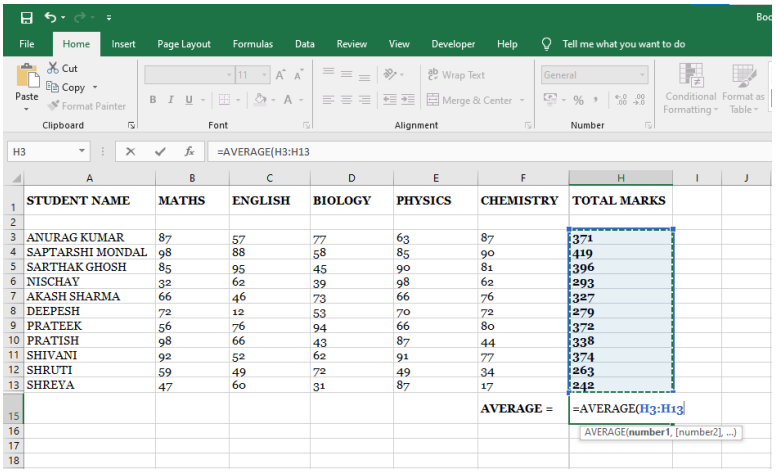
Returns the **arithmetic mean** (sum ÷ count).

🧾 Syntax: =AVERAGE(A1:A5)

Note: `AVG()` is not a valid function. Use `AVERAGE()`.

✅ Use Case:

- Calculate average marks.
- Analyze trends like monthly sales averages.



🎖️ RANK()

📘 Definition:

Displays the **rank of a number** in a list.

🧾 Syntax: =RANK(number, ref_range, [order])

- `number`: the value to rank.
- `ref_range`: list of values.
- `order`: 0 for descending (default), 1 for ascending.

✅ Example: =RANK(A2, A2:A10, 0)

Ranks the value in A2 among A2 to A10.

📦 SUMPRODUCT()

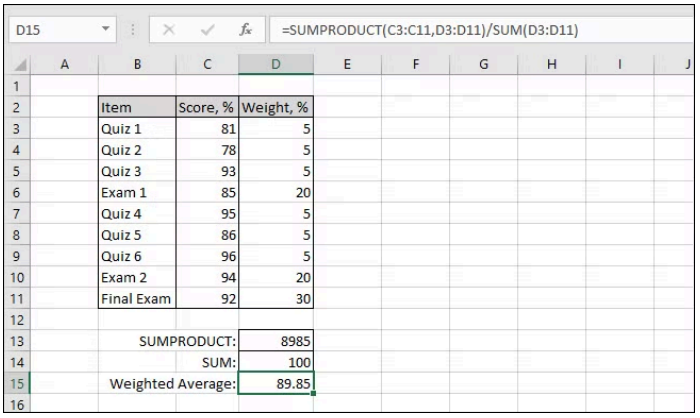
📘 Definition:

Multiplies **corresponding elements** in two (or more) arrays and returns their **sum**.

🧾 Syntax: =SUMPRODUCT(array1, array2)

✅ Use Case:

- Total cost: Multiply price × quantity row-wise.
- =SUMPRODUCT(C3:C11, D3:D11)/SUM(D3:D11)

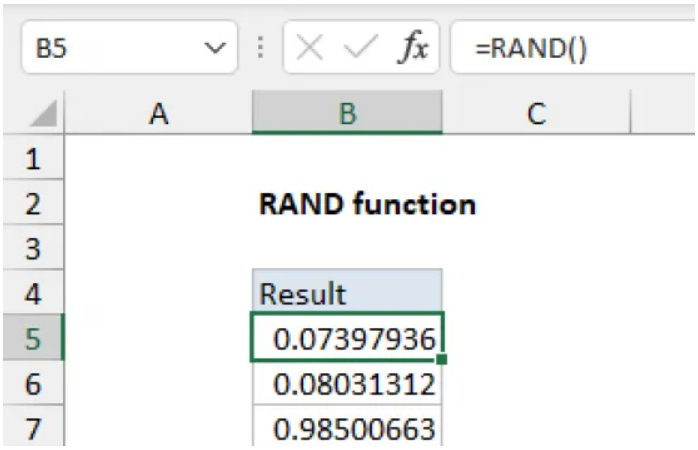


🎲 RAND() & RANDBETWEEN()

📘 RAND()

- Returns a **random decimal** between 0 and 1.
- Changes every time the worksheet recalculates.

🧾 Syntax: =RAND()

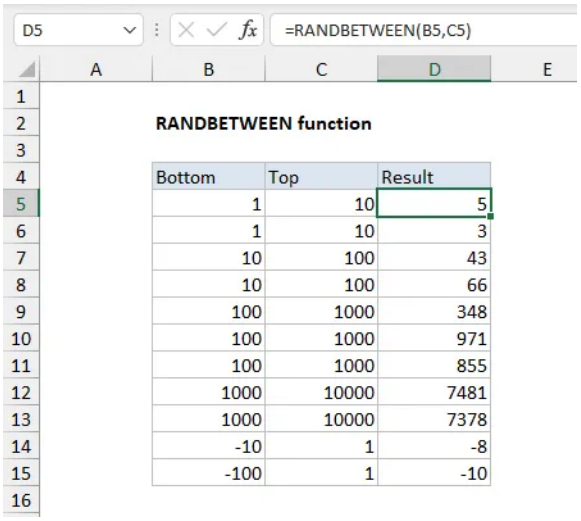


📘 RANDBETWEEN()

- Returns a **random integer** between two numbers (inclusive).

🧾 Syntax: =RANDBETWEEN(bottom, top)

✅ Example: =RANDBETWEEN(B5,C5)



Bottom	Top	Result
1	10	5
1	10	3
10	100	43
10	100	66
100	1000	348
100	1000	971
100	1000	855
1000	10000	7481
1000	10000	7378
-10	1	-8
-100	1	-10

⚠ Issues with RAND/RANDBETWEEN:

- **Dynamic updates**: The value keeps changing **whenever the sheet recalculates** (pressing Enter, editing a cell, etc.).
- ❗ If you need a **fixed result**, use:
  - `Paste Special → Values` to **lock** the current result.

📋 PASTE OPTIONS (for RAND/RANDBETWEEN or any function)

When copying a formula like `=RANDBETWEEN(1, 100)`:

Right-click → Paste Options:

Option	Icon	Use
Formulas	fx	Pastes only the formula (e.g., `=RANDBETWEEN(...)`)
Values	123	Pastes the **result**, not the formula
Formatting	brush	Pastes the visual style, not the data
Transpose	↕↔	Switches row to column or vice versa
Paste All	📋	Pastes everything (formulas, values, formatting)

🧠 How to Paste as Values:

1. Copy the cell with the formula (`Ctrl+C`)
2. Right-click the destination cell
3. Select **Paste Values (123 icon)**

   This will lock the random number so it doesn't change.

💡 The Power of `$` in Mathematical Functions

Use `$` to **fix cells** when applying formulas across multiple rows/columns.

✅ Example in SUMPRODUCT with fixed price column:

```
=SUMPRODUCT(A2:A5, $B$2:$B$5)
```

This ensures the second range doesn't change when copied.

🧠 Key Takeaways

- Use `:` to define a **range of cells**.
- **Function suggestions** appear as you type (use Tab to select).
- Use **RAND/RANDBETWEEN** with care — they change on recalculation!
- Use **Paste as Values** to lock random or formula-generated results.
- `$` is essential to **fix cell references** in any function (especially when copying).

✍️ Part 3: Textual Functions in Excel

🎯 Why Use Text Functions?

Excel is not just for numbers — **text functions** help you clean, analyze, or manipulate text data like names, addresses, codes, etc.

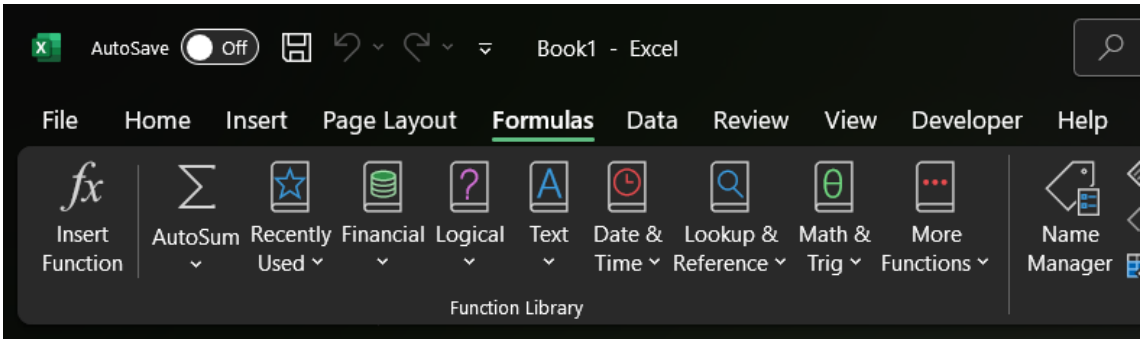
Text functions help you:

- Clean messy data
- Join names or codes
- Format text (like UPPER/lowercase)
- Extract part of a string (like first name, last 4 digits, etc.)

🧭 Where to Find These?

📍 Formulas Ribbon

Go to: Formulas Tab → Function Library



✂️ TRIM()

📘 What It Does:

Removes all **extra spaces** from a text string — leading, trailing, and additional spaces **in between words**.

Cleans up text **from left, right, and middle** (keeps single spaces between words).

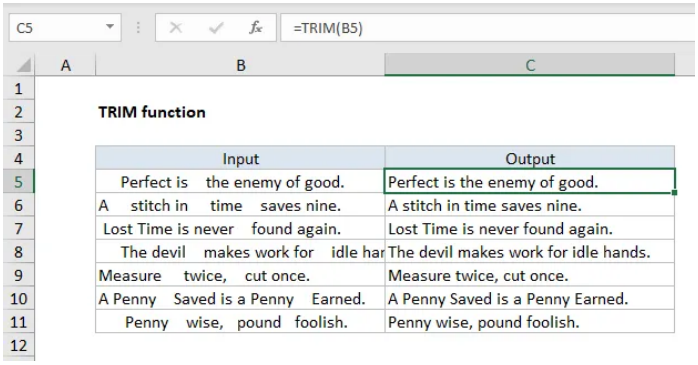
🧾 Syntax: =TRIM(text)

✅ Example:

- `=TRIM(" Hello World ")` → `Hello World`

⚠️ Note:

- **The output is a formula**. If you want **plain text**, use:
  - `Copy` → `Paste Special` → `Values`



🧩 CONCATENATE / `&` / TEXTJOIN

📘 Purpose:

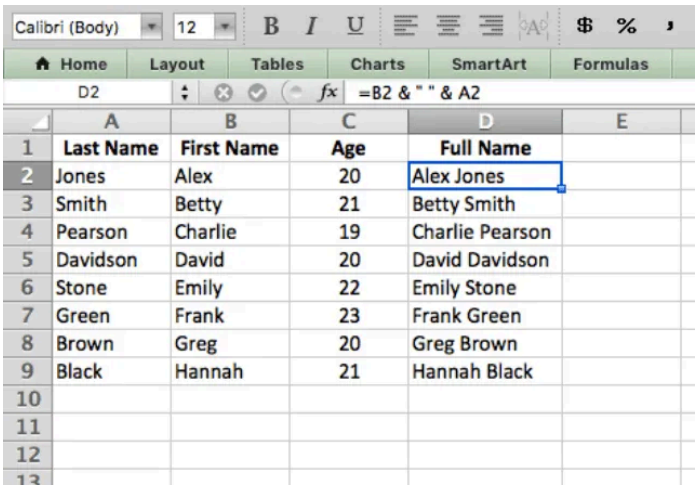
To **join multiple text strings** into one.

✅ Methods:

🔷 1. Using `&`: =A1 & " " & B1

🔷 2. Using `CONCAT()` (newer): =CONCAT(A1, " ", B1)

🔷 3. Using `TEXTJOIN()` (best for skipping blanks): =TEXTJOIN(" ", TRUE, A1, B1, C1)



🔁 SUBSTITUTE()

📘 Purpose:

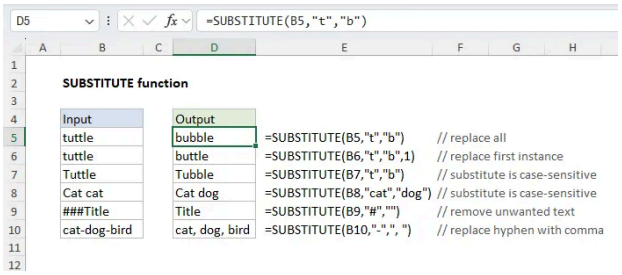
Replaces **specific text or characters** with something else.

🧾 Syntax: =SUBSTITUTE(text, old_text, new_text, [instance_num])

- `instance_num` is optional — use it to **replace only the nth occurrence**.

✅ Examples:

=SUBSTITUTE(B5, "t", "b")



🔠 UPPER(), LOWER(), PROPER()

📘 What They Do:

Function	Result
`=UPPER("hello")`	`HELLO`
`=LOWER("HELLO")`	`hello`
`=PROPER("hello world")`	`Hello World`

📏 LEN()

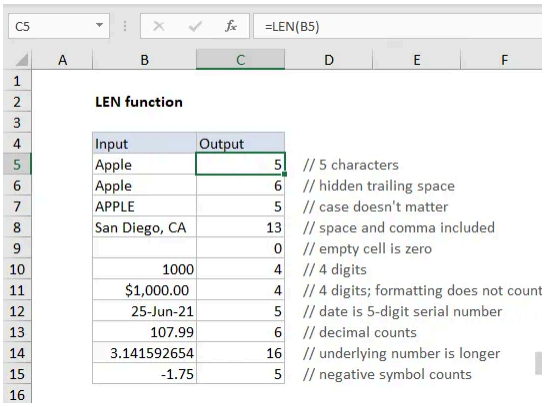
📘 Purpose:

Counts the **number of characters** (including spaces) in a text string.

🧾 Syntax: =LEN("Hello") → 5

✅ Use:

- Validate data (e.g., 10-digit phone numbers)
- Count letters in a name



🔄 LEFT(), RIGHT(), MID()

📘 Purpose:

To **extract part of a string** from the left, right, or middle.

🧾 Syntax & Examples:

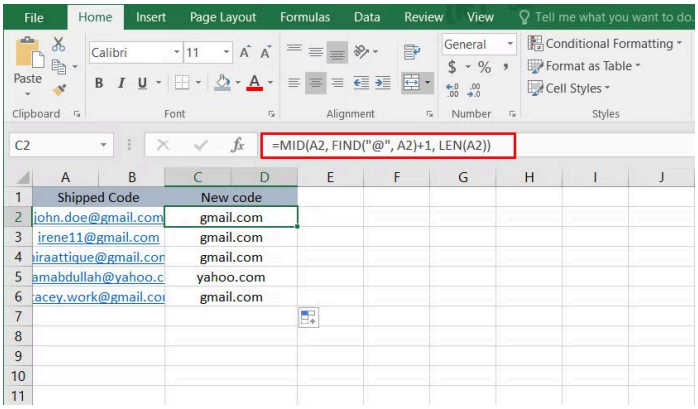
🔷 LEFT: =LEFT("Excel", 2) → "Ex"

🔷 RIGHT: =RIGHT("Excel", 2) → "el"

🔷 MID: =MID("ExcelFun", 6, 3) → "Fun"

- Starts at character 6, takes 3 characters.

🧾 Example



🔧 Common Task: Combine Functions

Example:

Trim, Proper Case & Combine: =PROPER(TRIM(A1)) & " " & PROPER(TRIM(B1))

Use when names/emails are messy:

- `" joHN "` + `" doe "` → `John Doe`

⚠ Paste Special: Formula to Plain Text

When using functions like `TRIM`, `SUBSTITUTE`, etc., the result stays as a **formula**.

To convert it to **plain text**:

🧾 Steps:

1. Copy the result column
2. Right-click on the target cell. Choose **Paste Special → Values** (📋123 icon)

This locks the value and removes the formula.

🧠 Tips & Takeaways

- Use `&` or `TEXTJOIN()` to merge cells with custom separators.
- Use `TRIM()` to clean up unwanted spaces.
- Use `SUBSTITUTE()` for smart text replacements — with optional instance control.
- Always use **Paste Special → Values** when you want to freeze the result.
- `LEFT`, `RIGHT`, and `MID` are essential for code/data extraction.
- All major functions are available under the **Formulas Ribbon > Text**.

🧠 Part 4: Logical Functions

🎯 Why Use Logical Functions?

Logical functions help Excel **make decisions based on conditions**. They're powerful for creating **dynamic spreadsheets**, such as:

- Checking if marks are above a pass level
- Giving results like "Pass"/"Fail", "Yes"/"No"
- Counting/summing values **based on conditions**

✅ IF() Function

📘 Definition:

Checks a **condition**, and returns one value if TRUE, another if FALSE.

🧾 Syntax: =IF(condition, value_if_true, value_if_false)

✅ Examples:

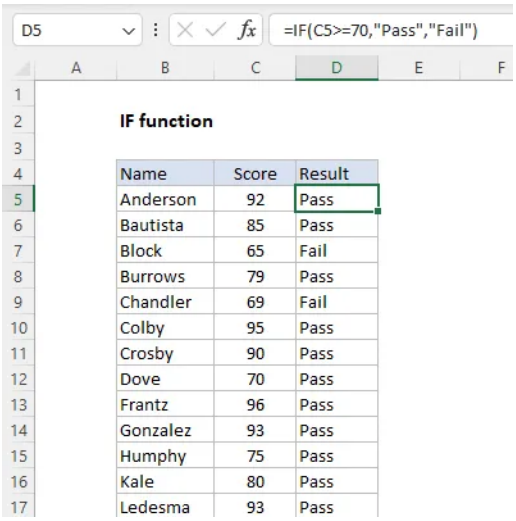
With Text:

=IF(A2>=40, "Pass", "Fail")

If value in A2 is 40 or more, result = "Pass", else "Fail".

With Numbers:

=IF(C5≥70, “Pass”, “Fail”)



Name	Score	Result
Anderson	92	Pass
Bautista	85	Pass
Block	65	Fail
Burrows	79	Pass
Chandler	69	Fail
Colby	95	Pass
Crosby	90	Pass
Dove	70	Pass
Frantz	96	Pass
Gonzalez	93	Pass
Humphy	75	Pass
Kale	80	Pass
Ledesma	93	Pass

🧪 AND() Function

📘 Definition:

Returns TRUE **only if all conditions are TRUE**.

🧾 Syntax:

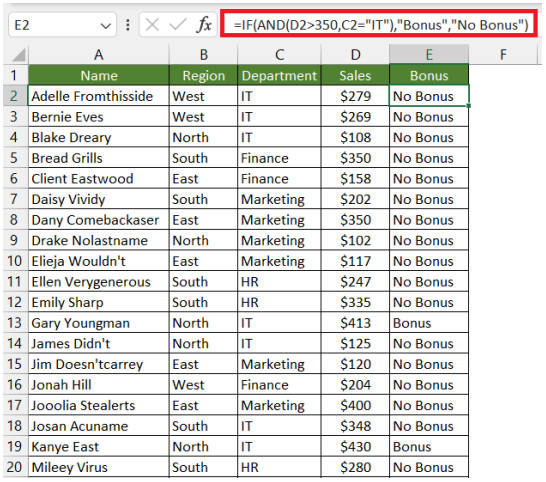
=AND(condition1, condition2, ...)

✅ Example:

=AND(A2>=40, B2>=40)

Returns `TRUE` only if **both A2 and B2 ≥ 40**

Can be used inside IF:



Name	Region	Department	Sales	Bonus
Adelle Fromthisside	West	IT	$279	No Bonus
Bernie Eves	West	IT	$269	No Bonus
Blake Dreary	North	IT	$108	No Bonus
Bread Grills	South	Finance	$350	No Bonus
Client Eastwood	East	Finance	$158	No Bonus
Daisy Vividy	South	Marketing	$202	No Bonus
Dany Comebackaser	East	Marketing	$350	No Bonus
Drake Nolastname	North	Marketing	$102	No Bonus
Elieja Wouldn't	East	Marketing	$117	No Bonus
Ellen Verygenerous	South	HR	$247	No Bonus
Emily Sharp	South	HR	$335	No Bonus
Gary Youngman	North	IT	$413	Bonus
James Didn't	North	IT	$125	No Bonus
Jim Doesn'tcarrey	East	Marketing	$120	No Bonus
Jonah Hill	West	Finance	$204	No Bonus
Jooolia Stealerts	East	Marketing	$400	No Bonus
Josan Acuname	South	IT	$348	No Bonus
Kanye East	North	IT	$430	Bonus
Mileey Virus	South	HR	$280	No Bonus

🔁 OR() Function

📘 Definition:

Returns TRUE **if at least one condition is TRUE**.

🧾 Syntax:

=OR(condition1, condition2, ...)

✅ Example:

=IF(OR(A2="Math", A2="Science"), "STEM", "Other")

🔢 COUNTIF()

📘 Definition:

Counts the number of **cells that meet a condition**.

🧾 Syntax:

```
=COUNTIF(range, criteria)
```

✅ Examples:

Count students with marks ≥ 40:

=COUNTIF(A2:A10, ">=40")

Count how many are from "Delhi":

=COUNTIF(B2:B20, "Delhi")

➕ SUMIF()

📘 Definition:

Adds up values **only if** they meet a condition.

🧾 Syntax:

=SUMIF(range_to_check, criteria, [sum_range])

- If `sum_range` is omitted, Excel sums values in `range_to_check`.

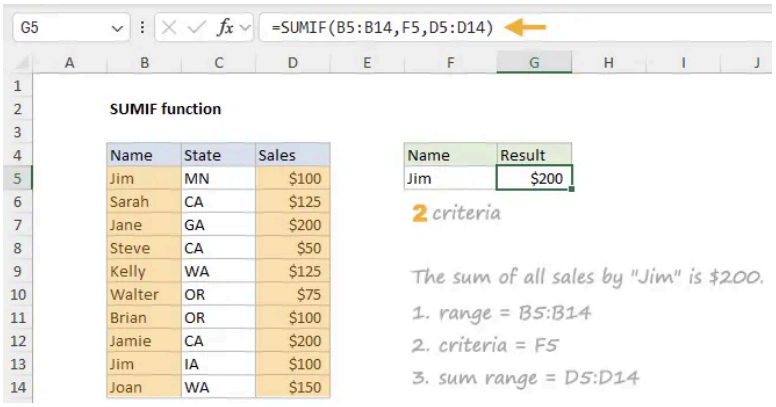
✅ Examples:

Sum all sales above ₹10,000:

=SUMIF(A2:A20, ">10000")

Sum sales from Region "North":

=SUMIF(B5:B14, F5, D5:D14)



🧠 Tips & Best Practices

- Always use **quotation marks** around text criteria (e.g., `"Pass"`, `">=40"`).
- Combine `IF`, `AND`, `OR` for **complex logic**.
- Use **COUNTIF/SUMIF** to perform **conditional analysis** on large datasets.
- You can use **absolute referencing (`$`)** in logical formulas when copying across rows.

📌 Logical Functions Quick Summary

Function	Use
`IF()`	Make decision: one result for TRUE, another for FALSE
`AND()`	TRUE only if **all** conditions are met
`OR()`	TRUE if **any** condition is met
`COUNTIF()`	Count how many cells meet a condition
`SUMIF()`	Add only those values that meet a condition

⏰ Part 5: Date and Time Functions (Complete with `DAYS()`)

🎯 Why Use Date & Time Functions?

Date and time functions allow Excel to:

- Insert real-time date/time values
- Extract parts like day, month, or year
- **Calculate differences** between two dates
- Create timelines, deadlines, schedules, and reports

🗓️ TODAY() and NOW()

Function	Description	Output Example
`=TODAY()`	Returns current **date**	`21-May-2025`
`=NOW()`	Returns current **date & time**	`21-May-2025 14:35`

🔄 Auto-Update:

These functions **recalculate automatically** when the workbook changes or opens.

> 🧠 Freeze Result: Use Copy → Paste Special → Values to stop auto-update.

🧾 Date Formatting

To change how a date appears:

1. Select the cell
2. Go to: `Home → Number Group → Format Cells (Ctrl + 1)`
3. Choose from:
   - Short Date → `21/05/2025`
   - Long Date → `Wednesday, May 21, 2025`
   - Time formats like `1:30 PM`

🔍 DAY(), MONTH(), YEAR()

Extracts parts of a date:

Formula	Result	Purpose
`=DAY("21-May-2025")`	21	Extracts **day**
`=MONTH("21-May-2025")`	5	Extracts **month** (1–12)
`=YEAR("21-May-2025")`	2025	Extracts **year**

> 🧠 Useful in sorting or filtering by month/year.

📏 DATEDIF()

Calculates **difference** between two dates.

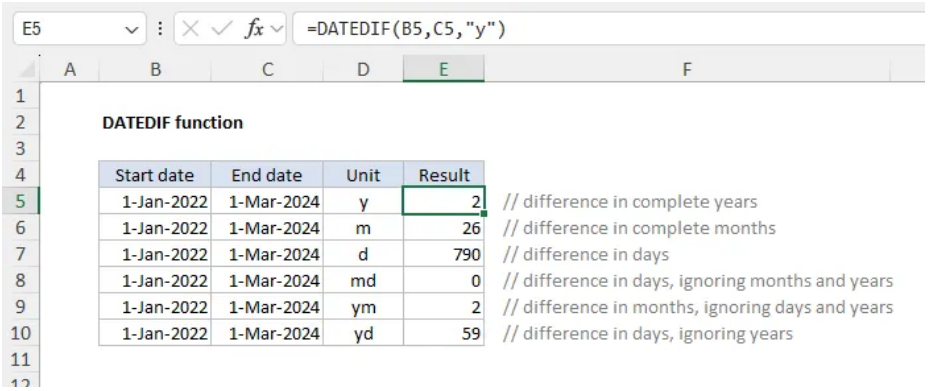
🧾 Syntax:

=DATEDIF(start_date, end_date, unit)

Unit	Meaning
`"d"`	Days
`"m"`	Months
`"y"`	Years

✅ Example:

=DATEDIF(B5, C5, "y") → Age in years



🔢 DAYS() Function

📘 Definition:

Returns the **number of days** between two dates — **simple and direct**.

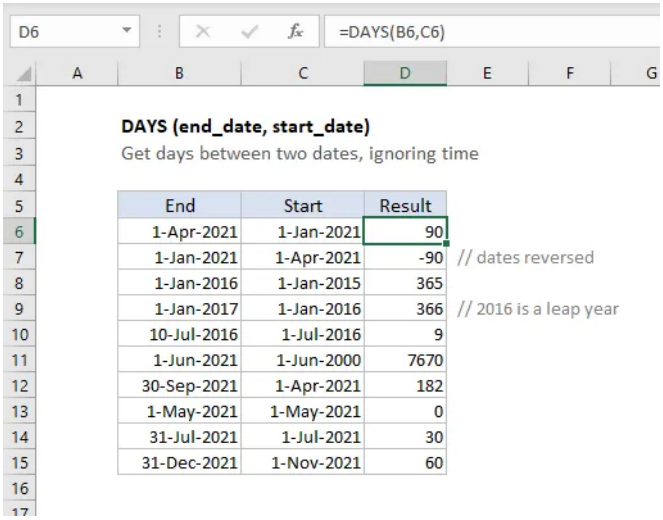
🧾 Syntax:

=DAYS(end_date, start_date)

✅ Example:

=DAYS("31-Dec-2025", "01-Jan-2025") → 364

> ⚠️ Make sure the end date is second, or you'll get a negative result.



🔄 Comparison:

Function	Use Case
`DATEDIF()`	Multiple units (years, months)
`DAYS()`	Simple day count between 2 dates

📅 NETWORKDAYS()

📘 Purpose:

Returns number of **working days** between two dates (excludes weekends, optionally holidays).

🧾 Syntax: =NETWORKDAYS(start_date, end_date, [holidays])

> Add a range of holidays if needed.

🧠 Examples Using Today()

Task	Formula
Days till new year	`=DAYS(DATE(2025,12,31), TODAY())`
Age in full years	`=DATEDIF(DOB, TODAY(), "y")`
Current month	`=MONTH(TODAY())`
Days since joining date	`=DAYS(TODAY(), A2)` *(where A2 is join date)*

🧠 Key Tips

- Dates are stored as **serial numbers** (e.g., `21-May-2025` = 45141)
- Use **custom formats** for readable output
- Use `DAYS()` for quick differences, `DATEDIF()` for flexibility
- Paste `TODAY()` or `NOW()` as **values** to freeze

🔍 Part 6: Lookup Functions

🎯 Why Use Lookup Functions?

Lookup functions allow Excel to **search for a value** in a range or table and return a corresponding result. They are essential for:

- Matching product codes to prices
- Fetching student names, marks, or data from reference tables
- Dynamic dashboard/report generation

🔎 1. VLOOKUP()

📘 Definition:

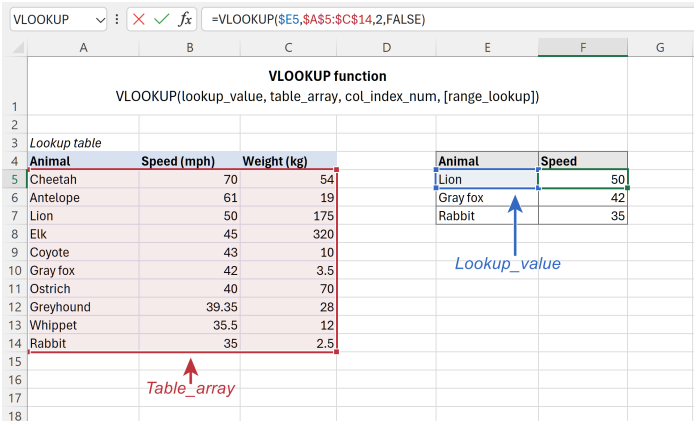
Searches **vertically** in the first column of a range and returns a value from a specified column.

🧾 Syntax:

=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

Parameter	Description
lookup_value	The value to find
table_array	The table range to search
col_index_num	The column number (starting from 1) to return value from
range_lookup	TRUE = Approximate match, FALSE = Exact match

✅ Example:



📉 2. HLOOKUP()

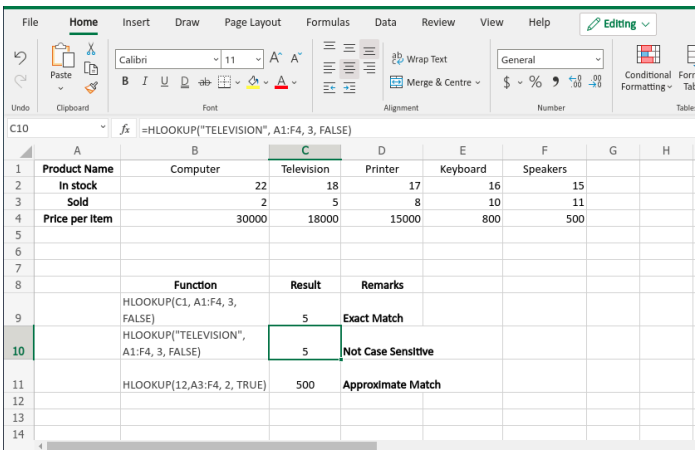
📘 Definition:

Searches **horizontally** in the **top row** of a range and returns a value from a specified row.

🧾 Syntax:

=HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])

✅ Example:



🧩 3. INDEX()

📘 Definition:

Returns the **value** of a cell based on row and column numbers from a defined range.

🧾 Syntax:

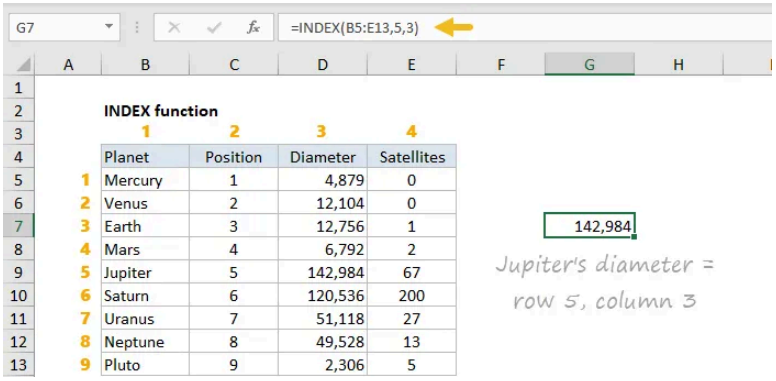
=INDEX(array, row_num, [column_num])

✅ Example:

=INDEX(B5::E13, 5, 3)

Returns the value from 5nd row, 3rd column of range A2:C6.

> 🧠 Very useful when paired with MATCH() to create dynamic lookups.



🔢 4. MATCH()

📘 Definition:

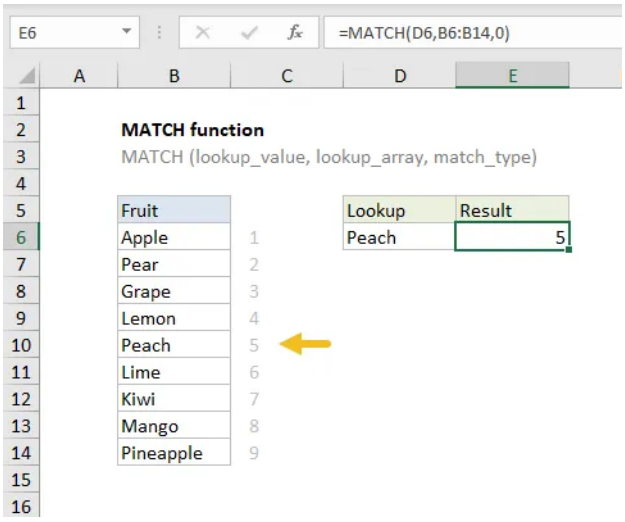
Returns the **position number** of a value within a row or column.

🧾 Syntax:

=MATCH(lookup_value, lookup_array, [match_type])

Match Type	Description
0	Exact match
1	Less than or equal
-1	Greater than or equal

✅ Example:



🧠 5. INDEX + MATCH (Better than VLOOKUP)

Combines `INDEX()` and `MATCH()` to create a more **flexible** and **powerful** lookup (especially when lookup column is not the first).

✅ Example:

=INDEX(C2:C10, MATCH("A102", A2:A10, 0))

- `MATCH("A102", A2:A10, 0)` returns the **row number**
- `INDEX(C2:C10, ...)` returns the value from C column in that row

💪 Advantages over VLOOKUP:

- Doesn't require the lookup column to be the **first**
- Faster and more **efficient** with large data. Supports **left lookups** (VLOOKUP cannot)

🧠 Use of `$` in Lookup Functions

Use Case	Example	Why Use `$`
Lock the lookup table	`$A$2:$D$10`	Prevents the range from shifting when copied
Lock the lookup column	`$A2`	Fix column only
Lock the lookup row	`A$2`	Fix row only

🧪 Lookup Functions Quick Summary

Function	Use Case
`VLOOKUP()`	Vertical search in first column
`HLOOKUP()`	Horizontal search in top row
`INDEX()`	Get value by row/column index
`MATCH()`	Find position of a value
`INDEX + MATCH`	Flexible, efficient lookup alternative

💡 Real-Life Example

You have a product code in `A2`, and a table in `F2:H10` where:

- Column F: Product Code
- Column G: Product Name
- Column H: Price

=VLOOKUP(A2, $F$2:$H$10, 3, FALSE)

Returns the price for the matching product code.

📌 BEST PRACTICES

- Use **Named Ranges** for easier formula reading.
- **Avoid hardcoded values** in formulas—use cell references.
- Use **$ (absolute referencing)** for fixed references in reusable formulas.
- Apply **Paste Special → Values** when you want to freeze result values.
- Use **IF + AND/OR** for multi-condition logic.
- Combine **TEXT + DATE + LOGIC + LOOKUP** functions for powerful dashboards.
