📗 Microsoft Excel — Essential Formulas & Functions Guide

Empowering Smart Productivity with Microsoft 365 Tools

🧩 Basic Arithmetic & Mathematical Formulas

Purpose	Formula	Example	Description
Addition	=A1 + B1	=45 + 30	Adds two or more values
Subtraction	=A1 - B1	=90 - 25	Subtracts one value from another
Multiplication	=A1 * B1	=10 * 5	Multiplies values
Division	=A1 / B1	=100 / 4	Divides values
Average	=AVERAGE(A1:A10)	—	Returns the mean of selected range
Sum	=SUM(A1:A10)	—	Adds up all numbers in the range
Maximum	=MAX(A1:A10)	—	Finds the largest number
Minimum	=MIN(A1:A10)	—	Finds the smallest number
Count Numbers	=COUNT(A1:A10)	—	Counts only numeric values
Count All (Text + Numbers)	=COUNTA(A1:A10)	—	Counts all filled cells
Round Off	=ROUND(A1,2)	—	Rounds to 2 decimal places
Power	=POWER(A1,2)	—	Raises a number to a power
Square Root	=SQRT(A1)	—	Finds square root of a number

🧠 Logical & Conditional Formulas

Purpose	Formula	Example	Description
If Condition	=IF(A1>50,"Pass","Fail")	—	Returns "Pass" if condition true
Nested If	=IF(A1>80,"A",IF(A1>60,"B","C"))	—	Multiple conditions in one formula
AND Condition	=AND(A1>50,B1<100)	—	Returns TRUE if all conditions true
OR Condition	=OR(A1>100,B1>100)	—	Returns TRUE if any condition true
IF with AND/OR	=IF(AND(A1>60,B1>70),"Eligible","No")	—	Combines logic conditions
ISBLANK	=ISBLANK(A1)	—	Checks if cell is empty
IFERROR	=IFERROR(A1/B1,"Error")	—	Prevents #DIV/0 or #N/A display

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🔢 Text Functions (String Formulas)

Purpose	Formula	Example	Description
Join Text	`=CONCATENATE(A1," ",B1)`	–	Joins text from multiple cells
New Excel Join Function	`=TEXTJOIN(" ",TRUE,A1,B1)`	–	Joins text with separator
Uppercase	`=UPPER(A1)`	–	Converts text to uppercase
Lowercase	`=LOWER(A1)`	–	Converts text to lowercase
Proper Case	`=PROPER(A1)`	–	Capitalizes first letter of each word
Length of Text	`=LEN(A1)`	–	Counts number of characters
Left Characters	`=LEFT(A1,3)`	–	Extracts first 3 letters
Right Characters	`=RIGHT(A1,4)`	–	Extracts last 4 letters
Middle Characters	`=MID(A1,2,4)`	–	Extracts specific portion of text
Find Position	`=FIND(" ",A1)`	–	Finds position of a space or letter
Replace Text	`=REPLACE(A1,1,5,"New")`	–	Replaces part of text
Remove Spaces	`=TRIM(A1)`	–	Removes extra spaces
Combine Text and Numbers	`=A1 & " scored " & B1`	–	Joins text and numeric values

📅 Date & Time Functions

Purpose	Formula	Example	Description
Current Date	`=TODAY()`	–	Returns today's date
Current Date & Time	`=NOW()`	–	Returns system date and time
Day	`=DAY(A1)`	–	Extracts day from date
Month	`=MONTH(A1)`	–	Extracts month from date
Year	`=YEAR(A1)`	–	Extracts year from date
Add Days	`=A1 + 10`	–	Adds 10 days to date
Date Difference	`=DATEDIF(A1,B1,"Y")`	–	Finds difference in years
Age Calculation	`=DATEDIF(DOB,TODAY(),"Y")`	–	Calculates current age
Day of Week	`=TEXT(A1,"dddd")`	–	Displays weekday name
Network Days	`=NETWORKDAYS(A1,B1)`	–	Counts working days between dates

📊 Statistical & Analytical Formulas

Purpose	Formula	Example	Description
Average	`=AVERAGE(A1:A10)`	–	Mean of a range
Median	`=MEDIAN(A1:A10)`	–	Middle value of a dataset
Mode	`=MODE(A1:A10)`	–	Most frequent value

Purpose	Formula	Example	Description
Count If	`=COUNTIF(A1:A10,">50")`	–	Counts cells matching condition
Sum If	`=SUMIF(A1:A10,">60",B1:B10)`	–	Adds values matching criteria
Average If	`=AVERAGEIF(A1:A10,">50",B1:B10)`	–	Average based on condition
Multiple Conditions (Sumifs)	`=SUMIFS(C1:C10,A1:A10,"Delhi",B1:B10,">70")`	–	Multiple criteria sum
Rank	`=RANK(A1,A1:A10,0)`	–	Ranks value in list
Large / Small	`=LARGE(A1:A10,2)`	–	2nd largest number
Random Number	`=RAND()`	–	Random number 0–1
Random Between	`=RANDBETWEEN(10,100)`	–	Random number between limits

🔍 Lookup & Reference Functions

Purpose	Formula	Example	Description
Vertical Lookup	`=VLOOKUP(A1,Table,2,FALSE)`	–	Looks for a value vertically
Horizontal Lookup	`=HLOOKUP(A1,Table,3,FALSE)`	–	Looks for value horizontally
Index & Match Combo	`=INDEX(B2:B10,MATCH(A1,A2:A10,0))`	–	More flexible than VLOOKUP
XLOOKUP (New)	`=XLOOKUP(A1,A2:A10,B2:B10,"Not Found")`	–	Advanced lookup alternative
Indirect	`=INDIRECT("A" & B1)`	–	References cell indirectly
Choose	`=CHOOSE(2,"Apple","Banana","Cherry")`	–	Picks a value by position
Offset	`=OFFSET(A1,2,1)`	–	Refers to a cell by position shift

💰 Financial Formulas

Purpose	Formula	Example	Description
Simple Interest	`=P*T*R/100`	–	Basic interest formula
Future Value (Investment)	`=FV(rate,nper,pmt,[pv],[type])`	`=FV(0.06/12,12*5,-5000)`	Calculates future investment value

Purpose	Formula	Example	Description
Present Value	`=PV(rate,nper,pmt,[fv],[type])`	—	Calculates today's value of investment
Payment (EMI)	`=PMT(rate/12,nper,-pv)`	—	Calculates monthly EMI amount
Rate of Return	`=RATE(nper,pmt,-pv,fv)`	—	Finds interest rate per period

🧮 Error Handling & Data Cleaning

Purpose	Formula	Example	Description
If Error	`=IFERROR(A1/B1,"Invalid")`	—	Displays message instead of error
Clean Text	`=CLEAN(A1)`	—	Removes non-printable characters
Remove Extra Spaces	`=TRIM(A1)`	—	Removes leading/trailing spaces
Check if Text Exists	`=ISNUMBER(SEARCH("Delhi",A1))`	—	Finds if text exists in cell