Excel Basic Functions & Formula Symbols

This handout provides essential **Excel functions** and **formula symbols** for performing calculations and organizing data efficiently.

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1. Formula Symbols in Excel

These symbols are used to perform basic mathematical and logical operations in Excel formulas.

Symbol	Function	Example	Result
`+`	Addition	`=5+3`	8
`-`	Subtraction	`=10-4`	6
`*`	Multiplication	`=6*3`	18
`/`	Division	`=12/4`	3
`^`	Exponentiation (Power)	`=2^3`	8 (2^3)
`=`	Equals (Starts a Formula)	`=A1+B1`	Sum of A1 and B1
`()`	Parentheses (Grouping)	`=(2+3)*4`	20
`%`	Percentage	`=50%`	0.5
`&`	Text Concatenation (Joining)	`="Hello "&"World"`	Hello World
`>`	Greater Than	`=A1>10`	TRUE if A1 is greater than 10
`<`	Less Than	`=A1<10`	TRUE if A1 is less than 10
`>=`	Greater Than or Equal To	`=A1>=10`	TRUE if A1 is 10 or more
`<=`	Less Than or Equal To	`=A1<=10`	TRUE if A1 is 10 or less

`<>`	Not Equal To	`=A1<>10`	TRUE if A1 is not 10

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2. Basic Excel Functions & How to Use Them

These functions automate common calculations and tasks.

A. Arithmetic & Statistical Functions

Function	Purpose	Example	Result
`SUM()`	Adds numbers	`=SUM(A1:A5)`	Sum of A1 to A5
`AVERAGE()`	Finds the average	`=AVERAGE(A1:A5)`	Average of A1 to A5
`MIN()`	Finds the smallest value	`=MIN(A1:A5)`	Lowest number in A1 to A5
`MAX()`	Finds the largest value	`=MAX(A1:A5)`	Highest number in A1 to A5
`COUNT()`	Counts numbers only	`=COUNT(A1:A10)`	Count of numerical values in A1 to A10
`COUNTA()`	Counts all non-empty cells	`=COUNTA(A1:A10)`	Count of non-empty cells in A1 to A10

B. Logical & Conditional Functions

Function	Purpose	Example	Result
`IF()`	Returns a value based on a condition	`=IF(A1>50, "Pass", "Fail")`	"Pass" if A1 is greater than 50, else "Fail"
`IFERROR()`	Replaces errors with custom text	`=IFERROR(A1/B1, "Error")`	"Error" if division fails
`COUNTIF()`	Counts values that meet a condition	`=COUNTIF(A1:A10, ">50")`	Number of values greater than 50 in A1 to A10

C. Text Functions

Function	Purpose	Example	Result
`TEXT()`	Formats data as text	`=TEXT(A1, "yyyy-mm-dd")`	Converts date to YYYY-MM-DD format
`LEFT()`	Extracts leftmost characters	`=LEFT(A1, 3)`	First 3 characters of A1
`RIGHT()`	Extracts rightmost characters	`=RIGHT(A1, 3)`	Last 3 characters of A1
`MID()`	Extracts characters from the middle	`=MID(A1, 2, 4)`	4 characters starting from the 2nd
`LEN()`	Counts total characters	`=LEN(A1)`	Length of text in A1
`TRIM()`	Removes extra spaces	`=TRIM(A1)`	Text with no extra spaces
`PROPER()`	Capitalizes each word	`=PROPER(A1)`	Converts "hello world" to "Hello World"
`UPPER()`	Converts to uppercase	`=UPPER(A1)`	Converts text to all caps
`LOWER()`	Converts to lowercase	`=LOWER(A1)`	Converts text to all lowercase

D. Date & Time Functions

Function	Purpose	Example	Result
`TODAY()`	Returns current date	`=TODAY()`	Today's date
`NOW()`	Returns current date & time	`=NOW()`	Current date and time
`HOUR()`	Extracts the hour from time	`=HOUR(A1)`	Hour value from A1
`MINUTE()`	Extracts minutes from time	`=MINUTE(A1)`	Minutes value from A1
`SECOND()`	Extracts seconds from time	`=SECOND(A1)`	Seconds value from A1
`DAY()`	Extracts day from date	`=DAY(A1)`	Day of the month

`MONTH()`	Extracts month from date	`=MONTH(A1)`	Month number
`YEAR()`	Extracts year from date	`=YEAR(A1)`	Year value

E. Lookup & Reference Functions

Function	Purpose	Example	Result
`VLOOKUP()`	Searches for a value in a column	`=VLOOKUP(1001, A2:C10, 2, FALSE)`	Finds 1001 and returns its corresponding value from the 2nd column
`HLOOKUP()`	Searches for a value in a row	`=HLOOKUP(1001, A1:J2, 2, FALSE)`	Finds 1001 in the first row and returns the value from the 2nd row
`INDEX()`	Returns value from a location	`=INDEX(A2:C10, 3, 2)`	Returns the value from the 3rd row and 2nd column
`MATCH()`	Finds the position of a value	`=MATCH(50, A1:A10, 0)`	Position of 50 in A1:A10

F. Rounding & Math Functions

Function	Purpose	Example	Result
`ROUND()`	Rounds to a specific decimal place	`=ROUND(A1, 2)`	Rounds A1 to 2 decimal places
`ROUNDUP()`	Always rounds up	`=ROUNDUP(A1, 2)`	Rounds up to 2 decimal places
`ROUNDDOWN()`	Always rounds down	`=ROUNDDOWN(A1, 2)`	Rounds down to 2 decimal places
`MOD()`	Finds the remainder	`=MOD(A1, B1)`	Remainder when A1 is divided by B1

How to Use These Functions Effectively

1. **Start with basics** – Learn SUM, AVERAGE, and IF before moving to advanced functions.
2. **Combine functions** – Use IF with COUNTIF for conditional calculations.
3. **Use parentheses for clarity** – `(A1+B1)*C1` ensures correct order of operations.
4. **Apply formatting** – Use Conditional Formatting for better visualization.
5. **Practice regularly** – Experiment with real-world data (expenses, sales, or logs).

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