



## Introduction to Excel

**MS Excel is a spreadsheet program where one can record data in the form of tables. It is easy to analyse data in an Excel spreadsheet. The image given below represents how an Excel spreadsheet looks like:**

### How to open MS Excel?

**To open MS Excel on your computer, follow the steps given below:**

- **Click on Start**
- **Then All Programs**
- **Next step is to click on MS Office**
- **Then finally, choose the MS-Excel option**

**Alternatively, you can also click on the Start button and type MS Excel in the search option available.**

### What is a cell?

**A spreadsheet is in the form of a table comprising rows and columns. The rectangular box at the intersection point between rows and columns forms a cell. Given below is an image of a cell:**



## Features of MS Excel

- **Home**
- **Comprises options like font size, font styles, font colour, background colour, alignment, formatting options and styles, insertion and deletion of cells and editing options**
- **Insert**
- **Comprises options like table format and style, inserting images and figures, adding graphs, charts and sparklines, header and footer option, equation and symbols**
- **Page Layout**
- **Themes, orientation and page setup options are available under the page layout option**
- **Formulas**



**Since tables with a large amount of data can be created in MS excel, under this feature, you can add formulas to your table and get quicker solutions**

- **Data**
- **Adding external data (from the web), filtering options and data tools are available under this category**
  
- **Review**
- **Proofreading can be done for an excel sheet (like spell check) in the review category and a reader can add comments in this part**
  
- **View**
- **Different views in which we want the spreadsheet to be displayed can be edited here. Options to zoom in and out and pane arrangement are available under this category**

## **Benefits of Using MS Excel**



**MS Excel is widely used for various purposes because the data is easy to save, and information can be added and removed without any discomfort and less hard work.**

**Given below are a few important benefits of using MS Excel:**

- **Easy To Store Data:** Since there is no limit to the amount of information that can be saved in a spreadsheet, MS Excel is widely used to save data or to analyse data. Filtering information in Excel is easy and convenient.
- **Easy To Recover Data:** If the information is written on a piece of paper, finding it may take longer, however, this is not the case with excel spreadsheets. Finding and recovering data is easy.
- **Application of Mathematical Formulas:** Doing calculations has become easier and less time-taking with the formulas option in MS excel
- **More Secure:** These spreadsheets can be password secured in a laptop or personal computer and the probability of losing them is way lesser in comparison to data written in registers or piece of paper.
- **Data at One Place:** Earlier, data was to be kept in different files and registers when the paperwork was done. Now, this has become convenient as more than one worksheet can be added in a single MS Excel file.



- **Neater and Clearer Visibility of Information:** When the data is saved in the form of a table, analysing it becomes easier. Thus, information is a spreadsheet that is more readable and understandable.

**Worksheet:** After opening an Excel workbook, we get a window of Excel to perform any required operation that is the worksheet.

**Cell:** The cell is the shortest part of Excel. Usually, a cell is denoted by the combination of row and column headings. Cell A1 means that the cell is located in the first column and first row. Cell numbers are unique.

**Active Cell:** When we click on any cell, it becomes the active cell. The address of the active cell is shown in the Name Box at the upper left corner of the sheet.

**Row:** Row is the horizontal collection of cells and is denoted by a number. On the left side of the sheet, you can see the row bar that indicates all rows. Excel has 1,048,576 rows in total.



**Column:** The column is the vertical collection of cells and is denoted by alphabetic characters. You will have a bar on the upper side of the worksheet consisting of alphabetic characters starting from A, that is the column bar. Each character of this bar indicates individual columns. Excel has 16,384 columns in total.

**Title Bar:** The Title bar is the horizontal bar that contains the name of the Excel file and is located at the top of the workbook.

**Quick Access Toolbar:** The Quick Access Toolbar or QAT is a customized toolbar, located at the left-upper side of the workbook. We gather all the frequently used commands here so that there is no need to search for them.

**Control Buttons:** Control buttons are located at the upper-right side of the workbook and are used for control purposes like minimizing, maximizing, and closing.

**Ribbon:** The Ribbon is the key interface in Excel that organizes and contains various commands. It is divided into tabs, each housing groups of related commands. It was first introduced in Excel 2007 and is available in all the latest versions including Excel 365.

**Formula Bar:** Formula bar is located below the ribbon. We can insert, modify, and delete any value or formula in Excel from this bar. We can also see the formula of any cell in this bar.



**Name Box:** The Name Box is on the left side of the Formula Bar. We can see the address cell or name of a range from this box. We can also go to the desired cell or select the range by inserting the cell reference or name in this box.

**Scroll Bar:** The scroll bar is used to navigate the Excel worksheet in 4 directions. There are two scroll bars: the horizontal scroll bar for left and right, and the vertical scroll bar for up and down directions.

**Sheet Tab:** The sheet tab contains the names of all available sheets on the workbook. We can also create new sheets from there. It is also called the leaf bar. It is located at the bottom left corner of a workbook above the Status Bar.

**Status Bar:** The status bar is a horizontal bar located at the bottom of the workbook. It indicates the current status of the selected cell and other mathematical calculations like sum, average, count, etc.

**Zoom Slider:** It refers to the zoom adjustment of Excel workbooks that ranges from 10% to 400%. It is located at the bottom-right corner of the Excel workbook.

**View Buttons:** This button refers to different ways to present the workbook in Excel. There are three modes: Normal, Page Layout, and Page Break Preview.

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## How Is the Excel Ribbon Structured?



**The Excel ribbon has the following basic components: Tabs, Command Groups, Command Buttons, and Dialog Box Launcher.**

**Tab:** A tab is an entity that organizes a similar group of commands in Excel. Each tab stands for a specific purpose. Like, the Insert tab is used to insert tables, illustrations, charts, maps, sparklines, etc. in the dataset.

**Command Groups under Each Tab:** Under each tab, there are multiple command groups to do specific tasks. Example: The Font group under the Home tab is dedicated to font size, color, style, and other font-related tasks.

**Command Buttons under Each Group:** These are different buttons under each command group. Each command button performs a specific task. Example: the Font Color button sets the color of the font.

**Dialog Box Launcher:** The dialog box launcher is a small arrow symbol located at the bottom-right side of any command group. Some command groups contain more commands than shown in the Ribbon. The dialog launcher (also called an anchor arrow) shows the other commands related to each group in a pop-up window.

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## What Are the Different Types of Cursors Used in Excel?



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### Type 1 – Selection Mode Cursor

**When you hover the cursor over a cell or select a cell, the cursor looks like this.**

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### Type 2 – AutoFill Cursor or the Fill Handle

**It is a small plus sign when hovering over the right-bottom corner of a cell. Clicking and dragging or double-clicking on the cursor will copy the formula or values inside to subsequent cells.**

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### Type 3 – I-Beam Cursor

**The I-beam cursor is displayed when entering values into cells directly.**

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### Type 4 – Mouse Pointer Cursor



**The mouse pointer shows up when hovering over anything that's not a cell or text box.**

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#### **Type 5 – Move Cells Cursor**

**It looks like a four-directional arrow sign and appears when placing the cursor at the edge of the selection range. Dragging the cursor to another location will move the selected data.**

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#### **Type 6 – Copy Cells Cursor**

**Place the cursor on the edge of the selection area, then press and hold the Ctrl button. You will see a small plus icon with the mouse pointer, which is Copy Cells cursor. Using this cursor, you can copy, move, and do other activities.**

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#### **Type 7 – Cursor to Select Row/Column**



**It appears when you hover over the column or row bar and turns the cursor into a down or right arrow. It's used to select the entire column or row.**

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### **Type 8 – Cursor to Resize Column/Row**

**When the cursor is placed at the border of two columns or rows, it will turn into a two-directional arrow. It can resize the width or height of a column or row, respectively.**

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## **What Are the Common Excel Dialog Boxes?**

### **Type 1 – Clipboard Dialog Box**

**We get this dialog box from the Clipboard group of the Home tab.  
Our copied data is shown in this dialog box.**

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### **Type 2 – Format Cells Dialog Box**



**Opened from the Font, Number, or Alignment group of the Home tab.  
Used to customize the data format like category, size, color, style,  
alignment, add a border, fill color, etc.**

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#### **Type 3 – Find and Replace Dialog Box**

**Pressing Ctrl + F or H will get this dialog box. Also opened via Find & Select > Find or Replace. From the Find tab, you can search for any data, and from the Replace tab you can replace the existing data with new ones.**

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#### **Type 4 – Sort Dialog Box**

**Go to Find & Select and choose Custom Sort to get this dialog box. You can sort data in multi-level and multiple categories from this dialog box.**

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#### **Type 5 – Advanced Filter Dialog Box**



**Go to Sort & Filter and select Advanced to open it. You can select both the data and criteria range and apply the advanced filter from this box.**

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#### **Type 6 – Page Setup Dialog Box**

**Opened via the Page Layout tab. Click on the dialog box launcher of groups Page Setup, Scale to Fit, or Sheet Options. You can use it to customize page orientation, scaling, paper size, margin, header, footer, print area, page order in printing, etc.**

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#### **Type 7 – Insert Function Dialog Box**

**You can open the Insert Function dialog box by clicking on the fx sign next to the Formula Bar. You will get the list of Excel functions based on different categories to insert into the formula bar.**

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#### **Type 8 – Data Validation Dialog Box**



**Go to Data and select Data Validation to get this dialog box. It allows you to control the entry of data in a cell.**

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#### **Type 9 – Consolidate Dialog Box**

**You will get this dialog box by going to Data and selecting Consolidate. It summarizes information from multiple worksheets into a master worksheet.**

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#### **Type 10 – PivotTable and PivotChart Wizard**

**Go to Insert and select the PivotChart drop-down, then choose PivotChart & PivotTable to get this dialog box. Select a table or range as source data and another location to place the pivot table and chart in the workbook.**

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#### **Type 11 – Insert Chart Dialog Box**



**Click on the dialog box launcher of the Charts group of the Insert tab. You can select the desired chart from the recommended options or a list of all charts.**

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#### **Type 12 – Hyperlink Dialog Box**

**To get this box, click on the Link command in the Insert tab. You can link any file (Image, document, etc.), web page, sheets of the existing workbook, and email address.**

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#### **Type 13 – Conditional Formatting Dialog Box**

**In Home, go to Conditional Formatting and select Manage Rules to get this dialog box. You can create, edit, delete, and duplicate conditional formatting rules from this box.**

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#### **Type 14 – Name Manager Dialog Box**



**Go to Formulas and select Name Manager. It can be used to create, edit, and delete names for ranges. You can also modify the reference of shown names from here.**

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### **What Are Excel Status Bar Options?**

**The status bar is the horizontal bar at the bottom of the workbook. By default, this bar shows a real-time status of the workbook: Cell Mode, Macro recording, Accessibility, mathematical calculations, View buttons, and Zoom Slider.**

- **The Cell Mode** indicates different modes of cells like ready, edit, enter, and point.
- **When the Macro Recording icon is active**, Excel records all the actions and converts them into VBA so that we can use it later.
- **The Accessibility Checker** checks is a tool that checks the usability of each worksheet and suggests how to fix them.
- **The mathematical calculations section** shows the average, count, sum, and other calculations by selecting the desired cells only.



**Here's how you can customize it:**

- Right-click over the Status Bar.
- The Customize Status Bar menu will appear.
- Check the desired option from the menu to appear in the Status Bar.

**You can hide or unhide the status bar easily by using the keyboard shortcut Ctrl + Shift + F1.**

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### **What Are the Contextual Menus in Excel?**

**The Context Menu appears by right-clicking on any object like a cell, chart, shape, or command. Here is a cell's context menu.**

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#### **Type 1 – Context Menu That Appears After Right-Clicking on Cells**

**Options in this context menu are related to the data in a cell like: copy, cut, paste, sort, filter data, insert, delete, format cells, etc.**



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## Type 2 – Context Menu of Ribbon

The features of this menu are related to the Quick Access Toolbar and the ribbon.

We get two types of context menus from the ribbon:

- Right-click on the Tab or blank space of the ribbon.
- Right-click after placing the mouse over a ribbon command.

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## Type 3 – Context Menu of the Sheet Tab

Hover the mouse over any sheet name of the Sheet Tab and get this menu. It consists of options like insert, delete, rename, move, copy sheets, etc.

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## Type 4 – Context Menu of a Chart

It's used to change the fill color, outline color, chart type, data, etc. of a chart.



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### Type 5 – Context Menu of a Shape

You can modify texts, points, links, size, and other properties of shape from this menu.

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### Type 6 – Context Menu of a Pivot Table

You can modify the font style, color, size, and format of data and show different mathematical calculations and other options related to the pivot table from this menu.

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## What Are Different Types of Task Panes in Excel?

Task Pane is a supporting tool of Excel. Usually, a Task pane is shown in a rectangular box. Each task pane shows different functionality, such as selecting any option, inserting a value, etc.

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### Type 1 – Accessibility Checker



**This task pane checks the accessibility of the workbook and suggests how to make the workbook more accessible after fixing disabilities.**

**Click on the Accessibility Checker icon on the left side of the Status Bar and the task pane will be located on the right side of the workbook.**

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### **Type 2 – Clipboard**

**This task pane is accessed from the Clipboard group of the Home tab and appears on the left side of the workbook. It lists the copied data, and we can paste or delete it from the Clipboard.**

**There is also an Options button at the bottom of the taskbar with other features.**

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### **Type 3 – Navigation**



**Click on the Navigation feature of the View tab to open this task pane. In this pane, you can view all the elements, such as tables, images, charts, PivotTables, and datasets, of each worksheet of the workbook.**

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#### **Type 4 – Format Chart Task Pane**

**We will get this by right-clicking on a chart. This task pane shows all the chart's properties for customization.**

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#### **Type 5 – Analyze Data**

**Select a range of data and click on the Analyze Data feature of the Home tab to get this task pane. You can see different insights of the dataset and can ask any question regarding the dataset. Previously, it was called Ideas.**

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#### **Type 6 – Smart Lookup**



**Accessed from the Smart Lookup option of the Review tab. This task pane shows definitions, images, web pages, and related information of the selected data after searching.**

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### **Type 7 – Translator**

**This task pane shows the translation of the inserted word or sentence. You can access it by clicking on the Translate option under the Review tab.**

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### **Type 8 – Thesaurus**

**This task pane shows the synonyms and antonyms of inserted words in Excel. Click on the Thesaurus option of the Proofing group under the Review tab to access it.**

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### **Type 9 – Watch Window**



You will be able to see all the details of a cell in this task pane like the workbook name, sheet name, value, formula, etc. of the selected cell. Click on the Watch Window option of the Formulas tab for this pane.

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#### Type 10 – Data Selector

The Data Selector task pane appears when you change the data type of the inserted data from the Data Types group under the Data tab. This task pane shows suggestions based on your data type selection.

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#### Creating a Chart in Excel

Creating a chart, step by step:

1. Select the range A1:A8



## Copy Values

2. Click on the Insert menu, then click on the Line menu ( ) and choose Line ( ) from the drop-down menu

**Note:** This menu is accessed by expanding the ribbon.

You should now get this chart:

**Excellent!** You have now created your first chart.

**Note:** The cells 9 and 10 were not selected in the range, and therefore not included in the graph.

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## ADVERTISEMENT

### Creating Another Chart in Excel

Lets compare the stats for the Pokemons; Charmander, Squirtle and Bulbasaur using a column chart.

1. Select the range A1:G4



## Copy Values

2. Click on the insert menu, then click on the column menu ( ) and choose Clustered Column ( ) from the drop-down menu

**Note:** This menu is accessed by expanding the ribbon.

You should now get this chart:

The chart gives a visual overview for the Pokemons stats.

Charmander, represented by the orange bars, and has the highest speed. Squirtle, represented by the gray bars, has the highest defense.



## Excel Shortcuts (Windows) Excel Shortcuts (Windows):

### Navigation Shortcuts

Shortcut	Action	Explanation
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**Ctrl + → / ← / ↑ / ↓** **Move to edge of data region** **Quickly jumps to the end of a data block in the direction you press.**

**Ctrl + Home** **Go to cell A1** **Takes you directly to the beginning of the worksheet.**

**Ctrl + End** **Go to last used cell** **Jumps to the last cell with content in your sheet.**

**Tab** **Move to the next cell** **Moves right to the next cell.**

**Shift + Tab** **Move to previous cell** **Moves left to the previous cell.**

**Page Up / Page Down** **Scroll one screen up/down** **Navigates by screenful instead of one row at a time.**

**Ctrl + Page Up / Page Down** **Switch between worksheets**  
**Moves to the next or previous sheet in the workbook.**

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### Editing Shortcuts

Shortcut	Action	Explanation
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**F2 Edit active cell** Allows you to edit the cell contents without double-clicking.

**Ctrl + C Copy** Copies the selected cell(s) or content.

**Ctrl + X Cut** Cuts the selected data.

**Ctrl + V Paste** Pastes copied/cut content.

**Ctrl + Z Undo** Reverts the last action.

**Ctrl + Y Redo** Redoes an undone action.

**Delete** Clear cell contents Deletes only the content (not formatting or comments).

**Ctrl + D Fill down** Copies the value/formula from the cell above.

**Ctrl + R Fill right** Copies the value/formula from the cell to the left.

**Ctrl + "+" Insert row/column** Adds a new row or column depending on selection.

**Ctrl + "-" Delete row/column** Deletes the selected row/column.

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## **Formatting Shortcuts**

<b>Shortcut</b>	<b>Action</b>	<b>Explanation</b>
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**Ctrl + B** **Bold** Makes the selected text bold.

**Ctrl + I** **Italic** Italicizes the selected text.

**Ctrl + U** **Underline** Underlines the selected text.

**Ctrl + 1** **Format Cells dialog** Opens the formatting dialog for font, number, border, etc.

**Alt + H + O + I** **AutoFit column width** Adjusts the width to fit content automatically.

**Ctrl + Shift + \$** **Apply currency format** Changes the selected cell(s) to currency.

**Ctrl + Shift + %** **Apply percentage format** Converts the value to a percentage.

**Ctrl + Shift + ~** **Apply general format** Resets to default number formatting.

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### Formula Shortcuts

Shortcut	Action	Explanation
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= Start a formula Begins formula entry.

Alt + = AutoSum Inserts =SUM() for quickly summing values above.



**Ctrl + ' (apostrophe)** Copy formula from above Copies the formula from the cell above.

**F4** Toggle absolute/relative reference Changes A1 to \$A\$1, \$A1, or A\$1.

**Ctrl + Shift + Enter** Enter array formula Used for legacy array formulas (now mostly replaced with dynamic arrays).

**Ctrl + (backtick)** Show formulas Displays all formulas instead of results.

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#### Date & Time Shortcuts

Shortcut	Action	Explanation
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**Ctrl + ;** Insert current date Adds today's date in a cell.

**Ctrl + Shift + ;** Insert current time Adds current time.

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#### Workbook & Cell Management

Shortcut	Action	Explanation
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**Ctrl + N** New workbook Opens a new blank Excel workbook.

**Ctrl + S** Save workbook Saves the current file.



**Ctrl + P Print** Opens the print menu.

**Ctrl + F Find** Opens the Find box.

**Ctrl + H Replace** Opens the Replace box.

**Ctrl + A Select all** Selects the entire sheet.

**Shift + Space Select entire row** Selects the whole row of the active cell.

**Ctrl + Space Select entire column** Selects the whole column of the active cell.

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## Basic Excel formulas

### Math & Arithmetic Formulas

1. **=SUM(A1:A10)** – Adds values in a range
2. **=AVERAGE(A1:A10)** – Calculates the average
3. **=MIN(A1:A10)** – Finds the minimum value
4. **=MAX(A1:A10)** – Finds the maximum value



5. **=PRODUCT(A1:A3) – Multiplies values**
  6. **=QUOTIENT(A1, B1) – Returns the integer portion of division**
  7. **=MOD(A1, B1) – Returns the remainder after division**
  8. **=POWER(A1, 2) – Raises to a power (square)**
  9. **=ROUND(A1, 2) – Rounds to a set number of digits**
  10. **=ABS(A1) – Returns the absolute value**
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## Logical Formulas

11. **=IF(A1>10, "Yes", "No") – Basic IF condition**
  12. **=AND(A1>10, B1<5) – Checks if all conditions are TRUE**
  13. **=OR(A1>10, B1<5) – Checks if any condition is TRUE**
  14. **=NOT(A1>10) – Reverses the logic**
  15. **=IFERROR(A1/B1, "Error") – Handles errors gracefully**
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## Text Formulas

16. **=CONCATENATE(A1, B1) – Joins text (old method)**
17. **=TEXTJOIN(" ", TRUE, A1:A3) – Joins text with delimiter**



18. **=LEFT(A1, 5) – Extracts left characters**
  19. **=RIGHT(A1, 3) – Extracts right characters**
  20. **=MID(A1, 2, 3) – Extracts middle characters**
  21. **=LEN(A1) – Counts characters**
  22. **=TRIM(A1) – Removes extra spaces**
  23. **=UPPER(A1) – Converts to uppercase**
  24. **=LOWER(A1) – Converts to lowercase**
  25. **=PROPER(A1) – Capitalizes each word**
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July 17 **Date & Time Formulas**

26. **=TODAY() – Returns today's date**
27. **=NOW() – Returns current date and time**
28. **=DAY(A1) – Extracts the day from a date**
29. **=MONTH(A1) – Extracts the month**
30. **=YEAR(A1) – Extracts the year**
31. **=WEEKDAY(A1) – Returns day of the week (1 = Sunday)**
32. **=DATEDIF(A1, A2, "d") – Calculates date difference**



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- 33. **=EDATE(A1, 3) – Adds months to a date**
  - 34. **=EOMONTH(A1, 1) – End of next month**
  - 35. **=TEXT(A1, "dd-mm-yyyy") – Formats date**
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## **Lookup & Reference Formulas**

- 36. **=VLOOKUP(A1, A2:B10, 2, FALSE) – Vertical lookup**
  - 37. **=HLOOKUP(A1, A2:Z3, 2, FALSE) – Horizontal lookup**
  - 38. **=INDEX(A1:C3, 2, 3) – Returns value from a cell reference**
  - 39. **=MATCH(50, A1:A10, 0) – Finds position of a value**
  - 40. **=XLOOKUP(A1, A2:A10, B2:B10) – New versatile lookup**
  - 41. **=OFFSET(A1, 1, 2) – Returns a reference offset from a cell**
  - 42. **=INDIRECT("A1") – Returns the reference specified by a string**
  - 43. **=CHOOSE(2, "Apple", "Banana", "Cherry") – Chooses from a list**
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## **Statistical Formulas**

- 44. **=COUNT(A1:A10) – Counts numeric cells**
- 45. **=COUNTA(A1:A10) – Counts all non-empty cells**



46. **=COUNTBLANK(A1:A10) – Counts blank cells**

47. **=RANK(A1, A1:A10) – Ranks a number**

48. **=LARGE(A1:A10, 2) – 2nd largest value**

49. **=SMALL(A1:A10, 2) – 2nd smallest value**

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### Information Formulas

50. **=ISNUMBER(A1) – Checks if value is a number**

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