Microsoft Excel 2010 Notes

United Community College Handwara

Compiled by:
Fasil Yousf

Contact:
7006960788

Email: tr.fasilyousf@gmail.com

Website: https://www.tr.fasilyousf.online

"EXCEL"

→ MS Excel is a spreadsheet program introduced by Mi-crosoft corporation in 1985. It is widely used for organizing, analyzing and storing data in tabular fo-rm. It allows user to perform calculations, create cha-rts and manage large sets of information efficiently. It uses a grid system made up of rows and colums to store data in cells.

USES OF MS-EXCEL

- Data Formatting.
- Data Management.
- Chart creation.
- Mathematical Calculations
- Time Management
- Accounting and Budgeting
- Financial Modelling

ADVANTAGES OF MS-EXCEL.

- Saves time,
- Increase productivety.
- Table creating ability.
- Proficient in spreadsheet
- Recover data easily.

MS-EXCEL EXTENSION

→ MS-Excel is the file format used to save Microsoft Excel spreadsheets. It appears at the end of the file name and identifies the type of Excel file.

- .xlsx → Default extension used in modern versions of Excel (Excel 2007 and later)
- .xls → Older (files) Excel format used in Excel 97-2003.

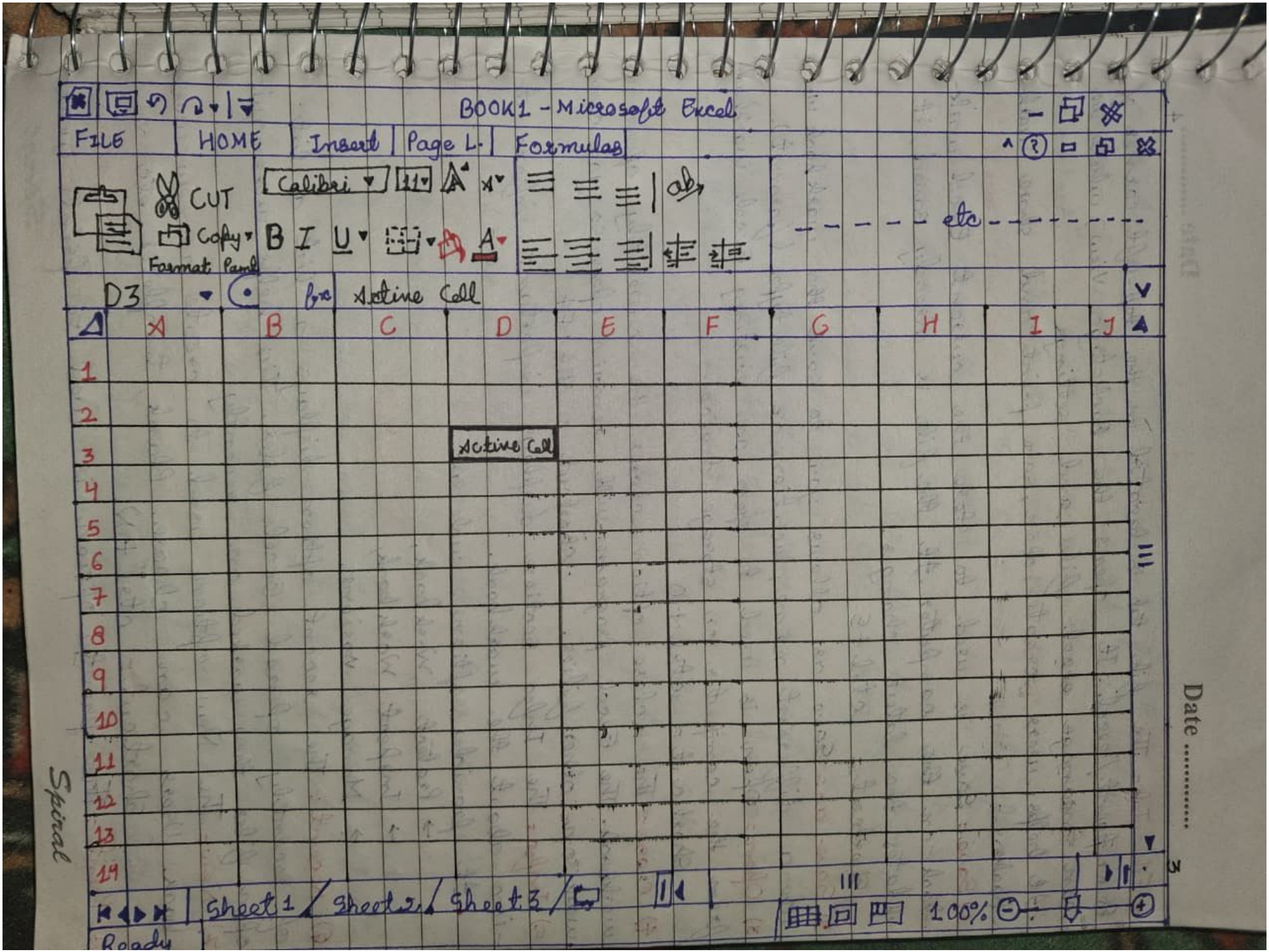
TERMS RELATED TO MS-EXCEL:

- **Row** = A row is a horizontal line of cells in excel, from Left to Right, identified by numbers e.g row1, Row2, ROW3, etc.
- **Column** = A column is a vertical line of cells from top to buttom. Column are identified by letters. e.g Col1, Col2, Col3 etc.
- **Cells** = A cell is the intersection of row and a column. It is place where we enter data. Each cell has a unique address.
- **Cell Address** = A cell address is the unique name or location of cell in a worksheet. It is used to identify a specific cell in excel. (Also known Cell reference). A cell address is formed by combining the column Letter and the row number.

  e.g
  - A1 → column A and Row 1
  - B5 → column B and Row 5
  - C10 → column C and Row 10.
- **Spreadsheet** = A spreadsheet is an electronic sheet used to store, organize and calculate data using rows and columns.
- **Workbook** = A workbook is the entire Excel file that contains one or more spreadsheets (worksheets).

EXCEL 2010 WORKSHEET CAPACITY:

- **Total rows**: 1048,576.
- **Total cols** = 16,384.
- **Total Cells** = 17,179,869,184 Cells.
- **Capacity of Single cell** = A single cell can contain up to 32,767 characters. However, only 1024 characters are visible in the cell without editing.



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Date .....

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→ File Tab = The file tab is located in the top-left corner of Power point / excel. It opens the Backstage View, where we can manage excel files and settings.
• It helps users create, open, save, print and share work-books.

1) Save = Save is used to store the current Excel work-book on the computer. If the file is already saved, it updates the latest changes.
Shortcut = ctrl + S

2) Save as = Save as allows you to save the workbook with a different name, location or file type. (format).

3) Open = Open is used to open an existing Excel workbook from the computer or storage device.
Shortcut = ctrl + O

4) Close = The close option closes the currently open workbook. The Excel program will remain open so you can work on other files. Shortcut = Alt + F4

5) Info = The Info section displays important information about the workbook.
• It provides options such as:
→ Protect Workbook,
→ Inspect Workbook,
→ Manage Versions.

6) Recent: The recent option displays a list a list of recently opened Excel files. This helps users quickly open files they worked on recently.

7) New = The New option used to create a new work-book. Users can choose. Blank, templates etc.
Shortcut = ctrl + N.

8) Print = The print option is used to print work-

sheets. It allows users to: Select printer, choose number of copies, Print selected pages or the entire workbook.

Shortcut = Ctrl + P.

9) Save & Send = The Save and Send option is used to share the workbook.

→ Users can:

- Send the file through email.
- Save it as PDF or XPS.
- Share it Online.

10) Help: The help option opens the Excel Help window. It provides information, tutorials and solutions for excel problems. Shortcut = F1.

11) Options = The open menu open Excel Options settings. Users can customize many features such as

- Language,
- Proofing tools,
- Save settings,
- Advanced settings.

12) Exit = The exit command closes the entire Excel Application.

HOME TAB

→ The Home Tab is the most frequently used in Excel. It contains basic commands for formatting cells, editing data and organizing worksheets.

It is divided into ~~five~~ Seven main groups.

1) Clipboard Group = This group is used to copy and move data in a worksheets.

. Paste (ctrl+V) = Inserts copied or cut data.

. Cut (ctrl+X) = Removes data and places it on

clipboard.
- Copy (ctrl+C) = Copies selected data.
- Format Painter = Copies formatting (font, color, border) from one cell to another.

2) Font Group = Used to change the apperance of text and cells.
- Font Style & Face = used to change the style / design of text (e.g Calibri, Arial etc).
- Font Size = used to change the size of the text in cell.
- Increase font size = increas the text size step by step.
- Decrease font size = reduces the text size step by step.
- Bold = make text darker and thinker.
- Italic = tilt the text slightly to the right.
- Underline = draw a line below text.
- Border = add border lines around cells.
- Fill Color = used to change the background color of cell.
- Font Color = used to change the color of the text.

3) Alignment Group =
This section controls the positioning of text and numbers within a cell.
- Vertical Alignment (Top Row) =
  - Top / Middle / Bottom Align = Positions content at the top, center or bottom of the cell.
- Horizontal Alignment (Bottom Row) =
  - Left / center / Right Align = standard text positio-ning from left to right
- Orientation = (The "ab" icon) = Rotates text diagonally or vertically - great for narrow columns with long headers.
- Indent Tools = The icon with blue arrows allows

you to move text closer to or further from the cell border.

→ Wrap Text = Forces long text to wrap onto multiple lines within a single cell so it doesn't spill into the next one.

• Merge & Center = Combines multiple selected cells into one large cell and centers the contents.

4) Number Group = The number section manages data types and how numerical values are displayed.

→ Format Dropdown = This menu allows you to define the cells as Currency, Date, Percentage, Time etc.

→ Quick Icons =

→ $ (Accounting Number Format) = Quickly adds a currency symbol and two decimal places.

→ % (Percentage Style) = Multiplies the cell values by 100 and adds the percentage sign.

→ , (Comma Style) = Adds a thousands separator (e.g 1,000 instead of 1000).

→ Decimal Controls:

→ .00 → .0 (Decrease Decimal) = Shows fewer digits after the decimal point.

→ .0 → .00 (Increase Decimal) = Shows more precise digits after the decimal part/point.

5) Styles Group = The styles group in excel is used to quickly apply predefined formatting styles to cells, table and data. It helps make your worksheet look professional and easy to read.

→ Conditional Formatting = Automatically formats cells based on conditions.

• Highlights important data (e.g greaterthan,

less than, higest values, duplicates).

→ Format as Table = converts normal data into a structured table. It adds filtering, sorting and design styles automatically.

Shortcut = Ctrl + T

→ Cell Styles = cell styles are predefined formatting designs that you can apply to cell quickly. They combine font, color, size, borders and numbers formatting in one click.

6) Cell Group = The cell group in Excel is used to insert, delete and format cells, rows, columns, and sheet in a worksheet.

• Insert = Used to add new elements in the worksheet we can insert New Cells, Rows, Columns, worksheet.

• Delete = used to remove cells, rows, columns or entire sheet.

• Format = used to change the structure and appearance of cells.

Options include:

- Row Height / column width,
- AutoFit row / column.
- Hide or unhide rows / columns
- Protect and Rename sheet

7) Editing Group = The editing group in excel is used to perform calculations, fill data, clear, sort, find and filter data and find or replace values in excel sheet.

1) Autosum = It is used to quickly perform mathematical calculations without writting formulas manually.

• Functions:

• Sum = Adds numbers.
• Average = Find mean.
• Count Number = Count numeric cells.
• Min/Max = Finds highest/lowest values.

1)→ Fill Tool = The fill command (the blue square with a downward arrow) is used to continue a series or pattern into adjacent cells.

• Directional Fill = Use Down, Right, Up or Left to instantly copy the content and formatting of the first cell into the rest of the selected range.

• Series = This open a dialog box where you can create complex sequences, such as:
→ Linear = (1, 2, 3 ....)
→ Growth = (2, 4, 6, 8 ..)
→ Date = (Days, Weekdays, Months, or Years).

Flash Fill (the automatic pattern recognition) not in 2010.

2)→ The clear Tool: The clear button is vital because the delete key on your keyboard only performs clear contents. This menu allows for more surgical cleaning.

• clear All = It wipes the cell completely clean (data, borders, colors and comments.
• clear Format = Removes only styling (bold, colors, currency symbols) but leaves the data behind.
• clear Contents = Removes the data but leaves the styling.
• clear Comments = It removes only comment / Post it note.
• clear Hyperlinks = Remove the clickable link (Hyperlink).

Spiral

1) Sort & Filter: This tool helps you organize your data so it make more sense at a glance.

• Sort A to Z and Z to A: Instantly reorders your co-ws based on text (alphabetical) or numbers (smallest to largest).

• Custom Sort = Allows you to sort by multiple columns at once (e.g first by Department, and by "Last Name".

• Filter (The Funnel Icon) = Adds small drop down arrows to your header row. This lets you "hide" data you don't need to see - for example, showing only students who sco-red above 90%.

• Clear / Reapply = Quickly removes the filter to show all data again or update the filter if you've added new infor-mation.

2) Find and Select = It is essential for finding specif-ic information in a massive spreadsheet.

• Find (ctrl + F) = Search for a specific word, name or number.

• Replace (ctrl+H) = Find a specific value and swap it or something else (e.g changing "MS-OFFICE" to "Microso-ft Office" everywhere at Once.

• Go To / Go To Special = A "power user" feature that lets you instantly select all cells that are blank, contain formulas, or have specific formatting.

• Select Objects = This is used to select images, shapes or text boxes instead of selecting the cells behind them.

{Insert Tab}

The insert tab is the primary hub for exter-al elements and visual data representatio-ns to your spread sheet.

→ 1). Tables [Pivot Table and Tables]

• Pivot Table = Pivot tables in excel are essen an efficient toal for summarizing analyzing and organzing large datasets. They enable us to gro-up, filter and perform calculations (e.g sums, a-verages) on data using flexible, drag-and-drop interface, transforming raw data into actionable insights without complex formullas.

→ Pivot Tables have four main compabenents:

1) columns = columns are vertical tabular data, it includes the unique header, which is on top. The he-ader defines which data you are seeing listed downw-ards.

2) Rows = Rows are horizontal tabular data, Data in the same row are related.

3) Filter = Filter are used to select what data you see.

4) Values = Values define how you present data. You can define how you summarize and show values.

Fields and Layout

→ The Pivot Table Fields panel is used to change how you see the data. The settings can be sepe-rated in two : Fi, Fields and Layout.

• Fields = The checkboxes can be selected or unselected to display or change the property of the data.

• Layout = Drag and drop fields to the boxes to the boxes to the display data in the table. You can drag them to the four different bo-xes that we mentioned above.

1) Filters 2) Rows

3) columns 4) Values

• Tables = A Table in excel is a structured range of data that is organised in rows and columns with special features like filtering, sorting and automatic formatting.

Insert tab → Table

Shortcut = ctrl + T,

Feature of Excel Tables:

1) Automatic Formatting.
2) Sorting and filtering.
3) Structured Refrences.
4) Auto Expansion.
5) Total Row.

2) Illustrations = It is used to add visual elements like pictures, shapes, charts and diagrams to make your excel sheet attractive and easier to understad

1) Picture = Insert images from your computer, it is used for logos, diagrams or visual explanation.

2) Clip Art = Adds ready-made images (cartoons, icons, symbols), useful for presentation and educational sheets.

3) Shapes = Used to insert shapes like, lines, Arrows, Rectangles circles etc.

4) Smart Art = creates visual diagrams such as: Process, cycle, Hierarchy, Relationship etc.

5) charts = converts data into graphs like, Bar chart, line chart and Pie chart.

6) Screenshot = Captures a screenshot of open windows,

3) Links = (Hyperlink) = It is used to create connections between : web pages, files, other sheets etc.

4) Text Group = Insert tab is used to insert text related elements like text boxes, headers, symbols and objects into a worksheet.

• Text Box = A text box is used to insert custom text anywhere on the worksheet.

• Header and footer = used to add text at the top (header) or bottom (footer) of printed pages.

• Word-Art = WordArt allows you to insert decarative and stylish text. used for Headings, titles and attractive designs etc.

• Signature line = used to add a digital or written signature line in a worksheet.

• Object = Allows you to insert files from other applications (like Word, paint, PDF etc).

• Symbol = used to insert special characters and symbols.

{Page Layout}

The page Layout Tab is used to control the appearance of a worksheet when printed. It helps you set margins, orientations, size and overall page design.

1) Theme Group = A theme is a predefined combination of colors, fonts and effects applied to the entire workbook to give it a professional look.

2) Colors = changes the scheme of charts, tables and shapes in the work sheet.

3) Fonts = Sets the default heading and body fonts for the workbook.

4) Effects = Applies visual styles like shadows, reflections and 3D effects to objects.

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2) Page Setup = It is used to prepare a worksheet for printing by controlling page size, layout, spacing and content distribution.

→ Margins = Margins are the blank space between the worksheet content and the edges of the paper.

Types of Margins:
- Normal → Default Margin
- Wide → More space around edges.
- Narrow → Less space (fits more data).
- Custom Margins → User-defined values.

→ Orientation = Orientation defines the direction in which worksheet is printed.

Types:
- Portrait → Vertical (height > width)
- Landscape → Horizontal (width > height).

→ Size = Specifies the paper size on which the worksheet will be printed.

e.g A4, Letter, Legal etc.

→ Print Area = Print Area allows you to select only a specific part of the worksheet to print.

options:
- Set Print Area → Select cells to print.
- Add to Print Area → Add more cells.
- Clear Print Area → Remove selection.

→ Breaks (Page Breaks) = Page breaks divide a worksheet into multiple pages for printing.
- Horizontal Page Break = Breaks rows
- Vertical Page Break = Breakes columns.

options = Insert Page breaks, Remove Page Break, Reset

all page breaks.
→ Background = Adds an image as background of the worksheet.
visible on screen only, does Not print.
→ Print Tiles = Print titles allows you to repeat specific rows or columns on every printed page.
. Rows to repeat at top → Header row.
. Columns to repeat at left = Side headings.
3) Scale to Fit = It is used to resize your worksheet content so that it fits properly on printed pages.
=> Adjust the size of your data to fit into the required number of pages.
→ Width = The width option controls how many pages wide your worksheet will be when printed.
How it works:
. Automatic = Default (no scaling).
. 1 Page = Fits all columns into one page.
. 2 Page, 3 Pages = Splits across pages
→ Height = The height options controls how many pages tall your worksheet will be.
. Automatic
. 1 Page → Fits all rows into one page.
. More Pages if needed.
→ Scale = The Scale option allows you to manually increase or decrease the size of the worksheet.
. Minimum = 10%
. Maximum = 400%.
e.g 100% → Normal size. . 120% → Larger Con
80% → Smaller Content

4) Sheet Options = The Sheet Options group is used to control the visibility and printing of grid-lines and headings in a worksheet.

• Sheet Options = Controls what you see on screen and what gets printed.

→ There are two main sections :

1) Gridlines, 2) Heading. → Each section have two options, → View, Print.

1) Gridlines = Gridlines are the light grey lines that separate cells in excel.

Gridline → View = This options or hides the grid-lines on the screen.

• checked = Gridlines are visible.
• Unchecked = Gridlines are hidden.

2) Gridline → Print = This option controls whether gridlines will be printed on paper.

• checked = Gridlines will print.
• Unchecked = No Gridlines in print.

2) Headings = Headings are the row numbers (1, 2, 3, ...) and column letters (A, B, C, ...).

Headings → View = Shows or hides row and Col-umn labels on the screen.

• checked → Shows A,B,C.. and 1, 2, 3..
• Unchecked → Hides Labels (A, B, C.. & 1, 2..)

Headings → Print = Prints row and columns headings on paper.

• checked → Heading Printed
• Unchecked → Not printed.

5) Arrange = The Arrange group is used to man-age, organise and positions objects like Shapes

pictures, charts and SmartArt etc.

1) Bring Forward = Moves the selected objects in front of other overlapping objects.
   - Bring Forward = Moves one step forward.
   - Bring to Font = Moves to the very top.

2) Send Backward = Moves the selected object behind other objects.
   - Send Backward → Moves one step back
   - Send to Back → Moves to the very bottom.

3) Selection Pane = Displays a list of all objects in the worksheet.

   Features:
   → Shows all shapes / images,
   → Allows selection of hidden / overlapping objects,
   → Rename objects for easy identification.
   → Show / hide objects.

4) Align = Aligns multiple selected objects in a straight line or position.

   Options
   - Align Left / Right / center,
   - Align Top / Middle / Bottom.
   - Distribute Horizontally / vertically.

5) Group = combines multiple objects into one single object.
   - Group → combines objects.
   - Ungroup → Seperate objects
   - Regroup → Group again.

6) Rotate = Rotates or flips the selected objec
   e.g Rotate Right (90°), Rotate Left (90°)
   Flip, Horizontal and vertically.

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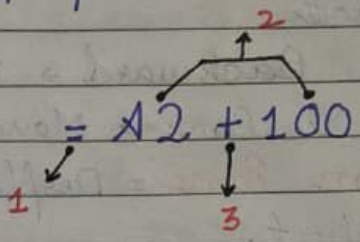
{FORMULAS}

→ A formulla is a set of instructions that you enter in a cell to perform calculations on values entered into the cell of a worksheet. Formullas consists of the addresses of cells containing the values and the appropriate mathematical operators.



1) An equal sign (=) to begin the formula.
2) The cell refrences or values you wish to inc-lude in the calculations.
3) The mathematical operator(s) to be used in the calculation.

→ Mathemitical Operators:

. + Plus Sign for addition
. — Minus Sign for Subtraction.
. * Asterisk for multiplication.
. / forward Slash for division
. ^ caret for exponents
. () open/close parenthesis for group operations.

→ Order of operations

Excel calculates a formula from left to ri-ght. When more than one mathematical opera-tors appears in a formulla.
Excel calculates according to the standard mathematical order of operations. This order determines which operations are carried out

first.

ORDER	OPERATIONS	DESCRIPTION
1ST	Parantheses ()	→ computations enclosed in parentheses are performed first no matter where they appear in the formula.
2ND	Exponents ^	→ computations involving exponents are performed second
3RD	Multiplication and Division	→ * and / are performed 3rd from Left and Right
4TH	Addition and Subtraction	→ Addition and Subtraction are performed at end in order which it encounter them (Left to Right)

{CELL REFERENCES}

→ A cell refrences (or address) is a combination of column letter and a row number that identifies a specific cell in worksheet. These refrences are essential for formulas and functions, allowing you to retrive, calculate or manipulate data.
e.g. A2 refers to the cell in Col A and Row 2.

→ Types of refrences:-

1) Relative Cell refrences = Relative cell refrences are the default in excell. They change automatically when a formula is copied to another cell, maintaining the relative position between cells. There is no dollar ($) sign in the relative refrence for the cell.

2) Absolute Cell refrences = When copying or using Autofill, there are times when cell refrence is kept

constant using dollar sign. So, to get an absolute refrence from relative, we can use dollar sign ($).
Press F4 to lock refreserence.
e.g A2 A2

3) Mixed Cell Refrences = Mixed references combine relative and absolute references. You can look either the row or column; depending on your needs. Here, the dollar ($) before the row number fixes/locks the row and before the column name fixes /locks the column.
e.g G2 = C2/A$2 Then:
we use $ before the row number, so we are locking the only row here. When G2 is copied to G3, G3 = C3/A$2 (not C3/A3) because the row has been fixed already.
e.g Formula and Refrences.

Relative = A1 + B1
If we copy this formula from Row1 to row2.
= A2 + B2 (changes/updated automatically).

→ Absolute Refrence
= A1 * C1 C1 is fixed (absolute).
when dragged/copied only A1 changes.

→ Mixed Refrences.
= $A1 * B1.
column A is fixed row changes.

{FUNCTIONS}

→ Excel functions are prebuilt, named formulas designed to simply complex calculations, data analysis and manipulation, such as =Sum(), =IF() and =XLookUP(). They start with an equal

= 4+2 = Formula
= Sum(4,2) = Funct

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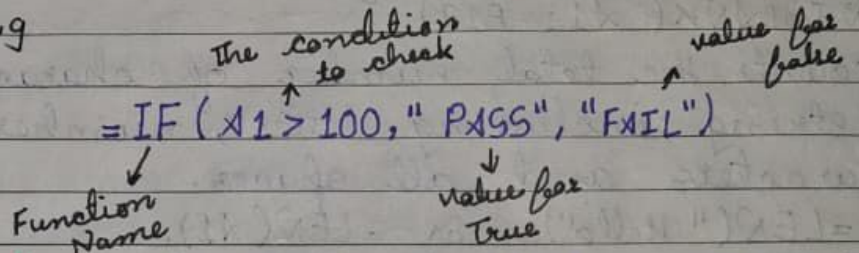
sign, followed by the function name and argum-ents in parentheses (e.g =Sum(A1, A2)). key function-s include SUM, Average, IF, VLOOKUP, COUNTIF etc.

→ Function Syntax:

= FunctionName (argument1, argument2, ...).

e.g



Read as = If A1 is greaterthan 100, return 'high', otherwise 'low'

[BASIC FUNCTIONS]

1) =SUM( ) → Adds all numbers in range

e.g =SUM (A1:A10)

2) =Average() → Returns the average (arthematic mean) of a set of numbers.

e.g =AVERAGE (A1: E1).

3) =PRODUCT() → multiples all numbers as arguments and returns product.

e.g =PRODUCT (A1, A2).

4) =MIN( ) → returns the smallest numerical value from a selected data. A1: E15

e.g =MIN (range).

5) =MAX( ) → finds the highest numerical value from selected data range.

e.g = MAX (A1: E15).

6) = COUNT( ) → counts cells containing numbers within a specific range.

e.g =COUNT (A1: E4).

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7) =COUNTA( ) → counts the cells that are not empty including text, numbers, errors and empty str "...",
e.g =COUNTA(A4: A50).

8) =COUNTBLANK( ) → counts the number of empty (blank) cells within a specific range.
e.g =COUNTBLANK(A1: E12)

9) =LEN( ) → counts the total number of characters in a text string, including letters, numbers, special characters and all spaces.
e.g =LEN("Hello") or =LEN(A1).

10) =MOD( ) → Returns remainder after division.
e.g =MOD(10,3) (1) ,=MOD(A1,2).

DATE & TIME

11) =TODAY( ) → Returns the current date.
e.g =TODAY()

12) =NOW( ) → Returns the current date and time
e.g =NOW().

13) =DATE( ) → Returns the date value based on year, month and day.
e.g =DATE(2026,03,31) result = 03/31/2026

14) =TIME( ) → Returns the time based on hour, minute and second.
e.g =TIME(12,30,0). 12:30:00 PM.

15) =HOUR( ) → Returns the hour from given time.
e.g =HOUR("12:30:00") Returns 12.

16) =MINUTE( ) → Returns the minute from given time.
e.g =MINUTE("12:30:05") 30 05

17) =SECOND( ) → Returns the second from given time
e.g =SECOND("12:30:05") 05.

18) =EOMONTH( ) → Returns the last day of month (30,31)

{TEXT FUNCTIONS}

19) =UPPER( ) → converts text to uppercase.

20) = LOWER( ) → Converts text to lowercase

21) = PROPER( ) → capitalize all words (Hello World).

22) = TRIM( ) → Removes extra spaces from text (keeps only single space.

e.g = TRIM(" Hello World") Result Hello World.

23) =LEFT( ) → Extracts a specified number of characters from left side of text.

e.g =LEFT("Computer",4) 1 2 3 4 Comp.

24) =RIGHT( ) → Extracts characters from the right side of text.

=Right("Computer", 3) 1 2 3 ter.

25) =MID ( ) → Extracts characters from the middle of text.

[Syntax : = MID (text, start_position, number_of_characters)]

= MID ("Computer", 3, 4) mput

26) = CONCATENATE ( ) → joins two or more text values into one. A1, B1.

= CONCATENATE ("Hello", " ", "Hello")

Hello World

27) = ROMAN( ) ↓

converts a number into Roman numeral format.

e.g =ROMAN(15) XV

28) =EXACT( ) → compares two text strings and returns TRUE if they are exactly same.

A1 [Hiii] B1 [Hiii]

...:= EXACT (A1, B1) TRUE.

{MATH AND STATISTICAL}

29) =ABS( ) → Returns absolute value. =ABS(-8) ⑧

30) =POWER( ) → Raises a number to a given power.
e.g =POWER(2,2) 2^2 . = [4]
No. Power.

31) =PI( ) → Returns the constant value of π (PI).
e.g =PI() 3.14159

32) =SQRT → Returns the square root of a number.
e.g =SQRT(number)
=SQRT(25) Result = 5.

33) =FACT → Returns the factorial of a number (n!).
e.g 5 factorial means = 5X4X3X2X1 = 120.
=FACT(5) {120}.

35) =MEDAIN( ) → The medain returns the value of a group of numbers when they are arranged in order.
e.g =MEDAIN(1, 3, 5) ③
# If number of values are evaven, the median will the return the mean/average of middle two values
=MEDAIN(1, 3, 5, 7)

$$\frac{3+5}{2} = \frac{8}{2} = [4]$$

36) =MODE( ) → this function returns the most frequently occuring value.
e.g =MODE(A1 : A15).
=MODE(1,2,2,3,4) [2]

{COMPARISON OPERATORS}

→ Comparison operators are used to compare two values in Excel.
They return a result as:
- TRUE (if condition is correct)
- FALSE (if condition is wrong).

OPERATOR	USE
= (Equal to)	→ states that the values on each side of it are exactly equal (works on both Numerical and text values). If they are not same, the statement will be: false. e.g 5=5 (true) 5=5.01 (false).
<> (Not equal to)	→ This is the inverse of equal operator. It is return TRUE if the values are different from each other e.g 10<>5 true.
> (Greater than)	→ This checks if the first values is strictly larger than the second. Returns TRUE only if the value on the left side of the symbol is higher than the value on the right. e.g 20 > 10 TRUE, 10 > 10 FALSE.
< (Less than)	→ This checks if the values is strictly smaller than the second. Returns TRUE if the value on the left is lower than value on right e.g 10 < 20 (True).
>= (Greater than or equal)	→ This is an enclusive operator. It combines the "greater than" and "equal to" logic. Returns True if the value is either larger than or exactly equal the right value. e.g 10 >= 10 True, 11 >= 10 True.
<= (less than or equal to)	→ Returns TRUE, if the left value is either smaller than or exact equal

to the right value.
e.g 5 <= 10 TRUE, 10 <= 10 TRUE.

REFENCE OPERATOR

Operator	Use
→ Range (:) Colon	→ The colon is the most common reference operator. It identifies a continuous range of cells between to specific points. e.g [First Cell]:[Last Cell] =SUM(A1:A10). A1:C3, 3×9 block 9 cells.
→ Union (,) Comma	→ The comma allows you to combine multiple, non-adjacent refrences into a single formula. e.g [Reference 1], [References 2]. =SUM(A1:A10, C1:C10).
→ Intersection (Space _)	→ The space is the least know but very powerful. it identifies the cells that are common to two or more ranges. e.g [Reference 1] [space] [Range 2] =SUM(B1:B10 A5:C5).

{Logical Functions}

37) =IF( ) → checks a condition and returns one value if IF TRUE and another if FALSE.

Syntax = =IF(Logical_test, value_if_true, value_if_false).

e.g =IF(A1<29, "FAIL", "PASS"). A1 = 60 (Pass).

38) =OR( ) → Returns TRUE if any condition is TRUE.

Syntax = OR (logical 1, Logical 2).

=OR(5>10, 8>3) (True)

39) =NOT( ) → Reverses the logical result (TRUE → FALSE, FALSE → TRUE).

e.g =NOT(Logical)
=NOT (5>3) FALSE.

40) =AND( ) → Returns True only if all conditions are TRUE.

syntax = =AND(logical1, logical2).
=AND(5>3, 8>2) (True)

41) =IFERROR( ) → Returns a custom value if a formula gives an error, otherwise returns the actual result.

syntax =IFERROR(10/0, "ERROR").

42) =SUMIF( ) → Adds numbers that satisfy a given condition.

optional.

Syntax: =SUMIF(range, criteria, [sum range])

→ range = where condition is checked
→ criteria = Condition (">5", "A", etc).
→ sum range = values to add (optional).

e.g If A1:A5 = 1,2,3,4,5.
=SUMIF (A1:A5, ">2") greater than 2 are 3,4,5 = [12] Result

43) =COUNTIF( ) → Count cells that meet a condition.

e.g =COUNTIF(range, criteria).
=COUNTIF(A1:A5, ">2"). [3] no. of cells contain more than 3.

44) =AVERAGEIF( ) → Finds the average of values that meet a condition.

=AVERAGEIF(range, criteria, [average_range]).

{LOOKUP & REFERENCE}

45) =ROW( ) → Returns the row number of a reference.

e.g =ROW(reference)
=ROW(A5) ⑤

46) =COLUMN( ) → Returns the column number of a reference.

e.g =COLUMN(reference)
=COLUMN(C1) ③

47) =ROWS( ) → Counts the number of rows in a range.

e.g =ROWS(A1:A5) ⑤

48) =COLUMNS( ) → Counts the number of columns in range.

e.g =COLUMNS(A1:D1). ④

49) =LOOKUP( ) → Searches for a value in a range and returns a corresponding value.

Syntax

=LOOKUP(lookup_value, lookup_vector, result_vector)

e.g	A	B
	1	Apple
	2	Mango
	3	Banana

=LookUP(2, A1:A3, B1:B3) . Mango Result.

50) VLOOKUP( ) → Searches a value vertically (in column) and returns data from another column.

Syntax

=VLOOKUP(Lookup_value, table_array, col_index, [range_lookup).

USE "FALSE" for exact match

Date .....

e.g

A	B
1	Apple
2	Mango
3	Banana.

= VLOOKUP (2, A1:B3, 2, FALSE). Mango.

51) = HLOOKUP = Search a values horizontally (in rows) and returns data from another row.

Syntax :

=HLOOKUP (Look-up value, table_array, row-index, [range-look-up]).

e.g

A	B	C
1	2	3
Apple	Mango	Banana

=HLOOKUP(2, A1:C2, 2, FALSE) [Mango]

52) = HYPERLINK( ) → creates clickable link in Excel.

Syntax

= HYPERLINK ("URL", "Link Text").

= HYPERLINK ("https://tr.failyouf.online", "Website").

53) = PMT ( ) → calculates the loan payment amount per period. (like EMI) based on a constant interest rate and fixed number of payments.

Syntax = =PMT (rate, nper, pv, [fv], [type]).

rate = interest rate per period.

nper = Total number of payments.

pv = Present value (loan amount).

fv = Future value (optional, usually 0).

type = Payment timing (0 = end, 1 = beginning).

e.g Loan Amount = 100000, Interest rate = 10% per year

Monthly payment = ?, Loan Period = 5 years.

Spiral

rate of interest / by 12 to count it monthly

Loan Value

=PMT(10%/12, 5*12, 100000).

Time Per * 12 to count it monthly.

Negative sign money paid out.

54) =NPER( ) → calculates number of payment periods required to pay a loan or reach an investment goal.

Syntax =NPER(rate, pmt, pv, [FV], [type]).

55) =RATE( ) → calculates interest rate per period.

Syntax

=RATE(nper, pmt, pv, [fv], [type]).

56) =FV( ) → calculates values of an investment in the future based on regular payments and interest

Syntax

=FV(rate, nper, pmt, [pv], [type]).

57) =PV( ) → calculates the current value of future amount.

Syntax

=PV(rate, nper, pmt, [FV], [type]).