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| **Aim:**  Excel formulas helps us to perform the mathematical operations such as addition, subtraction, multiplication, division, and more complex calculations involving multiple cells or ranges of data. Functions in Excel are used for advanced data analysis tasks such as finding averages, sums, counts, percentages, logical operations and other statistical measures.  **Formulas and Functions:**   |  |  |  | | --- | --- | --- | |  | **A** | **B** | | 2 | Name | Sales | | 3 | Abel | 50000 | | 4 | Kocher | 200000 | | 5 | Larry | 100000 | | 6 | Steve | 500000 | | 7 | Mark | 20000 | | 8 | Smith | 55000 | | 9 | Harisson | 70000 | | 10 | Lucy | 80000 |   We apply the below formulas and functions to the above table.  **1. SUM()**  It is used to find the total of the selected range of cell values  Syntax:  =SUM(number1,[number2**],…)**  **Example:**  Place the cursor in the cell where we want to display the addition result and type the below:  =SUM(B3:B10)  **Output:**   |  |  | | --- | --- | | **Sum** | **1075000** |   2. **AVERAGE( )** It is used to find the average of the selected range of cell values. Syntax:  =AVERAGE (number1,[number2**],…)**  **Example:**  Place the cursor in the cell where we want to display the average and type the below:  =AVERAGE(B3:B10)  **Output:**   |  |  |  | | --- | --- | --- | | **Average** | **134375** |  |   3. **MAX()** It is used to find the maximum value among the selected range of cell values. Syntax:  =MAX (number1,[number2**],…)**  **Example:**  Place the cursor in the cell where we want to display the average and type the below:  =MAX (B3:B10)  **Output:**   |  |  | | --- | --- | | MIN | 500000 |   4. **MIN()**  It is used to find the minimum value among the selected range of cell values.  **Syntax:**  =MIN (number1,[number2**],…)**  **Example:**  =MIN (B3:B10)  **Output:**   |  |  | | --- | --- | | MIN | 20000 |   **5. COUNT()**   It counts the total number of cells in a range that contains a number. It does not include the cell, which is blank, and the ones that hold data in any other format apart from numeric.  **Syntax:**  =COUNT (number1,[number2**],…)**  **Example:**  =COUNT (B3:B10)  **Output:**   |  |  | | --- | --- | | Count | 8 |   **6. COUNTA()**  The COUNTA function counts the number of cells that are not empty in a range. Syntax: COUNTA(value1, [value2], ...)  **Example:**  =COUNTA (B3:B10)  Output:     |  |  | | --- | --- | | Count | 8 |    **7.** MODU**LUS()**The MOD() function works on returning the remainder when a particular number is divided by a divisor. **Example:**  Place the cursor in the cell where we want to display the mod value and type the below and drag the cell to copy the formula for all cells in a column.  =MOD(B3,3)  **OUTPUT:**   |  |  |  | | --- | --- | --- | | Name | Sales | Mod | | Abel | 50000 | 2 | | Kocher | 200000 | 2 | | Larry | 100000 | 1 | | Steve | 500000 | 2 | | Mark | 20000 | 2 | | Smith | 55000 | 1 | | Harisson | 70000 | 1 | | Lucy | 80000 | 2 |   8. **COUNTA()**  COUNTA() function counts cells containing any type of cell containing any type of information including the error values and empty text(“”).  **Example:**  Place the cursor in the cell where we want to display the result and type the following:  **=COUNTA(A3:A10)**    **OUTPUT:**   |  |  | | --- | --- | | COUNTA | 8 |    9. **POWER()**  The function “Power()” returns the result of a number raised to a certain power. **Example:**Place the cursor in the cell where we want to display the Power value and type the below formula and drag the cell to copy the formula for all cells in a column. **=POWERC3,3)**  **Output:**   |  |  |  |  | | --- | --- | --- | --- | | **Name** | **Sales** | **No.of**  **Products sold** | **Power** | | Abel | 50000 | 3 | 27 | | Kocher | 200000 | 4 | 64 | | Larry | 100000 | 2 | 8 | | Steve | 500000 | 1 | 1 | | Mark | 20000 | 5 | 125 | | Smith | 55000 | 3 | 27 | | Harisson | 70000 | 2 | 8 | | Lucy | 80000 | 7 | 343 |   10. CEILING()  The CEILING() function rounds a number up to its nearest multiple of significance.  **Syntax:**  CEILING(number, Significance)  **Example:** Place the cursor in the cell where we want to display the Power value and type the below formula and drag the cell to copy the formula for all cells in a column. =CEILING(B2,5)  **OUTPUT:**   |  |  |  | | --- | --- | --- | | Product | Price | Ceil | | Rice | 80.45 | 85 | | Salt | 30.45 | 35 | | Butter | 234.6 | 235 | | Ghee | 314.8 | 315 |   **11. FLOOR():**  Contrary to the Ceiling function, the floor function rounds a number down to the nearest multiple of significance.  **Syntax:**  FLOOR(number, Significance)  **Example:** Place the cursor in the cell where we want to display the Power value and type the below formula and drag the cell to copy the formula for all cells in a column. =FLOOR (B2,5)  **Output:**   |  |  |  | | --- | --- | --- | | Product | Price | Floor | | Rice | 80.45 | 80 | | Salt | 30.45 | 30 | | Butter | 234.6 | 230 | | Ghee | 314.8 | 310 |   12**. CONCATENATE()**  This function merges or joins several text strings into one text string.  **SYNTAX:**  This function merges or joins several text strings into one text string.  CONCATENATE(Text1,[Text2],[Text3])  **Example:** Place the cursor in the cell where we want to display the result and type the below drag the cell to copy the formula for all cells in a column. **=CONCATENATE(A2," ",C2)** OUTPUT:  |  |  |  | | --- | --- | --- | | String1 | String2 | Concatenate | | Hello | World | Hello World | | Excel | class | Excel class |   13. **LEN()** It returns the total number of characters in a string. So, it will count the overall characters, including spaces and special characters.Example:Place the cursor in the cell where we want to display the result and type the below formula and drag the cell to copy the formula for all cells in a column.=LEN(A1)Output:  |  |  | | --- | --- | | **Length** | **Result** | | Hello | 5 | | Today | 5 |     14. **Replace()** The REPLACE() function works on replacing the part of a text string with a different text string.Syntax:“=REPLACE(old\_text, start\_num, num\_chars, new\_text)”Here, start\_num refers to the index position you want to start replacing the characters with. Next, num\_chars indicate the number of characters you want to replace.Example:Place the cursor in the cell where we want to display the result and type the below=REPLACE(A2,,1,1,"B") **Output:**   |  |  | | --- | --- | | **Replace** | **Result** | | A101 | B101 | | A201 | B201 | | A301 | B301 |  **15. SUBSTITUTE()** It replaces the existing text with a new text in a text string.  **Syntax:**  The syntax is “=SUBSTITUTE(text, old\_text, new\_text, [instance\_num])”. Here, [instance\_num] refers to the index position of the present texts more than once. **Example:** Place the cursor in the cell where we want to display the result and type the below=SUBSTITUTE(A2,"I like","She likes")Output:  |  |  | | --- | --- | | Substitute | Result | | I like Excel | She likes Excel |   **16. LEFT, RIGHT, MID** The LEFT() function gives the number of characters from the start of a text string. Meanwhile, the MID() function returns the characters from the middle of a text string, given a starting position and length. Finally, the right() function returns the number of characters from the end of a text string.=LEFT(B2,5)Output:  |  |  | | --- | --- | | String | left | | Excel is fun to Learn | Excel |  =RIGHT(B2,5)Output:  |  |  | | --- | --- | | String | Right | | Excel is fun to Learn | Learn |  =MID(B2,7,6)Output:  |  |  | | --- | --- | | String | Middle | | Excel is fun to Learn | is fun |  17**. UPPER, LOWER, PROPER**The UPPER() function converts any text string to uppercase. In contrast, the LOWER() function converts any text string to lowercase. The PROPER() function converts any text string to proper case, i.e., the first letter in each word will be in uppercase, and all the other will be in lowercase.Examples:=UPPER(A2)Output:  |  |  | | --- | --- | | String | Result | | excel | EXCEL |  =LOWER(A2)Output:  |  |  | | --- | --- | | String | Result | | EXCEL | excel |  PROPER()=PROPER(A2)Output:  |  |  | | --- | --- | | String | Result | | excel | Excel |  18. Now()The NOW() function in Excel gives the current system date and time.Example:Place the cursor in the cell where we want to display the result and type the below=NOW()Output:  |  | | --- | | Now | | 16-07-2024 22:53 |  19. Today()The TODAY() function in Excel provides the current system date.Example:Place the cursor in the cell where we want to display the result and type the below=Today()  |  | | --- | | Result for Today() | | 16-07-2024 |  20. Year()The YEAR() function, as the name suggests, returns the year from a date value.Example:=YEAR(TODAY())  |  | | --- | | Result for Year() | | 2024 | |