1. What does the dollar($) sign do?

In Excel, the dollar sign ($) is used to create an absolute cell reference. An absolute cell reference does not change when the formula is copied or moved to another cell. This is particularly useful when you want to lock a specific cell reference so that it remains constant, regardless of where the formula is copied.

2. How to Change the Reference from Relative to Absolute (or Mixed)?

In Excel, you can change cell references from relative to absolute or mixed by adding dollar signs ($) in front of the column letter and/or row number. Here's how to do it both manually and using a keyboard shortcut:

Manually Changing the Reference

1. Select the cell containing the formula you want to change.
2. Click on the cell reference in the Formula Bar or directly in the cell.
3. Add dollar signs ($):
   - Absolute Reference: Place a `$` before the column letter and row number (e.g., change `A1` to `$A$1`).
   - Mixed Reference:
     - To lock the column: Place a `$` before the column letter (e.g., change `A1` to `$A1`).
     - To lock the row: Place a `$` before the row number (e.g., change `A1` to `A$1`).

Using Keyboard Shortcuts

Excel provides a convenient keyboard shortcut to toggle between relative, absolute, and mixed references:

1. Select the cell containing the formula you want to change.
2. Click on the cell reference in the Formula Bar or directly in the cell to place the cursor within or next to the reference you want to change.

3. Press `F4`:
   - First press: Changes the reference to absolute (e.g., `A1` to `$A$1`).
   - Second press: Changes to mixed reference with locked row (e.g., `$A$1` to `A$1`).
   - Third press: Changes to mixed reference with locked column (e.g., `A$1` to `$A1`).
   - Fourth press: Reverts back to relative reference (e.g., `$A1` to `A1`).

Example

Suppose you have a formula in cell B2: `=A1+1`

1. Absolute Reference:
   - Select B2 and press `F4` when the cursor is on `A1`.
   - The formula changes to `=$A$1+1`.
2. Mixed Reference (locking the row):
   - Press `F4` again.
   - The formula changes to `=A$1+1`.
3. Mixed Reference (locking the column):
   - Press `F4` again.
   - The formula changes to `=$A1+1`.
4. Relative Reference:
   - Press `F4` once more to return to `=A1+1`.

3. Explain the order of operations in excel?

Order of Operations in Excel (PEMDAS)

1. Parentheses ( )
   - Excel evaluates any expressions within parentheses first. This allows you to control the calculation order explicitly.
   - Example: In the formula `= (2 + 3) * 4`, Excel first adds 2 and 3 (inside the parentheses) to get 5, then multiplies the result by 4 to get 20.
2. Exponents (^)
   - After parentheses, Excel evaluates any exponents (powers or roots).

- Example: In the formula `= 2 ^ 3`, Excel calculates 2 raised to the power of 3, resulting in 8.
3. Multiplication (*) and Division (/)
     - These operations are performed next, from left to right. If both operations appear in the same expression, Excel processes them in the order they appear from left to right.
     - Example: In the formula `= 10 / 2 * 3`, Excel first divides 10 by 2 to get 5, then multiplies by 3 to get 15.
4. Addition (+) and Subtraction (-)
     - Finally, Excel performs addition and subtraction, also from left to right.
     - Example: In the formula `= 10 – 2 + 4`, Excel first subtracts 2 from 10 to get 8, then adds 4 to get 12.

Practical Examples

Example 1: Combining Operations

- Formula: `= 5 + 2 * 3`
- Evaluation:
    1. Multiplication: 2 * 3 = 6
    2. Addition: 5 + 6 = 11
- Result: 11

Example 2: Using Parentheses to Change the Order

- Formula: `= (5 + 2) * 3`
- Evaluation:
    1. Parentheses: 5 + 2 = 7
    2. Multiplication: 7 * 3 = 21
- Result: 21

Example 3: Including Exponents

- Formula: `= 2 + 3 ^ 2 * 4`
- Evaluation:
    1. Exponentiation: 3 ^ 2 = 9
    2. Multiplication: 9 * 4 = 36

3. Addition: 2 + 36 = 38
- Result: 38

Example 4: Complex Formula

- Formula: `= (8 / 2) ^ 2 + 5 * (3 - 1)`
- Evaluation:
    1. Parentheses: 8 / 2 = 4 and 3 - 1 = 2
    2. Exponentiation: 4 ^ 2 = 16
    3. Multiplication: 5 * 2 = 10
    4. Addition: 16 + 10 = 26
- Result: 26

4. What, according to you, are the top 5 functions in excel and write a basic syntax for any of two?

The top five functions in Excel, which are widely used due to their versatility and usefulness, are:

1. SUM
2. VLOOKUP
3. IF
4. AVERAGE
5. COUNTIF

1. SUM

The `SUM` function adds all the numbers in a range of cells.

Syntax: =SUM(number1, [number2], ...)

Example: =SUM(A1:A10)

2. VLOOKUP

The `VLOOKUP` function looks up a value in the first column of a range and returns a value in the same row from a specified column.

Syntax: =VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

Example: =VLOOKUP(A2, B2:D10, 3, FALSE)

This formula looks for the value in cell A2 within the range B2:D10 and returns the value from the third column of the range where the lookup value is found. The `FALSE` argument specifies an exact match.

3. IF

The `IF` function performs a logical test and returns one value if the condition is true and another value if it is false.

Syntax: =IF(logical_test, value_if_true, value_if_false)

Example: =IF(A1 > 10, "High", "Low")

This formula checks if the value in cell A1 is greater than 10. If true, it returns "High"; otherwise, it returns "Low".

4. AVERAGE

The `AVERAGE` function calculates the arithmetic mean of a group of numbers.

Syntax: =AVERAGE(number1, [number2], ...)

Example: =AVERAGE(B1:B10)

This formula calculates the average of the numbers in the range B1 to B10.

5. COUNTIF

The `COUNTIF` function counts the number of cells that meet a specified condition.

Syntax: =COUNTIF(range, criteria)

Example: =COUNTIF(A1:A10, ">5")

This formula counts the number of cells in the range A1 to A10 that contain values greater than 5.

Detailed Syntax for Two Functions

SUM

Syntax:=SUM(number1, [number2], ...)

- number1: The first number or range you want to add.
- number2: Optional. Additional numbers or ranges to add.

Example: =SUM(A1, A2, A3)

This formula sums the values in cells A1, A2, and A3.

IF

Syntax: =IF(logical_test, value_if_true, value_if_false)

- logical_test: The condition you want to test.
- value_if_true: The value to return if the condition is true.
- value_if_false: The value to return if the condition is false.

Example: =IF(B1 >= 50, "Pass", "Fail")

This formula checks if the value in cell B1 is greater than or equal to 50. If true, it returns "Pass"; otherwise, it returns "Fail".

These functions are powerful tools in Excel, enabling users to perform a wide range of calculations and data analysis tasks efficiently.

5. When would you use the subtotal function?

The `SUBTOTAL` function in Excel is particularly useful when you need to perform calculations on a range of data while ignoring other calculations, such as subtotals or grand totals, that might be present in the range. It allows you to apply various functions,

such as SUM, AVERAGE, COUNT, MAX, MIN, etc., to a filtered or subtotalled list without including the subtotal rows in the calculation. Here are some situations where you might use the `SUBTOTAL` function:

1. Working with Subtotalled Data

When you have a dataset that includes subtotals or groupings, such as sales data grouped by region or product category, you might use the `SUBTOTAL` function to calculate summary statistics for each group without including the subtotal rows in the calculation. This ensures that the subtotals themselves do not affect the summary statistics.

2. Filtering Data

When you apply filters to a dataset and want to calculate summary statistics for the visible (filtered) rows only, you can use the `SUBTOTAL` function. This allows you to perform calculations on the filtered data while excluding any rows that are hidden by the filter.

3. Creating Dynamic Summaries

When you need to create dynamic summaries or reports that automatically update when data changes, the `SUBTOTAL` function can be very helpful. By using `SUBTOTAL` with filtering or subtotalled data, you can create summaries that adjust automatically as the underlying data changes.

6. What is the syntax of the vlookup function? Explain the terms in it?

The `VLOOKUP` function in Excel is used to look up a value in the first column of a table or range and return a value in the same row from a specified column. It's commonly used for searching through large datasets to find specific information.

Syntax:

=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

Let's break down each term in the syntax:

1. lookup_value: This is the value you want to search for in the first column of the table or range. It can be a value, a reference, or a text string.
2. table_array: This is the table or range of cells where the data is stored. It should include the column that contains the value you want to return, as well as the column where you're searching for the lookup_value. The first column in the table_array is where Excel will search for the lookup_value.
3. col_index_num: This is the column number in the table_array from which to return the value. For example, if the value you want to return is in the third column of the table_array, you would specify 3 for col_index_num.
4. range_lookup (optional): This parameter determines whether the `VLOOKUP` function should perform an exact match or an approximate match:
   - If `range_lookup` is `TRUE` or omitted, `VLOOKUP` will perform an approximate match. In this case, the function searches for the closest match to the lookup_value that is less than or equal to the lookup_value. The values in the first column of table_array must be sorted in ascending order.
   - If `range_lookup` is `FALSE`, `VLOOKUP` will perform an exact match. In this case, the function searches for the exact value of the lookup_value. If an exact match is not found, `VLOOKUP` will return an error value (#N/A).