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

In Excel, the dollar sign ($) is used to create absolute cell references in formulas. Absolute references do not change when a formula is copied or filled to other cells. There are two types of absolute references: absolute column references and absolute row references.

Here's how the dollar sign ($) works:

**Absolute column reference:** If you want to keep the column reference constant while copying the formula across rows, you place a dollar sign ($) before the column letter. For example, if you have a formula that refers to cell A1 and you want to keep the column constant, you would use $A$1. When you copy this formula across columns, the column reference will not change.

**Absolute row reference:** If you want to keep the row reference constant while copying the formula across columns, you place a dollar sign ($) before the row number. For example, if you have a formula that refers to cell A1 and you want to keep the row constant, you would use $A$1. When you copy this formula down rows, the row reference will not change.

**Mixed reference:** You can also create mixed references by fixing either the row or the column. For example, $A1 is an absolute column reference (column A will not change), while A$1 is an absolute row reference (row 1 will not change).

Using dollar signs ($) in cell references allows you to control whether the reference should change (relative reference) or remain constant (absolute reference) when you copy or fill a formula across multiple cells.

**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 or removing dollar signs ($) from the cell reference in your formula. Here's how to do it:

**Select the cell containing the formula:** Click on the cell that contains the formula you want to modify.

**Edit the formula:** Either double-click on the cell or click in the formula bar to edit the formula directly.

**Add or remove dollar signs ($) as needed:**

To change a relative reference to an absolute reference, place a dollar sign ($) before the column letter and/or row number that you want to make absolute. For example, changing A1 to $A$1 makes both the column and row absolute.

To change a relative reference to a mixed reference, place a dollar sign ($) before either the column letter or the row number, depending on which part you want to make absolute. For example, changing A1 to $A1 makes the column absolute but keeps the row relative, while changing A1 to A$1 makes the row absolute but keeps the column relative.

To change an absolute reference to a relative reference, simply remove the dollar signs ($) from the column letter and/or row number.

**Press Enter** to apply the changes to the formula.

By adjusting the dollar signs ($) in your formula, you can control whether the reference remains constant (absolute) or adjusts relative to the position of the formula cell.

Top of Form

**3. Explain the order of operations in excel?**

In Excel, the order of operations determines the sequence in which mathematical and logical operations are performed in a formula. Excel follows the standard order of operations, also known as PEMDAS, which stands for Parentheses, Exponents, Multiplication and Division (from left to right), and Addition and Subtraction (from left to right). Here's a breakdown of each step:

**Parentheses:** Operations inside parentheses are calculated first. Excel evaluates expressions within parentheses before anything else.

**Exponents:** Excel calculates exponentiation operations next. For example, if a formula contains exponentiation (such as raising a number to a power), Excel performs these calculations after parentheses but before multiplication, division, addition, or subtraction.

**Multiplication and Division:** Excel performs multiplication and division operations from left to right. If a formula contains both multiplication (\*) and division (/) operators, Excel evaluates them in the order they appear from left to right.

**Addition and Subtraction:** Finally, Excel performs addition and subtraction operations from left to right. If a formula contains both addition (+) and subtraction (-) operators, Excel evaluates them in the order they appear from left to right.

Excel evaluates each operation in a formula according to this order, ensuring that calculations are performed accurately and consistently. It's essential to understand the order of operations to create correct formulas and avoid errors in your Excel spreadsheets.

Top of Form

**4. What, according to you, are the top 5 functions in excel and write a basic syntax**

The top 5 functions in Excel can vary depending on the specific needs of the user and the type of data being analysed. However, some commonly used functions that are highly versatile and frequently used include:

**SUM Function**: Adds up all the numbers in a range of cells. Syntax: **=SUM(number1, [number2], ...)**

**VLOOKUP Function**: Searches for a value in the first column of a table array and returns a value in the same row from another column you specify. Syntax: **=VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])**

**IF Function**: Checks whether a condition is met and returns one value if true and another value if false. Syntax: **=IF(logical\_test, [value\_if\_true], [value\_if\_false])**

**INDEX-MATCH Function:** Retrieves the value at a specified row and column intersection in a given range. Syntax: **=INDEX(array, row\_num, [column\_num])**, **=MATCH(lookup\_value, lookup\_array, [match\_type])**

**AVERAGE Function:** Calculates the average (arithmetic mean) of a range of numbers. Syntax: **=AVERAGE(number1, [number2], ...)**

These functions provide powerful capabilities for performing various calculations, data lookups, conditional operations, and statistical analysis in Excel.

**5. When would you use the subtotal function?**

The SUBTOTAL function in Excel is typically used to perform calculations on a filtered or subtotalled range of data. It allows users to apply various functions, such as SUM, AVERAGE, COUNT, MAX, MIN, etc., to a range that may contain hidden or filtered rows.

Here are some scenarios where you might use the SUBTOTAL function:

**Filtering Data:** When you have a dataset with hidden or filtered rows, and you want to perform calculations only on the visible rows.

**Grouped Data:** When you have grouped data in Excel and want to calculate subtotals for each group.

**Pivot Tables:** When working with pivot tables, you might want to calculate subtotals for specific fields or groups.

**Conditional Analysis:** When you need to perform calculations based on certain conditions or criteria in your dataset.

Overall, the SUBTOTAL function is useful for performing calculations on subsets of data, especially when dealing with large datasets or filtered views in Excel. It helps ensure that your calculations are accurate and reflect only the visible or relevant data.

**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 another column. The syntax of the **VLOOKUP** function is as follows:

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Here's an explanation of each term in the **VLOOKUP** function:

**lookup\_value**: This is the value you want to look up in the first column of the table or range.

**table\_array**: This is the table or range of cells where Excel should look for the **lookup\_value**. The **lookup\_value** must be in the first column of the **table\_array**.

**col\_index\_num**: This is the column number in the **table\_array** from which you want to return a value. For example, if you specify **col\_index\_num** as **2**, Excel will return a value from the second column of the **table\_array**.

**range\_lookup** (optional): This argument specifies whether you want an exact match or an approximate match when looking up the **lookup\_value** in the **table\_array**. If this argument is **TRUE** or omitted, Excel will look for an approximate match. If it's **FALSE**, Excel will look for an exact match. Note that if you use **TRUE** or omit this argument, the first column of the **table\_array** must be sorted in ascending order.

In summary, the **VLOOKUP** function searches for a value in the first column of a table or range and returns a value in the same row from another column. It's a useful function for looking up data in a table based on a given criteria.