

**Girls' High School & College, Prayagraj**  
**Worksheet No: 3**  
**Session: 2020-2021**  
**Class: 8. Section: A, B, C, D, E**  
**Subject: Computer**

**Instruction:** Parents please ensure that the student reads the content carefully to answer the questions below. They can also refer to any computer book (cl-8) for a detailed study of the chapter or they can refer to the internet.

Link: <https://youtu.be/bMwSVyCAQhE>

### **CHAPTER: SPREADSHEET - FORMULAS AND FUNCTIONS**

Formulas are the user defined instructions to perform calculations, whereas, functions are the pre-defined or in-built formulas that come with MS Excel. Example: SUM(), SQRT(), etc. A formula establishes a relationship between two or more cells. It is an expression that can include cell addresses, numbers, arithmetic operators, and parenthesis. Using it, we can perform simple as well as complex calculations.

To copy the formula from the above cell, press Ctrl + '(apostrophe).

Formula must begin with equal to (=) symbol followed by cell references and operators. It may contain a few or all the below mentioned elements:

1. **References:** A cell or a range of cells that you want to include in your calculation.
2. **Operators:** Symbols (+, -, \*, ^, %, \$, #, etc.) that specify the operation to be performed.
3. **Constants:** Numbers or text values that do not change.
4. **Functions:** Predefined formulas in MS-Excel.

**CREATING A BASIC FORMULA:** Basic formula involves only one type of operator in it.

Example: =B2+B3+B4+B5

in this formula only + operator is used.

**USING COMPOUND FORMULA:** Compound formulas are used when more than one operator is required to perform calculation.

Example: =P\*R\*T/100

in this formula more than one operator is used. So this is known as Compound formula.

**NOTE:**

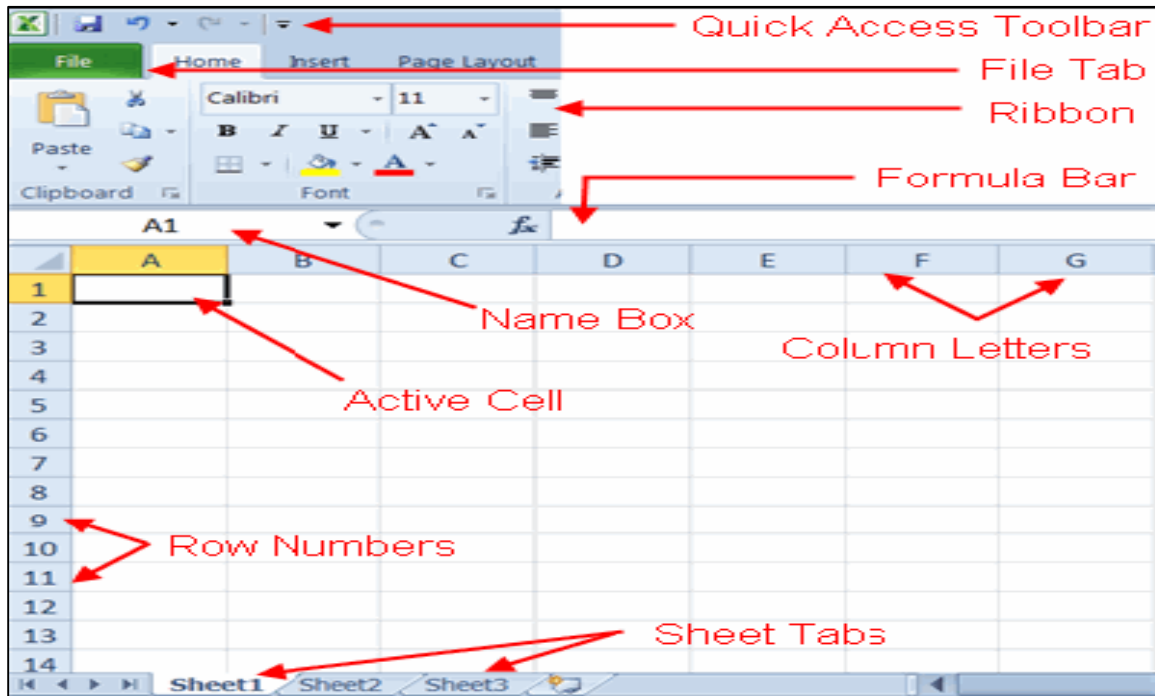
Microsoft Excel follows the BEDMAS rule to evaluate the mathematical expression. Excel uses this method automatically when a formula contains more than one operator.

**USING FORMULA ON TEXT:**

We can also perform addition on character and string data type. The (&) ampersand symbol is used to perform addition. Addition of two or more text values is called Concatenation.

Example:

- Enter any string type value in cell A1 and B1, e.g., write "kips" in A1 and "India" in B1.
- Enter the formula =A1&B1 in cell C1 and press the Enter key.
- It will display kipsIndia in cell C1.



**Components of Excel Window**

### **CELL RANGE:**

A range is a group of contiguous cells, which form the shape of a rectangle. It can be a group of two cells or as big as an entire worksheet. You can specify a range by writing the starting cell address followed by the ending cell address, both separated by a colon (:).

For example, C1:C10

### **SELECTING A RANGE:**

- Click on the first cell in the range and while holding down the left mouse button, drag it to the last cell.

OR

- Click on the first cell and hold down the Shift key while you press the arrow keys to extend the selection.

OR

- Select the first cell in the range and then press F8 to extend the selection by using the arrow keys.

To stop extending the selection, press F8 again.

### **USING A RANGE IN FORMULA:**

- Type the complete data on worksheet. For adding values use SUM() formula.  
Example: =SUM(B2:B7)
- Press Enter key.

### **NAMING A RANGE:**

To define a name for a range:

- Select the range of cells that you want to name. Let us say **B2:B7**
- On the Formulas tab, in the Define Names group, click on Define Name.
- The New Name dialog box appears.
- In the Name field, enter the name that you want to specify for the range, say 'Units\_Sold'.
- In the Scope combo box, specify the availability of the range name by choosing "Workbook", if you want this name to be known to all the sheets in the work book. If you want to limit the scope of the name to a particular worksheet only, then select the name of that worksheet.
- Write some text in the Comment section.
- Click on OK button.

### **USING A NAMED RANGE:**

Let us use the above created name 'Units\_Sold' in calculating the value for total sale:

- Type the complete data on worksheet.
- Click on the cell below data to get the total sale.
- Type the formula '=Sum( '
- Now click on the drop down arrow of the Use in formula option in the Define Names group on the Formulas tab and select the name 'Units\_Sold' from the displayed list.
- The name gets pasted in the **formula**. Now type the closing bracket to complete the formula definition. The formula would look like =Sum(Units\_Sold)
- Press Enter key to get the result in the cell.

**Note:** Range names are not case sensitive.

### **CELL REFERENCE AND ITS TYPES:**

The cell address that we use in the formula is known as the cell reference. For example, A1 where A denotes the Column name and 1 denotes the Row number.

There are three types of cell references:

#### **1. RELATIVE REFERENCE:**

When you create a formula, references to a cell or ranges are usually based on the position relative to the cell. When you copy or move the formula to other cells, the reference to the cell automatically gets changed. For example ,the formula in A3=A1+A2.When you copy the formula from A3 to B3, Excel automatically changes the reference to match the location of the cells, i.e., B1 in place of A1 and B2 in place of A2.

## **2. ABSOLUTE REFERENCE:**

Absolute reference is used when we do not want to change the address of the cell while copying the formula to another cell. To use absolute reference in a cell, you need to add dollar (\$) sign before the column and row number. For example = $\$A\$1+\$A\$2$ .

## **3. MIXED REFERENCE:**

It is a combination of Relative and Absolute reference. In this type of reference, either row or column has to remain fixed.  $\$A1+A\$2$  is an example of Mixed Reference.

## **CIRCULAR REFERENCE:**

A circular reference occurs when a formula in a cell refers to its own cell value directly or indirectly. For example, if you enter the formula = $A1+A2*3$  in cell A2, you are making the formula to refer to its own cell value, which is not possible. A warning will be displayed in such case. As soon as you click on the OK button of the warning dialog box, 0 will be returned in the cell containing formula. The Status bar will also notify you that circular reference is found in the workbook and will display the cell address.

## **EXERCISE**

### **1. FILL IN THE BLANKS:**

1. Formulas are used to perform.....
2. The cell address in a formula is also called.....
3. The cell address in a formula that doesn't change on copying, is considered as.....
4. The ..... character is used for concatenation of strings.

### **2. STATE TRUE OR FALSE:**

1. Formula must begin with the question mark(?).
2. A range can be used in a formula.
3. We can perform addition on character and string data type.
4. Basic formula involves only one type of operator in it.

### **3. MULTIPLE CHOICE QUESTIONS:**

1. Which of the given cell references can be used in a Relative Reference?
  - a.  $\$D6$
  - b. A3
  - c.  $A\$1$
2. In Absolute Referencing, .....sign is used before the cell co-ordinates.
  - a. \$
  - b. #
  - c. &

3. Microsoft Excel follows the.....rule to evaluate the mathematical expression.
  - a. BEDMAS
  - b. BODMAS
  - c. BITMAS
4. To copy the formula from the above cell, press.....
  - a. Ctrl + '(apostrophe)
  - b. Ctrl +S
  - c. Shift +N

#### **4. ANSWER THE FOLLOWING QUESTIONS**

1. What are formulas in MS Excel?
2. Name any two in-built formulas of MS Excel.
3. Define Basic formula.
4. What are functions in MS Excel?
5. What is a Cell Range?
6. What do you know about Absolute Reference?
7. What is Circular Reference?
8. Define Cell Reference and its types in short.
9. Write any method to select a range of data in MS Excel.
10. Draw MS Excel window and show its components.

**END**