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# FORMULAS, FUNCTIONS AND CHART

- **Formula**: It is a mathematical calculation on a set of cells.



The "order of operations" determines in which order the mathematical operations are carried out
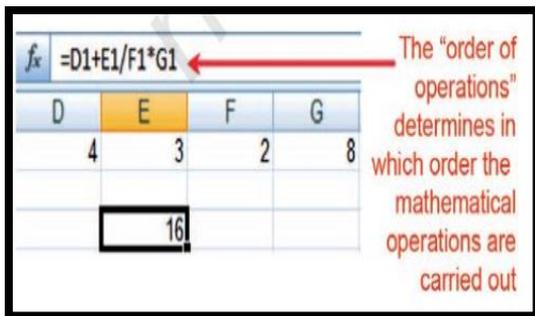
- The formula is shown only when the cell is selected by "clicking".
- **BEDMAS** rule to be followed for calculations.
- A spreadsheet without any formulas is a collection of data which are arranged in rows and columns (a database) like a calendar, timetable or simple list, etc.



- **Functions**: Functions are more complex formulas that are executed by using the name of a function and stating whatever parameters the function requires
- A function involves 4 main issues.

- ✓ Name of the function
- ✓ The purpose of the function
- ✓ The function needs what argument in order to carry its assignment

| Function | Defined |
|----------|---------|
| =Sum() | Returns the Sum of the selected cells |
| =Average() | Returns the Average of the selected cells |
| =Max() | Returns the Highest value of the selected cells |
| =Min() | Returns the Lowest value of the selected cells |
| =Count() | Returns the number of values of the selected cells |

- **Auto Sum:** The sum of cells can also be done using Auto Sum feature.
  - ✓ Click on cell for which sum has to be done
  - ✓ Select the Formula tab→Click AutoSum from the function library group→Select Sum→Press Enter

- **Date and Time Function:**
  - ✓ TODAY () – It is the function for today's date in the blank worksheet. It returns the serial number of the current date.

"Books".

✓ NOW () - It is similar function but it includes the current time also.

✓ DAY (serial_number) - This function returns the day of a date as an integer

✓ MONTH (serial_number) – It returns month of a date as an integer ranging from 1 (January) to 12(December).

✓ YEAR (serial_number) - Returns the year corresponding to a date as an integer ranging from 1900 – 9999.

- **Mathematical Function:**
✓ SUMIF() – It is the function which adds the cells as per given specified criteria. The syntax

✓ SUMIF(range,criteria,sum_range)- Where

✓ **Range** it is the range of cells to evaluate.

✓ **Criteria** it is the criteria in the form of a number, expression, or text that defines which cells will be added.



e.g. criteria can be expressed 1500, "1500", ">1500" or

**Sum_range** are the actual cells to sum.

Ex: There are sum Asset Values (D2:D5) and related to each asset values there are deprecation values (E2:E5). Using SUMIF function we have to calculate the sum of depreciation for those Asset Values which are more than 1, 70,000/-.
The function is written in the cell E7 like =SUMIF (D2:E5,">150000, E2:E5) which gives result 63,000/-

**Charts:** Charts allows you to present data entered into the worksheet in a visual format using variety of graph types.

- **Chart** consists of chart title, x- axis title, y-axis title, x-axis category, y-axis value, data labels, legends, tick mark and grid lines.
✓ Chart Title: A title given to the whole chart.
✓ X-axis Title: A title given to the X-axis data range.
✓ Y-axis Title: A title given to the Y-axis data range.
✓ X-axis Category: These are the categories of the data which have been plotted. These are taken from the first row or the first column.
✓ Y-axis Value: This is the data range marked to plot the data series.
✓ Data Labels: The vales of the data series plotted.

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- Legends: Specifies the colour, symbol or pattern used to mark data series.
- Tick Mark: These marks are used to show the scaling of X-axis & Y-axis.
- Grid Lines: It displays lines at the major intervals on the category.

- **How to draw Chart?**
  - Enter data to the worksheet
  - Select data range using mouse or through keyboard
  - Click Insert Tab & select a chart type
  - Select the sub-type of chart
  - Select title of the chart
  - Provide a name to X-axis. Click on Layout Tab

- **Graphics**: Auto shapes & Smart Art
  - Click on **Insert** Tab→ From the **Illustrations Group**→Click on **shapes**
  - Different categories of Auto shapes are available such as Lines, Connectors, Basic shapes, Block arrows, Flow chart, Stars & Banners and Call Outs.
  - Adding Clip Art: Click on **Insert** Tab→ Select **Clip art** from **Illustrations Group**→ Choose a **clip**

**CHECK YOURSELF**

1. Which field in the Excel window allows and formulas to be entered?

A. Formula bar     B. Title bar

C. Menu bar      D. Standard tool bar

2. In Excel, formula begins with which symbol

A. +     B. @     C. (   D. %

3. What would be a correct formula for SUM () in Excel?

A. = SUM(B3:B9)    B. SUM=B3+B9

C. SUM(B3:B9)     D. =ADD(B3:B9)

4.



In this image, which could you use to subtract inventory costs from the monthly budget:

A. =B3-B2        C. =SUM(B3:B2)

B. =B3/B2        D. B2-B3

5. Which of the following option is a formula?

A. =SUM(A1:A5)      B. ADD A1+ A5

C. Subtract the numbers from A1 to A5

D.   A1 = A5

## STRETCH YOURSELF
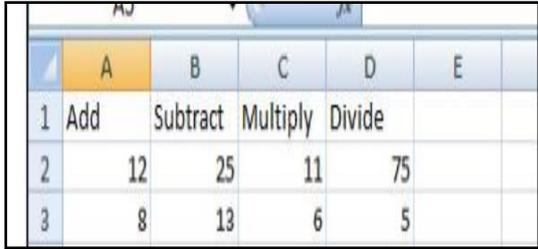


| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Add | Subtract | Multiply | Divide | |
| 2 | 12 | 25 | 11 | 75 | |
| 3 | 8 | 13 | 6 | 5 | |

1. From the above figure do the addition, subtraction, multiplication and division and write the result in subsequent cells.
2. How to create Named Ranges?
3. Insert a clip art to your sheet.

4. How a column chart different from a Bar chart?

5. What do you mean by relative cell address?

## ANSWERS

Check Yourself:

1. A   2. C   3. A   4.C   5. D

6. A   7.A       8. B   9. A   10. B

Stretch Yourself: (Hint)

1. Take cell values where figures has given
2. Select the area to which you intend to give a name

   From Ribbon, select Formulas

   Click on Define Name from Defined Names group

   Give any name of your choice