Simplification

A numerical expression is formed by the combination of numbers, including various mathematical operators. There is no limit to the number of operators that a numerical expression may contain. Some numerical expressions use only one operator between two numbers, whereas some may contain more than one.

The only requirements for a numerical expression are that it only contains numbers and operation symbols. Some numerical expressions have only one operation symbol. Others have two or more.

Here are Some Examples of Numerical Expressions

24 + 3, 23 × 4 + 6, 12 + 5 - 3

To simplify a numerical expression that has two or more operations, we perform the **BODMAS** rule. In this rule, we have to solve operations like Brackets of Division first, followed by Multiplication, Addition and then Subtraction.

A standard result called BODMAS is followed for simplification of these operations.

The word BODMAS stands for:

 $B \rightarrow Brackets$

 $0 \rightarrow 0f$

 $D \rightarrow Division$

 $M \rightarrow Multiplication$

 $A \rightarrow Addition$

 $S \rightarrow Subtraction$

If the brackets are present in the problem, first, we have to simplify the brackets.

Let us understand with some examples:

Example 1: 10 + 7 - (8 ÷ 2) × 3.

Solution: First, we will solve the round bracket, in bracket $8 \div 2 = 4$

Now we write 4 in place of $8 \div 2$

 $= 10 + 7 - 4 \times 3$

After this we have three operations +, -, ×, as per BODMAS rule. We do multiplication first. So, $4 \times 3 = 12$

= 17 – 12 = 5

Hence the final value is 5.

Example 2: Find the Value of $15 + 20 - 8 + (6 \div 2)$.

Solution: First, remove the round bracket, $6 \div 2 = 3$

= 35 - 8 + 3

= 38 - 8

= 30

Hence the final value is 30.