Important Tips and Clues to Solve Simplification Problems in Aptitude Section

1). **Simplification** means simplify a large, complex numerical expressions into a simple form by performing various mathematical operations

2).For this **BODMAS rule** is used and also in the correct sequence to find out the value of the given expression

3).In simplifying an expression the following steps are carried out

- 1st Step – **B** stands for **brackets** and operations of brackets in the following order
  - a) ( )
  - b) { }
  - c) [ ]
- 2nd Step – **O** stands for **of** which denotes multiplication
- 3rd Step – **D** stands for **Division**
- 4th Step – **M** stands for **Multiplication** (×)
- 5th Step – **A** stands for **Addition**
- 6th Step – **S** stands for **Subtraction**

4). If a **square root** or **cube root** is present in the equation then they are simplified 1st and then the rule is used

5). The **BODMAS rule is always fixed** and absence of any operations namely **+, -, ×, ÷** does not change the order of the rule

6).In these type of questions an unknown value will be present in the expression which can be calculated by simplifying the expression

QUESTION 1:

(330 ÷ 15) × (16 − 11) − (37 + 13) = ?

- Here y is the value to be calculated
- Going by the BODMAS rule we should 1st remove the brackets by performing the arithmetic operations within the brackets

(22) × (5) − (50) = ?

i.e., **22 × 5** − 50 = ?

- Now the multiplication part of the expression should be carried out followed by the subtraction as per the rule

110 − 50 = ?

Therefore, **? = 60**

QUESTION 2:

36% of 245 − 40% of 210 = 10 − ?

- Of denotes multiplication

36% × 245 − 40% × 210 = 10 − ?

0.36 × 245 − 0.4 × 210 = 10 − ?

This can be considered as

36 × 245 − 4 × 210 = 10 − ?

8820 − 840 = 10 − ?

- Now a decimal point is placed in the products as per the number that were multiplied

- In 8820 the decimal point is placed after 2 places as in 0.36 = **88.2**

- In 840 the decimal point is placed after 1 place as in 0.4 = **84**

So we get the following expression

88.2 – 84 = 10 – ?

4.2 = 10 – ?

? = 10 – 4.2

? = 5.8

QUESTION 3:

$9^3 \times 81^2 \div 27^3 = 3^?$

- Taking L. C. M of the numbers on the left hand side of the expression

$(3^2)^3 \times (3^4)^2 \div (3^3)^3 = 3^?$

- As per the **Laws of Indices: $(a^m)^n = a^{m \times n}$**

So, $3^6 \times 3^8 \div 3^9 = 3^?$

- Now consider the division part as per BODMAS, where Indices law should be used i.e., $a^m \div a^n = a^{m-n}$ and $a^m \times a^n = a^{m+n}$

$3^6 \times 3^{8-9} = 3^?$

$3^6 \times 3^{-1} = 3^?$

$3^{6-1} = 3^?$

$3^5 = 3^?$

Therefore, **? = 5**

QUESTION 4:

$572 \div 26 \times 12 - 200 = 2^?$

- Here the given numbers are not perfect squares or cubes of 2
- So we have to apply the BODMAS rule

$22 \times 12 - 200 = 2^?$

$264 - 200 = 2^?$

$64 = 2^?$

$2^6 = 2^?$

Therefore, **? = 6**

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