Topic: BASIC OPERATIONS ON WHOLE NUMBERS III

Sub-topic: BIDMAS RULE

• JSS 1 •

Mathematics

Objective

By the end of this lesson, students should be able to;

- Apply the BIDMAS (BODMAS) Rule to solve problems with mixed operations.
- Identify and Solve word problems involving mixed operations.

MIXED OPERATIONS

Mixed or Combined Operations are mathematical problems that involves two or more mathematical operations in the equation. For example, 2 + 7 x 8 ÷ 4 is a mathematical problem that has three mathematical operations (Addition, Multiplication and Division) there for the above mathematical problem is a Mixed Operation.

Note:

In solving a mathematical problem involving mixed operations, you need to apply the BIDMAS or BODMAS RULE.

BIDMAS RULE

The BIDMAS RULE is simply the order in which you work out a parts of an equation to give you the correct answer i.e. It is used to tell the correct order to complete an equation with different mathematical operations.

- BIDMAS is an acronym for Brackets, Indices, Division, Multiplication, Addition, Subtraction

BIDMAS

- **Brackets:** ( ) refers to any part of the equation that is in brackets. These should always be completed first in an equation.
- **Indices:** this simply means the power of e.g. 3^2, 4^2
- **Division and Multiplication:** starting from the left work these out in the order they appear in the equation. If multiplication appears first you should complete this before division.

BIDMAS

- Addition and Subtraction: also start from left work these out in the order they appear in the equation. If subtraction appears before addition, you should complete this first.
- It can be helpful to write ‘BIDMAS’ in the margin of your paper and use it as a check list.

EXAMPLES

1. What is 4 + 2 x 3?

Solution

If you calculate the 4 + 2 part first you get:

4 + 2 x 3 = 6 x 3 = 18

Similarly, if you calculate the 2 x 3 part first you get:

4 + 2 x 3 = 4 + 6 = 10

These are two different answers, but only one is correct.

In BIDMAS, Multiplication comes first before addition, so multiply 2 x 3 first:

4 + 2 x 3 = 4 + 6 = 10, so this is the right answer.

EXAMPLES

2. Solve 4 x 5 – 3 x 2

Solution:

In BIDMAS, multiplication comes before subtraction, so work out the multiplication first and the do the subtraction:

4 x 5 – 3 x 2 = 20 x 6 = 14

3. Solve (2 + 3) x (5 – 1)

Solution:

Brackets comes first, so:

(2 + 3) x (5 – 1) = 5 x 4 = 20

EXAMPLES

4. $32 - 5 \times 2^2$

Solution:

In BIDMAS, we solve the indices first (2^2), so we solve the indices first:

$32 - 5 \times 2^2 = 8 - 5 \times 4$

then the multiplication follows

$32 - 5 \times 4 = 32 - 20 = 12$

LETS SOLVE TOGETHER

Solve 2 + 3 x 5 – 4 = ?

LETS SOLVE TOGETHER

What is the value of 3 + (12 ÷ 3) x 4 = ?

WORD PROBLEMS INVOLVING MIXED OPERATIONS

- When dealing with word problems treat each statement as an operation.
- Secondly, identify the operation for each statement. Then combine the entire operation (statement) as one.

Example

1. Dele purchased 50 pencils at 4 naira each and 20 pens at 7 naira each.

How much did Dele spend altogether?

Solution:

1st Statement: Dele purchased 50 pencils at 4 naira i.e. 50 x 4

2nd Statement: 20 pens at 7 naira each i.e. 20 x 7

3rd Statement: How much did he spend altogether i.e. (50 x 4) + (20 x 7)

EVALUATION

1. Workout the Value of the following;

a. $30 \div 5 + 4 \times 2 + 14$

b. $4 \times 5 - 3 \times 2$

c. $(2 + 3) \times (5 - 1)$

d. $2 + 6 \div 2$

e. $8 - (6 - 1)$

f. $3 \times (4 + 2)$

g. $8 + 5^2 - 9$

h. $(6 \times 5) \div (10 - 7)$

i. $7 - 4 + 6 - 2$

2. Musa had 900 naira and spends a third of it on buying a shirt, he later spent another 150 naira on buying a cap. He was given 75 naira by his friend Obi. How much does musa currently have?

– Thank You –