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CLASS : V

SUBJECT : MATHEMATICS

CHAPTER NUMBER: 12

CHAPTER NAME : SIMPLIFICATION : BODMAS

SUB-TOPIC : ORDER OF OPERATION: DMAS

EXERCISE 12 A

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SIMPLIFICATION

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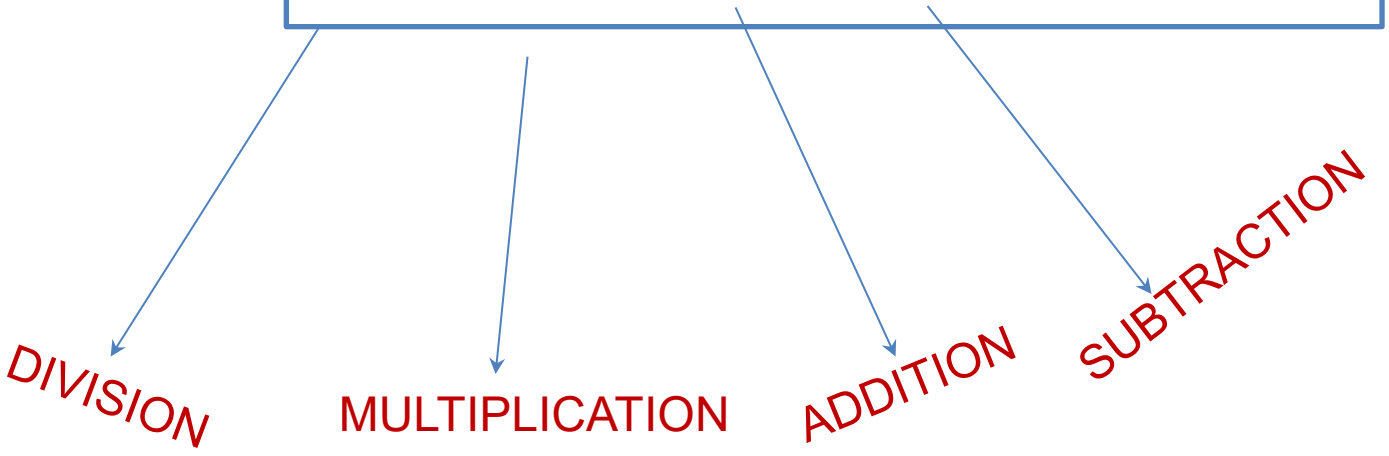
The act of organizing objects according to the operations.

THE ORDER OF OPERATIONS IN MATHS:

D M A S



DMAS helps us to solve calculations involving more than one operations.

D M A S

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Ex:1 $8 + \underline{6 \div 2}$

↓

$= 8 + 3 = 11$

Ex. 2. $14 + 24 \div 8 \times 20 - 60$

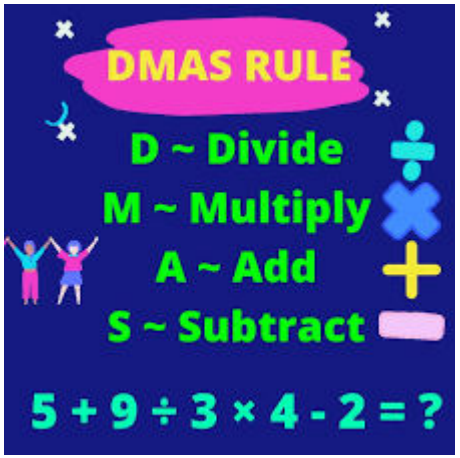
$14 + 24 \div 8 \times 20 - 60$ **(divide)**

$= 14 + 3 \times 20 - 60$ **(multiply)**

$= 14 + 60 - 60$ **(add)**

$= 74 - 60$ **(subtract)**

$=14$ Ans



EXERCISE- 12 A

SIMPLIFY

1. $48 \div 6 + 7$

$= 8 + 7$

$= 15$

2. $72 \div 12 - 6 + 4$

$= 6 - 6 + 4$

$= 4$

3. $18 \div 2 \times 14 + 15$

$= 9 \times 14 + 15$

$= 126 + 15$

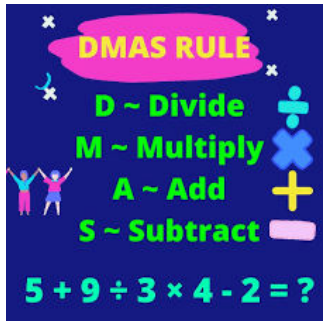
$= 141$

4. $26 + 6 \times 56 \div 8$

$= 26 + 6 \times 7$

$= 26 + 42$

$= 68$



EXERCISE- 12 A

SIMPLIFY

5. $112 \div 7 \times 5 - 35$

$= 16 \times 5 - 35$

$= 80 - 35$

$= 45$

7. $64 + 7 + 26 \div 13 - 39$

$= 64 + 7 + 2 - 39$

$= 73 - 39$

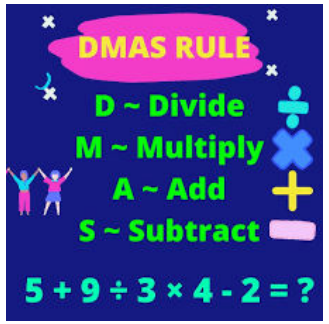
$= 34$

6. $28 \times 6 \div 3 - 36$

$= 28 \times 2 - 36$

$= 56 - 36$

$= 20$



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Students are able to:

Calculate through organizing operations.

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EXERCISE 12 B

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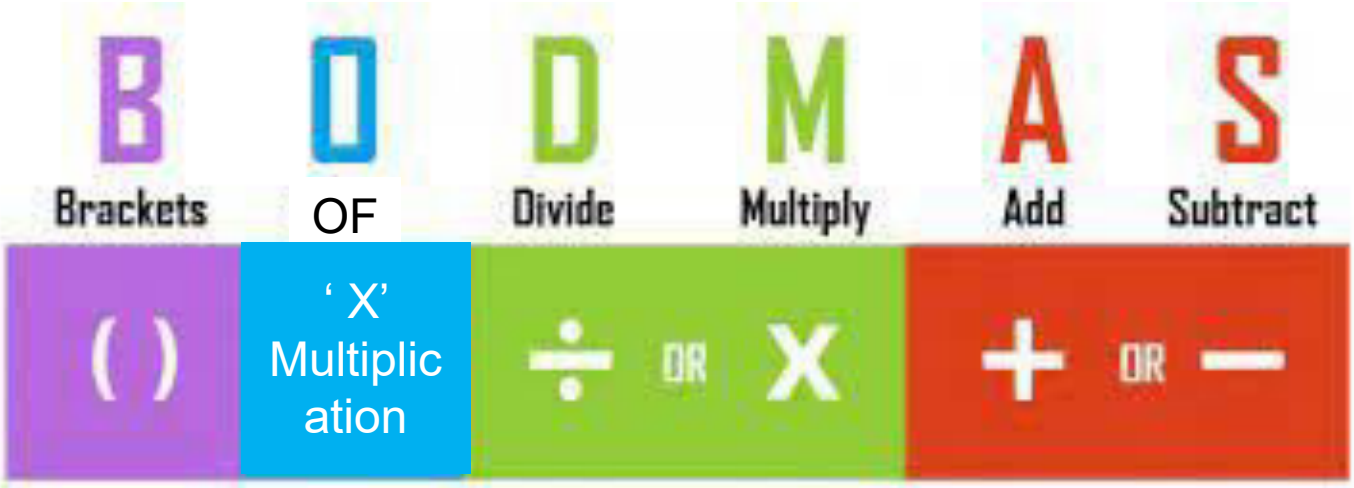
ORDER OF OPERATION



If the word ‘OF’ is used in any expression it means we have to do the multiplication.

TYPES OF BRACKET

1. Bar bracket ———
2. Common bracket / Parentheses ( )
3. Curly bracket { }
4. Square bracket [ ]

Expression given within the bracket must be simplified first.

Rules to be followed

- 1st Remove the brackets by simplifying all the operations inside it.
- 2nd Perform operations involving 'OF'
- 3rd Follow D M A S rule.

Example: $25 - (19 + 8) \div \frac{1}{3}$ of 18

$= 25 - 27 \div \frac{1}{3}$ of 18 (bracket)

$= 25 - 27 \div 6$ (Of)

$= 25 - \frac{9}{2} = \frac{50 - 9}{2}$ (Divide)

(subtract)

$= \frac{41}{2}$

Rough

$\frac{1}{3} \times 18 = 6$

$\frac{27}{6} = \frac{9}{2}$

EXAMPLE: $92 \div [\ 18 + 4\{\ 6 + (\ 12 - 10 + 1\ )\ \}\ ]$

(Bar bracket 10 + 1 = 11)

$= 92 \div [\ 18 + 4\{\ 6 + (\ 12 - 11)\ \}\ ]$

(Common bracket 12 - 11 =1)

$= 92 \div [\ 18 + 4\{\ 6 + 1\ \}\ ]$

(Curly bracket 6 +1 = 7)

$= 92 \div [\ 18 + 4 \times 7\ ]$

Square bracket 18 + 4 x 7 = 18 + 28= 46

$= 92 \div 46$

=2

SIMPLIFICATION : BODMAS

EXERCISE 12 B

1. $8\frac{3}{5} - \left(6\frac{1}{2} - 4\frac{1}{4} - 3\frac{3}{4}\right)$

$= \frac{43}{5} - \left(\frac{13}{2} - \frac{17}{4} - \frac{15}{4}\right)$

$= \frac{43}{5} - \left(\frac{13}{2} - \frac{2}{4}\right)$

$= \frac{43}{5} - \left(\frac{26-2}{4}\right)$

$= \frac{43}{5} - \frac{24}{4}^{6} = \frac{43}{5} - 6$

$= \frac{43-30}{5} = \frac{13}{5} = 2\frac{3}{5}$

SIMPLIFICATION : BODMAS

EXERCISE 12 B

2. $17\frac{1}{3} \div \{6\frac{2}{11} - (4 - 2\overline{\frac{3}{11} - 1})\}$

$= \frac{52}{3} \div \{\frac{68}{11} - (4 - \overline{\frac{25}{11} - 1})\}$

$= \frac{52}{3} \div \{\frac{68}{11} - (4 - \frac{14}{11})\}$

$= \frac{52}{3} \div \{\frac{68}{11} - (\frac{44 - 14}{11})\}$ $= \frac{52}{3} \div \{\frac{68}{11} - \frac{30}{11}\}$

$= \frac{50}{3} \div \frac{38}{11}$ $= \frac{\cancel{52}^{26}}{\cancel{3}} \times \frac{11}{\cancel{38}_{19}}$

$= \frac{26 \times 11}{3 \times 19}$ $= \frac{286}{57}$ $= \mathbf{5\frac{1}{57}}$

SIMPLIFICATION : BODMAS

EXERCISE 12 B

3. $3.2 \div \{ 1.8 + (3 \div 1.5 + 0.6 - 0.4) \}$

$= 3.2 \div \{ 1.8 + (3 \div 1.5 + 0.2) \}$

$= 3.2 \div \{ 1.8 + (3 \overset{2}{\div} 1.5 + 0.2) \}$

$= 3.2 \div \{ 1.8 + (2 + 0.2) \}$

$= 3.2 \div \{ 1.8 + 2.2 \}$

$= 3.2 \div 4 \quad = 0.8$

EXERCISE 12 B

4. $8\frac{1}{4} + [\,4\frac{1}{2} + \{\,8\frac{1}{3} - (\,3\frac{1}{2} - \overline{6\frac{3}{4} - 5\frac{1}{2}}\,)\,\}\,]$

$= \frac{33}{4} + [\,\frac{9}{2} + \{\frac{25}{3} - (\frac{7}{2} - \overline{\frac{27}{4} - \frac{11}{2}})\,\}\,]$

$= \frac{33}{4} + [\,\frac{9}{2} + \{\frac{25}{3} - (\frac{7}{2} - \frac{27-22}{4})\,\}\,]$

$= \frac{33}{4} + [\,\frac{9}{2} + \{\frac{25}{3} - (\frac{7}{2} - \frac{5}{4})\,\}\,]$

$= \frac{33}{4} + [\,\frac{9}{2} + \{\frac{25}{3} - (\frac{14-5}{4})\,\}\,]$

$= \frac{33}{4} + [\,\frac{9}{2} + \{\frac{25}{3} - \frac{9}{4}\,\}\,]$

EXERCISE 12 B

$$= \frac{33}{4} + \left[\frac{9}{2} + \left\{ \frac{100 - 27}{12} \right\} \right]$$

$$= \frac{33}{4} + \left[\frac{9}{2} + \frac{73}{12} \right]$$

$$= \frac{33}{4} + \left[\frac{54+73}{12} \right]$$

$$= \frac{33}{4} + \frac{127}{12}$$

$$= \frac{99+127}{12} = \frac{226}{12} = 18\frac{5}{6}$$

11
2
6

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5. $5\frac{3}{8} - [3\frac{3}{5} - \{1\frac{3}{8} - (\frac{3}{4} - \overline{\frac{1}{2} - \frac{1}{4}})\}]$

$= 5\frac{3}{8} - [3\frac{3}{5} - \{1\frac{3}{8} - (\frac{3}{4} - \frac{1}{4})\}]$

$= 5\frac{3}{8} - [3\frac{3}{5} - \{1\frac{3}{8} - \frac{2}{4}\}]$

$= 5\frac{3}{8} - [3\frac{3}{5} - \frac{7}{8}]$

$= 5\frac{3}{8} - [\frac{18}{5} - \frac{7}{8}]$

$= 5\frac{3}{8} - [\frac{18 \times 8 - 7 \times 5}{40}] = 5\frac{3}{8} + [\frac{144 - 35}{40}]$

$= 5\frac{3}{8} - \frac{109}{40} = \frac{43}{8} + \frac{109}{40} = \frac{43 \times 5 - 109}{40}$

$= \frac{215 - 109}{40} = \frac{106 \div 2}{40 \div 2} = \frac{53}{20} = \mathbf{2\frac{13}{20}}$

EXERCISE 12 B

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7. $7.2 + [\ 0.2 \text{ of } 10 - \{\ 0.6 \div 0.3 - 0.8 - 0.6\ \}\ ]$

$= 7.2 + [\ 0.2 \text{ of } 10 - \{\ 0.6 \div 0.3 - 0.2\ \}\ ]$

$= 7.2 + [\ 0.2 \text{ of } 10 - \{\ \frac{0.6}{0.3} - 0.2\ \}\ ]$

$= 7.2 + [\ 0.2 \text{ of } 10 - \{\ 2 - 0.2\ \}\ ]$

$= 7.2 + [\ 0.2 \text{ of } 10 - 1.8\ ]$

$= 7.2 + [\ 0.2 \times 10 - 1.8\ ]$

$= 7.2 + [\ 2 - 1.8\ ]$

$= 7.2 + 0.2$

$= \mathbf{7.4}$

- Complete exercise 12 B Q. 10 in the note book.

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