Examples of BODMAS

BRACKETS
OF
{ **D**IVISION
MULTIPLICATION
{ **A**DDITION
SUBTRACTION

When solving problems that involve ***brackets, of*** (eg. $\frac{1}{2}$ of 8) and/or the ***four operations*** (÷, ×, +, -) the following rules must be observed.

1. The order that the operations are performed follow BODMAS:
   Brackets must be calculated first, followed by ***Of***'s, followed by ***Divisions*** and ***Multiplications*** and finally ***Additions*** and ***Subtractions***.
2. If the problem does not involve all the operations then the order remains the same ignoring the operations missing.
3. If there is a succession of division and multiplication operations these are performed in order from the left to the right.
4. If there is a succession of addition and subtraction operations these are performed in order from the left to the right.

Examples

1. $7 + 8 \div 4 - \frac{1}{2}$ of $6 \times (5 - 3)$

$= 7 + 8 \div 4 - \frac{1}{2}$ of $6 \times \quad 2$ (***Brackets*** first)
$= 7 + 8 \div 4 - 3 \times 2$ (***Of*** next)
$= 7 + 2 - 6$ (***Div.*** and ***Mult.*** next)
$= 9 - 6$ (***Add.*** and ***Sub.*** from left to right)
$= \mathbf{3}$

2. $8 - 5 + 4 - 2 + 9 - 3$
$= \quad 3 \quad + 4 - 2 + 9 - 3$
$= \qquad 7 \quad - 2 + 9 - 3$
$= \qquad\quad 5 \quad + 9 - 3$
$= \qquad\qquad 14 \quad - 3$
$= \qquad\qquad\quad \mathbf{11}$

(When there is a succession of ***additions*** and ***subtractions*** perform these in order from left to right)

3. $4 \times 6 \div 8 \times 12 \div 6 \div 3 \times 4$
$= \quad 24 \div 8 \times 12 \div 6 \div 3 \times 4$
$= \qquad 3 \quad \times 12 \div 6 \div 3 \times 4$
$= \qquad\quad 36 \quad \div 6 \div 3 \times 4$
$= \qquad\qquad\quad 6 \quad \div 3 \times 4$
$= \qquad\qquad\qquad\quad 2 \quad \times 4$
$= \qquad\qquad\qquad\qquad\quad \mathbf{8}$

4. $6 \times (8 - 3) + (9 + 3) \times 2 - 10 \div 5$
$= 6 \times \quad 5 \quad + \quad 12 \quad \times 2 - 10 \div 5$
$= \quad\; 30 \quad + \qquad 24 \quad - \quad 2$
$= \qquad\quad 54 \qquad\qquad - \quad 2$
$= \qquad\qquad\quad\; \mathbf{52}$

5. $\frac{1}{2}$ of $8 + 7 \times (3 + 2) + (12 \div 4 - 2) - (6 + \frac{1}{2}$ of $6)$

$= \frac{1}{2}$of $8 + 7 \times \quad 5 \quad + \quad (3 \quad - 2) - (6 + \quad 3)$

$= \frac{1}{2}$of $8 + 7 \times \quad 5 \quad + \qquad 1 \quad - \quad 9$

$= \quad 4 \quad + 7 \times \quad 5 \quad + \qquad 1 \quad - \quad 9$
$= \quad 4 \quad + \quad 35 \qquad + \qquad 1 \quad - \quad 9$
$= \qquad 39 \qquad\quad + \qquad 1 \quad - \quad 9$
$= \qquad\qquad\quad 40 \qquad\quad - \quad 9$
$= \qquad\qquad\qquad\quad \mathbf{31}$

6. $8 + (6 + 3 \times 4) \div 9 \times (3 + 7 - 8) + [3 \times (2 + 4)]$
$= 8 + (6 + 3 \times 4) \div 9 \times (3 + 7 - 8) + [3 \times \quad 6 \quad]$
$= 8 + (6 + 3 \times 4) \div 9 \times (3 + 7 - 8) + \qquad 18$
$= 8 + (6 + \quad 12 \quad) \div 9 \times (3 + 7 - 8) + \qquad 18$
$= 8 + \quad 18 \qquad \div 9 \times (3 + 7 - 8) + \qquad 18$
$= 8 + \quad 18 \qquad \div 9 \times (\quad 10 \quad - 8) + \qquad 18$
$= 8 + \quad 18 \qquad \div 9 \times \qquad 2 \qquad + \qquad 18$
$= 8 + \qquad\; 2 \qquad\; \times \qquad 2 \qquad + \qquad 18$
$= 8 + \qquad\qquad\; 4 \qquad\qquad + \qquad 18$
$= \qquad\; 12 \qquad\qquad\qquad + \qquad 18$
$= \qquad\qquad\qquad\; \mathbf{30}$

7. $(6 \times 7 - 2) - (\frac{1}{4}$ of $20 + 7) \div 3 + 6 \times 2 \quad - 7$
$= (6 \times 7 - 2) - (\quad 5 \quad\; + 7) \div 3 + 6 \times 2 \quad - 7$
$= (\quad 42 \quad - 2) - \qquad 12 \qquad \div 3 + 6 \times 2 \quad - 7$
$= \qquad 40 \qquad - \qquad 12 \qquad \div 3 + 6 \times 2 \quad - 7$
$= \qquad 40 \qquad - \qquad\quad 4 \qquad + \quad 12 \quad - 7$
$= \qquad\quad 36 \qquad\qquad\quad + \quad 12 \quad - 7$
$= \qquad\qquad\qquad\quad 48 \qquad\qquad\quad - 7$
$= \qquad\qquad\qquad\qquad\quad \mathbf{41}$