



Rules for Order of Operations



- * Do the operations in brackets (we use brackets first if we want certain operations carried out first)
- * Multiply and divide, in order from left to right
- * Then add and subtract, in order, from left to right.

acronym

Brackets

Exponents (grade 8)

Division

Multiplication

Addition

Subtraction

} Do what comes first in the expression

} Do what comes first in the expression



Evaluate the expression:

$$\begin{aligned} & 7 + 12 \div 3 \\ = & 7 + 4 \\ = & 11 \end{aligned}$$


Order of Operations (BEDMAS):

- B** Brackets
- E** Exponents (grade 8)
- D** Division
- M** Multiplication
- A** Addition
- S** Subtraction

Do what comes first in the expression

Do what comes first in the expression

~~B~~ E D M A S



Evaluate the expression:

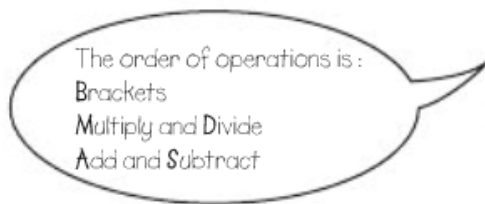
$$\begin{aligned} & 22 - 12 + 4 \\ = & \underbrace{22 - 12}_{10} + 4 \\ = & \underbrace{10 + 4}_{14} \end{aligned}$$

B ~~A~~ D M A S
↓ see first ↓ see first

Evaluate the expression:

$$\begin{aligned} & 6 \times (5+2) \\ = & \underbrace{6 \times 7} \\ = & 42 \end{aligned}$$

BADMAS



Some calculators follow the order of operations.
Others do not.
Check to see how your calculator works.

$$\begin{aligned}
 & 3 + 21 \times 6 + \underbrace{(24 - 4)}_{20} \times 2 && \text{BEDMAS} \\
 = & 3 + \underbrace{21 \times 6}_{126} + 20 \times 2 \\
 = & 3 + 126 + \underbrace{20 \times 2}_{40} \\
 = & \underbrace{3 + 126}_{129} + 40 \\
 = & \underbrace{129 + 40}_{169} \\
 = & 169
 \end{aligned}$$

Class/Homework

YOU MUST show work



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#1a,b,c,d,e,f,

#2

#4a,c,e,g (Show work but can use a cal)

#5a,c,e,g,i

#6(a,b,c,d)

Jest → Thursday
Oct. 4

Practice

1. Evaluate each expression.

Use the order of operations.

a) $18 + 4 \times 2$

b) $25 - 12 \div 3$

c) $24 + 36 \div 9$

d) $12 - 8 - 4$

e) $50 - 7 \times 6$

f) $7 \times (2 + 9)$

g) $81 \div 9 - 6$

h) $25 \div (9 - 4)$

i) $13 - 6 + 8$

j) $(9 + 6) \div 3$

k) $19 + 56 \div 8$

l) $8 \times (12 - 5)$



2. Does your calculator follow the order of operations?
Press: $9 + 6 \times 3 =$
Explain how you know.

3. Bianca entered $52 + 8 \times 2 =$ in her calculator.
She got the answer 120.
In what order did Bianca's calculator perform the operations?
How do you know?





4. Use a calculator to evaluate each expression.

a) $332 - 294 \div 49$

b) $209 \times 12 \div 4$

c) $312 \times 426 - 212 \times 158$

d) $2205 + 93 \div 3 - 1241$

e) $156 \times 283 + 215 \times 132$

f) $245 \times 138 \div (7 + 23)$

g) $(148 + 216) \times (351 - 173)$

h) $1258 + 341 \times 28 - 2357$

5. Use mental math to evaluate.

a) $20\,000 - 4000 \times 2$

c) $(1000 + 6000) \times 3$

e) $5 \times (4 + 11)$

g) $(50 + 50) \div 50$

i) $16 \div 2 \times 9$

b) $6 + 125 \div 25$

d) $60 \times 3 \div 9$

f) $50 + 50 \div 50$

h) $9 \times 10 - (30 + 30)$

j) $200 - 200 \div 20$

6. Use mental math to evaluate.

a) $4 \times 7 - 2 + 1$

b) $4 \times (7 - 2) + 1$

c) $4 \times 7 - (2 - 1)$

d) $4 \times (7 - 2 + 1)$

e) $(4 \times 7 - 2) + 1$

f) $4 \times 7 - (2 + 1)$

Which expressions give the greatest answer?

The least answer?



7. How many different answers can you get by inserting one pair of brackets in this expression?

$$10 + 20 - 12 \div 2 \times 3$$

Write each expression, then evaluate it.

8. Use the numbers 2, 3, and 4 and any operations or brackets.
Write an expression that equals each number below.
Try to do this more than one way.
- a) 9 b) 10 c) 14 d) 20 e) 6

9. Alexi bought 5 T-shirts for \$12 each and 3 pairs of socks for \$2 a pair. Which expression shows how much Alexi spent in dollars? How do you know?
- a) $5 \times 12 \times 3 \times 2$
 - b) $5 \times 12 + 3 \times 2$
 - c) $(5 + 3) \times (12 + 2)$



10. Choose mental math, a calculator, or paper and pencil to evaluate. For each question, how did you decide which method to use?



- | | |
|---------------------------|-----------------------------------|
| a) $238 - (2 \times 73)$ | b) $47 \times (16 \times 18)$ |
| c) $(36 + 14) \div 10$ | d) $36 \times (48 \times 8)$ |
| e) $60 \times (4 \div 2)$ | f) $(200 + 50) \times (9 \div 3)$ |

11. Monsieur Lefèvre bought 2 boxes of fruit bars for his 3 children. Each box has 6 fruit bars. The children shared the fruit bars equally. How many fruit bars did each child get? Write an expression to show the order of operations you used.



12. Copy each number sentence.

Use brackets to make each number sentence true.

a) $36 \div 4 \times 3 = 3$

b) $20 \div 5 \times 2 + 3 = 5$

c) $10 - 4 \div 2 - 1 = 6$

d) $6 \times 2 + 8 \div 4 = 15$