

Order of Operations

Order of operations is a set of rules that mathematicians use when computing numbers. Here is how order of operations is used to solve the following problem: $7 + (5 \times 4) \times 3$.

Order of Operations

First, compute all numbers inside parentheses.

$$7 + (5 \times 4) \times 3$$

$$7 + 20 \times 3$$

Next, simplify exponents. If there are no exponents, go to the next step.

$$7 + 20 \times 3$$

Then, multiply and divide the numbers from left to right.

$$7 + 60$$

Finally, add and subtract the numbers from left to right.

$$67$$

How to use parentheses to make a number sentence true:

$$6 + 2 \times 9 = 72$$

Using order of operations,
 $6 + 2 \times 9 = 24$, not 72.

Place parentheses around $6 + 2$ so that this operation is done first:

$$(6 + 2) \times 9 = 72$$

$$8 \times 9 = 72$$

Evaluate each expression.

1. $8 + 7 \times 5 =$ _____

2. $18 - 3 \times 2 =$ _____

3. $3 \times 7 + 3 \times 5 =$ _____

4. $40 \div (2 \times 4) =$ _____

5. $6 \times 3 - 6 \times 2 =$ _____

6. $9 + 2^3 =$ _____

7. $7 + 12 \times 3 - 2 =$ _____

8. $4 \times (5 + 5) \div 20 + 6 =$ _____

9. $4^2 - (3 \times 5) =$ _____

10. $(3 \times 2) + 3^2 =$ _____

11. **Reasoning** Which operation should be performed *last* in this problem: $3^2 + 7 \times 4$? Why?

Use parentheses to make each sentence true.

12. $0 \times 6 + 9 = 9$ _____

13. $3^2 + 2 \times 2 = 13$ _____

8 Use with Lesson 1-8.

Order of Operations

Evaluate each expression.

1. $3 + 4 \times 7$

2. $88 - 6 \times 6$

3. $8 \times 2 + 7 \times 3$

4. $(5 + 9) + 3 \times 8$

5. $(6 + 3^2) + 5$

6. $9^2 - (7 \times 5) + 3$

7. $48 \div 2 + 6$

8. $26 \div (5 + 8) + 1$

9. $18 + 3 \times (6 \div 2)$

10. **Reasoning** What operation would you perform *last* in this problem: $(2 \times 3) + (7 \times 2)$? _____

Use parentheses to make each number sentence true.

11. $10 + 5 \times 4^2 \div 2^3 = 20$

12. $124 - 6 \times 0 + 15 = 34$

13. $10^2 - 10 + 3 = 93$

14. $7 + 5 \times 3 \div 3 = 12$

15. Mr. Miller's sixth-grade class went on a field trip to hear the symphony perform. Their seats were grouped in the following ways: 2 groups of 3 seats; 3 groups of 4 seats, 4 groups of 2 seats, and 1 seat (for Mr. Miller). Write a number sentence to calculate how many students went on the field trip.
- _____
- _____

Test Prep

16. Evaluate the expression
- $(4^2 - 4) + 6 \div 2$
- .

A. 4

B. 9

C. 12

D. 15

17. **Writing in Math** Suppose you had to evaluate $9^2 + 5 \times 4$. Tell the order in which you would compute these numbers.
- _____
- _____