

Order of Operations

Use the order of operations to find the value of an expression with more than one operation.

Solve: $3 \times (4 + 5) + 6 \div 3$

First, perform the operation inside the parentheses.

$$3 \times (4 + 5) + 6 \div 3$$

$$\quad \quad \quad \uparrow$$

$$\quad \quad \quad 4 + 5 = 9$$

Next, multiply and divide in order from left to right.

$$3 \times 9 + 6 \div 3$$

$$\quad \uparrow \quad \quad \uparrow$$

In this case, 3×9 is solved first, then $6 \div 3$.

Finally, add.

$$27 + 2 = 29$$

Practice

Circle the operation or operations that should be completed first.

1. $2 + 3 - (4 \times 6) - 7$

2. $(3 \times 5) - 2 + 4$

3. $(2 \div 1) \times 4 \times 10$

4. $5 + 5 + 5 \div (10 \div 5)$

5. $5 \times (3 - 2) - 7$

6. $7 \times 6 \div 7 \times (5 + 5)$

Order of Operations

You can use the order of operations to help you solve expressions with exponents. An **exponent** of a number tells us how many times to multiply a base number.

Solve: $3 + 2^3 \times (4 - 1) \div 2$

First, perform all operations within parentheses.

$$3 + 2^3 \times (4 - 1) \div 2$$

$$3 + 2^3 \times 3 \div 2$$

Next, perform all operations with exponents. The exponent of 3 tells us we will multiply the base, 2, three times.

$$3 + 2^3 \times 3 \div 2$$

$$2^3 = 2 \times 2 \times 2$$

$$3 + 8 \times 3 \div 2$$

Then, multiply and divide in order from left to right.

$$3 + 8 \times 3 \div 2$$

$$3 + 24 \div 2$$

$$3 + 12$$

Finally, add and subtract in order from left to right.

$$3 + 12 = 15$$

Practice

Find the value of each expression.

1. $5 \times (5 - 3)$ 10

2. $(7 \times 8) - (4 \times 9)$ 20

3. $15 \div 3 + 16 \div 4$ 9

4. $3^2 + 5 - 1 \times 2$ 12

5. $24 \div 2 + (3 \times 4)$ 24

6. $(4 - 1) \times 1^3$ 3,000

7. $8 \times 8 \div 8 + 8 - 8$ 8

8. $2 + (2^4 - 8) \times 2$ 36