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# Leveled Texts for Mathematics

## Number and Operations


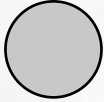




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# How to Use This Product

## Readability Chart

Title of the Text	 Star	 Circle	 Square	 Triangle
Understanding Place Value to 6 Digits	2.2	3.5	5.0	6.9
Understanding Place Value to 10 Digits	2.2	3.5	5.3	7.2
Types of Numbers	2.2	3.3	5.0	6.5
Factors and Multiples	2.2	3.5	5.5	6.9
Comparing and Ordering Whole Numbers	2.1	3.5	5.3	6.7
Adding Large Numbers	2.2	3.3	5.3	6.8
Subtracting Large Numbers	2.2	3.4	5.3	6.5
Single-Digit Multiplication	2.2	3.5	5.1	7.1
Understanding Division	2.2	3.4	5.4	6.6
Two-Digit Multiplication	2.2	3.1	5.0	6.8
Division with Two-Digit Divisors	2.2	3.0	5.6	7.0
Three- and Four-Digit Multiplication	2.1	3.3	5.3	6.9
Division with Three- and Four-Digit Divisors	2.2	3.0	5.0	6.5
Understanding Order of Operations	2.2	3.5	5.4	6.7
Estimation	2.2	3.5	5.4	6.9

## Components of the Product

### Strong Image Support

- Each level of text includes important visual support. These images, diagrams, photographs, and illustrations add interest to the texts and help students comprehend the mathematical concepts. The images also serve as visual support for second-language learners. They make the texts more context-rich and bring the examples to life.

# Understanding Order of Operations

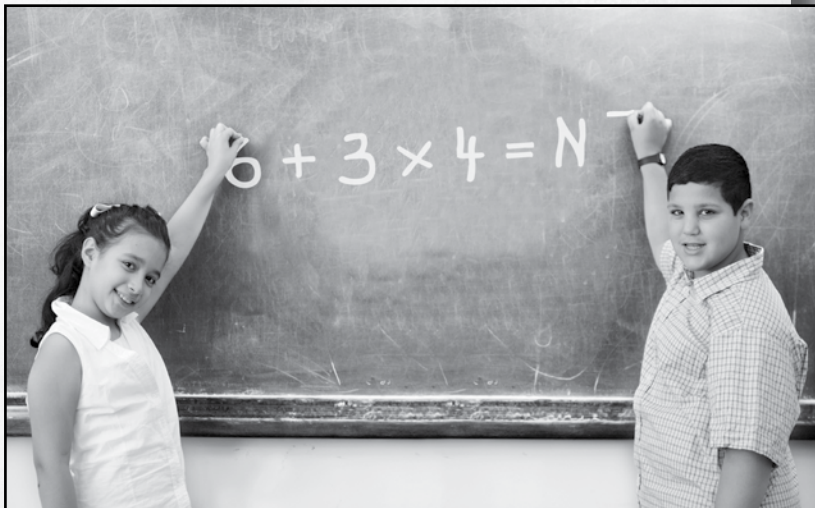
Martina and Ricardo both get the same problem.

$$6 + 3 \times 4 = N$$

Martina gets 36 as her answer. Ricardo gets 18.

They both added the right way. They both multiplied the right way. So, how did they get different answers?

They each did the problem in a different order! Sometimes order does not matter. But, this time it did.



Martina added  $6 + 3$  first. She got 9. Then, she multiplied  $9 \times 4$ . She got 36.

Ricardo multiplied  $3 \times 4$  first. He got 12. Then, he added  $12 + 6$ . He got 18.

Who is right?

## Basic Facts

Some problems have more than one kind of operation in them. This may mean that there can be different answers. But, we should all get the same answer when we do the same problem. So, we have rules for which parts of the problem should be done first. These rules are called the **order of operations**.

## Order of Operations

Here is the order of operations. It may help to think of this saying: **Please Excuse My Dear Aunt Sally**. It can help us to think of the correct order.

**Please:** First, do all the operations inside **p**arentheses.

**Excuse:** Next, do all of the operations with **e**xponents.

**My Dear:** Next, do all **m**ultiplication and **d**ivision. Work from left to right.

**Aunt Sally:** Do all **a**ddition and **s**ubtraction. Work from left to right.

## Working Problems Using Order of Operations

Let us see how this works. Look at the problem  $3 + (3 - 2) \times 5 - 12 \div 2 = N$ .

**Step 1:** Work all of the operations inside the parentheses. If there are none, go on to the next step.

$$3 + (3 - 2) \times 5 - 12 \div 2 = N$$

$$(3 - 2) = 1$$

$$3 + (1) \times 5 - 12 \div 2 = N$$

**Step 2:** Work all of the operations with exponents. If there are none, go on to the next step.

There are no exponents in this problem.

**Step 3:** Work all the multiplication and division from left to right. If there is none, go on to the next step.

$$3 + (1) \times 5 - 12 \div 2 = N$$

$$1 \times 5 = 5 \quad 12 \div 2 = 6$$

$$3 + 5 - 6 = N$$

**Step 4:** Work all addition and subtraction from left to right. If there is none, you are done.

$$3 + 5 - 6 = N$$

$$3 + 5 = 8$$

$$8 - 6 = 2$$

$$N = 2$$

## Order of Operations in Our Daily Lives

Some things have to be done in a certain order. Cooks understand this. You need to mix the batter before you bake a cake. If you do not, you will not have anything good to eat! But, once you know how to follow the steps, you can always bake a cake. Baking has to be done in order. This is because chemical reactions happen when you bake.

### You Try It

Solve this problem using the order of operations:  $6 \div 3 + 2 \times 4 + (12 - 8) = N$ .



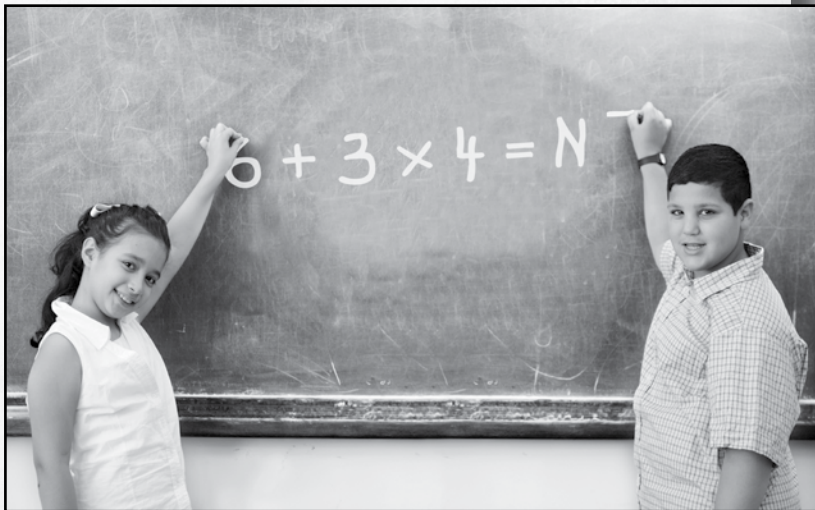
# Understanding Order of Operations

Martina and Ricardo are both given the same problem. It is  $6 + 3 \times 4 = N$ .

Martina gets 36 as her answer. Ricardo gets 18.

They both added and multiplied the right way. So, how did they get different results?

They each did the problem in a different order! Sometimes order does not matter. But, this time it did.



Martina added  $6 + 3$  first and got 9. Then, she multiplied  $9 \times 4$  to get 36.

Ricardo multiplied  $3 \times 4$  first and got 12. Then, he added  $12 + 6$  and got 18.

Who is right?

## Basic Facts

Some problems have more than one kind of operation in them. This may mean that there can be different answers. But, everyone should get the same answer when they do the same problem. So, we have rules for which parts of the problem should be done first. These rules are called the **order of operations**.

## Order of Operations

Here is the order of operations. It may help to think of this saying: **Please Excuse My Dear Aunt Sally**. It helps us to think of the correct order.

**Please:** First, do all the operations inside **p**arentheses.

**Excuse:** Next, do all of the operations with **e**xponents.

**My Dear:** Next, do all **m**ultiplication and **d**ivision. Work from left to right.

**Aunt Sally:** Do all **a**ddition and subtraction. Work from left to right.

## Working Problems Using Order of Operations

Let us see how this works. Look at the problem  $3 + (3 - 2) \times 5 - 12 \div 2 = N$ .

**Step 1:** Work all of the operations inside the parentheses. If there are none, go on to the next step.

$$3 + (3 - 2) \times 5 - 12 \div 2 = N$$
$$(3 - 2) = 1$$

$$3 + (1) \times 5 - 12 \div 2 = N$$

**Step 2:** Work all of the operations with exponents. If there are none, go on to the next step.

There are no exponents in this problem.

**Step 3:** Work all the multiplication and division from left to right. If there is none, go on to the next step.

$$3 + (1) \times 5 - 12 \div 2 = N$$
$$1 \times 5 = 5 \quad 12 \div 2 = 6$$

$$3 + 5 - 6 = N$$

**Step 4:** Work all addition and subtraction from left to right. If there is none, you are done.

$$3 + 5 - 6 = N$$

$$3 + 5 = 8$$

$$8 - 6 = 2$$

$$N = 2$$

## Order of Operations in Our Daily Lives

Some things have to be done in a certain order. Cooks understand this. You need to mix the batter before you bake a cake. If you do not, you will not have anything good to eat! Once you know how to follow the steps, you can always bake a cake. Baking has to be done in order. This is because chemical reactions happen when you bake.

### You Try It

Solve this problem using the order of operations:  $6 \div 3 + 2 \times 4 + (12 - 8) = N$ .





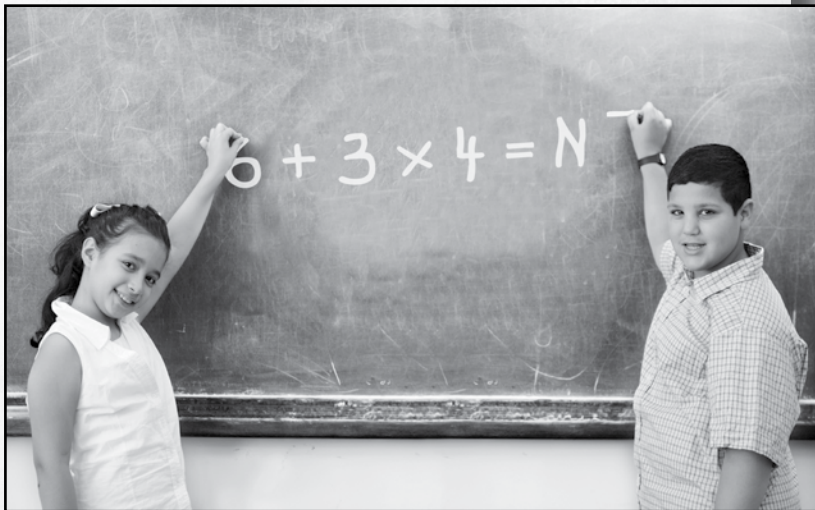
# Understanding Order of Operations

Martina and Ricardo were both given the same problem to do:  $6 + 3 \times 4 = N$ .

Martina got 36 as her answer and Ricardo got 18.

They both added and multiplied correctly. So, how did they get different results?

Each student did the problem in a different order! Sometimes order does not matter. But, this time it did.



Martina added  $6 + 3$  first and got 9. Then, she multiplied  $9 \times 4$  to get 36.

Ricardo multiplied  $3 \times 4$  first and got 12. Then, he added  $12 + 6$  and got 18.

Who is right?

## Basic Facts

There are many times that a problem will have more than one kind of operation in it. Sometimes this means that there are different answers possible for the same problem. But, it is important to make sure that everyone gets the same answer every time they do the same problem. So, mathematicians agreed on rules for which parts of the problem should go first. These rules are called the **order of operations**.

## Order of Operations

Here is the order of operations. Many people remember the saying, **Please Excuse My Dear Aunt Sally** to help them think of the correct order.

**Please:** Do all the operations inside **p**arentheses.

**Excuse:** Do all of the operations with **e**xponents.

**My Dear:** Do all **m**ultiplication and **d**ivision. Work from left to right.

**Aunt Sally:** Do all **a**ddition and subtraction. Work from left to right.

## Working Problems Using Order of Operations

Let us see how this works by evaluating the problem  $3 + (3 - 2) \times 5 - 12 \div 2 = N$ .

**Step 1:** Work all of the operations inside the parentheses. If there are no parentheses, go on to the next step.

$$3 + (3 - 2) \times 5 - 12 \div 2 = N$$
$$(3 - 2) = 1$$

$$3 + (1) \times 5 - 12 \div 2 = N$$

**Step 2:** Work all of the operations with exponents. If there are no exponents, go on to the next step.

There are no exponents in this problem.

**Step 3:** Work all the multiplication and division from left to right. If there is no multiplication or division, go on to the next step.

$$3 + (1) \times 5 - 12 \div 2 = N$$
$$1 \times 5 = 5 \quad 12 \div 2 = 6$$

$$3 + 5 - 6 = N$$

**Step 4:** Work all addition and subtraction from left to right. If there is no addition or subtraction, you are done.

$$3 + 5 - 6 = N$$
$$3 + 5 = 8$$
$$8 - 6 = 2$$
$$N = 2$$

## Order of Operations in Our Daily Lives

Many things have to be done in a specific order. Cooks understand this better than most people. If you try to bake a cake before you mix the batter, you will not have anything good to eat! But, once you know the order to cook in, you can always bake a cake. If you have the ingredients, you must use them in the right steps. Cooking has to be done in order because of chemical reactions.

### You Try It

Solve this problem using the order of operations:  $6 \div 3 + 2 \times 4 + (12 - 8) = N$ .

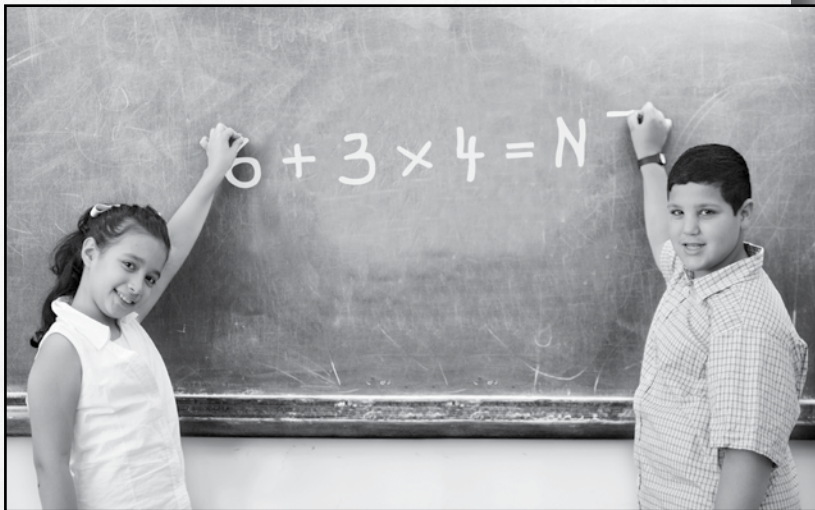


# Understanding Order of Operations

Martina and Ricardo were both challenged to solve the same problem:  $6 + 3 \times 4 = N$ .

Martina got 36 as her answer; Ricardo got 18.

They both added and multiplied correctly. However, they got different results because they solved the components of the problem in a different order! Sometimes order does not matter, but this time it did.



Martina added  $6 + 3$  for a sum of 9, then she multiplied  $9 \times 4$  for a product of 36.

Ricardo multiplied  $3 \times 4$  for a product of 12, then added  $12 + 6$  for a sum of 18.

Who is right?

## Basic Facts

Frequently, a problem will have more than one kind of operation in it. Students may do the math correctly, but arrive at different answers. However, it is important that everyone arrive at the same answer to the same problem. So, mathematicians agreed on rules, called the **order of operations**, that stipulate which parts of the problem should be solved first.

## Order of Operations

Many people use the mnemonic, **Please Excuse My Dear Aunt Sally**, to help them remember the order of operations.

**Please:** Do all the operations inside **p**arentheses.

**Excuse:** Do all of the operations with **e**xponents.

**My Dear:** Do all **m**ultiplication and **d**ivision. Work from left to right.

**Aunt Sally:** Do all **a**ddition and subtraction. Work from left to right.

## Working Problems Using Order of Operations

We can apply this procedure, step by step, as we evaluate this problem:

$$3 + (3 - 2) \times 5 - 12 \div 2 = N.$$

**Step 1:** Work all of the operations inside the parentheses. If there are no parentheses, go on to the next step.

$$3 + (3 - 2) \times 5 - 12 \div 2 = N$$

$$(3 - 2) = 1$$

$$3 + (1) \times 5 - 12 \div 2 = N$$

**Step 2:** Work all of the operations with exponents. If there are no exponents, go on to the next step.

There are no exponents in this problem.

**Step 3:** Work all the multiplication and division from left to right. If there is no multiplication or division, go on to the next step.

$$3 + (1) \times 5 - 12 \div 2 = N$$

$$1 \times 5 = 5 \quad 12 \div 2 = 6$$

$$3 + 5 - 6 = N$$

**Step 4:** Work all addition and subtraction from left to right. If there is no addition or subtraction, you have completed the problem.

$$3 + 5 - 6 = N$$

$$3 + 5 = 8$$

$$8 - 6 = 2$$

$$N = 2$$

## Order of Operations in Our Daily Lives

There are many times when steps need to be followed in a specific order to get the appropriate results. Chefs and bakers understand this. Have you ever tried to bake a cake before you mix the batter? The results will not be enjoyable! However, once you understand the reasoning behind the order of the steps, you can always bake a cake successfully. Cooking has to be done in a specific sequence because of the chemical reactions of the ingredients.



### You Try It

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Solve this problem using the order of operations:  $6 \div 3 + 2 \times 4 + (12 - 8) = N$ .