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Absolute Value & Opposite Integers

After watching this video lesson, you'll understand what an absolute value is, and you'll also learn how to find the opposite of an integer. In addition, you'll learn how every pair of opposite integers will always add up to zero.

Numbers

Numbers are everywhere! We use them to play counting games like hide and seek. We use them in math problems. We use them to solve physics problems. We use them to tell us how fast we can go on the road. We also use them to tell us how much something we want to buy will cost us.

Numbers are important, as is being able to use them to help us solve problems. In this video lesson, we look at two ways that numbers are used in math.

Absolute Value

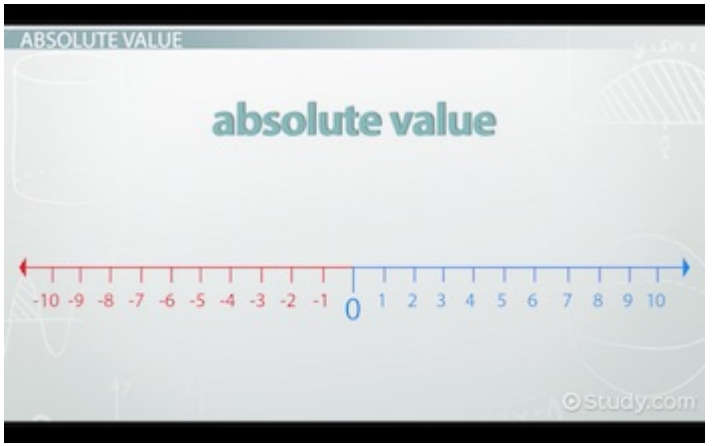
The concept we're going to look at is the absolute value. The **absolute value** is the distance from zero of a number. Picturing a number line will help you visualize the absolute value.

For example, if you find the number 3 on the number line, you'll see that it's 3 spaces to the right of 0. The absolute value of this number 3 is 3 because it is 3 spaces away from 0.

What about the number -5? How many spaces is it away from 0? It is 5 spaces to the left of 0. So, the absolute value of -5 is 5. What about some other numbers? The absolute value of 8 is 8, and the absolute value of -8 is also 8.

Are you starting to see some pattern here? When we take the absolute value of a number, our answer is simply the number without the negative sign. If our number is positive to begin with, then our answer will be that number. If our number is negative, then our answer will be that number without the negative sign.

In math, we have a symbol to show us that we are talking about the absolute value. This symbol looks like two pipes surrounding our number. So, the absolute value of -3 is written as |-3|. To include the answer, we write |-3| = 3.



Number Line

Opposite Integers

The second concept that we are discussing in this video is how opposite integers always add up to zero. Remember that our integers are our whole numbers. A pair of **opposite integers** is the negative and positive versions of a number together. So, 5 and -5 are a pair of opposite integers. They are called opposites because they are on the opposite sides of the number line.

Let's see what happens when we add them up: 5 + (-5). When we have plus a negative number, it turns our problem into a subtraction problem. We have 5 - 5. What is that equal to? 0.

Let's try another pair of opposite integers: 6 and -6. Adding them up, we get 6 + (-6). This turns into a subtraction problem because we have a negative number. We get 6 - 6. What does that equal? 0 again.

The rule here is that all opposite integers will always add up to 0. If you see that you are adding a pair of opposite integers, then your answer will be 0.

Example

Let's look at some examples:

What is the absolute value of -12?

To answer this problem, we need to find out how far away -12 is from 0. We need to locate -12 on the number line. It is 12 spaces to the left of 0. So, the absolute value of -12 is 12. |-12| = 12.

What about this problem?

7 + (-7) = ?

Looking at this problem we see that we are adding a pair of opposite integers. What did we learn that this will always equal? 0. Our answer is 0.

Lesson Summary

Let's review what we've learned. The **absolute value** is the distance from zero of a number. The math symbol of the absolute value is a pair of pipe lines. We write the absolute value of -9 as |-9|. The absolute value of any number is the number itself without any negative signs. **Opposite integers** are the negative and positive versions of a number together. Adding a pair of opposite integers will always give you zero for the answer.

Learning Outcomes

Once you've finished with this lesson, you will have the ability to:

- Describe what the absolute value of a number is
- Identify the math symbol for absolute value
- Explain what opposite integers are and why adding opposite integers equals zero