Finding the Absolute Value of a Rational Number

Watch this video lesson and you will learn how to deal with absolute values of simple numbers and more complex problems. Learn the order in which you should do calculations so that your answers are correct.

Rational Numbers

In this video lesson, we will talk about **rational numbers**. These are the numbers that can be written as the fraction of two integers. Recall that integers are your whole numbers and they can either be positive or negative. Integers are not decimal numbers. But rational numbers can be decimal numbers, since 3/2 equals 1.5.

Think of rational numbers as taking a number of people and sharing a number of things, such as donuts or burgers, with them equally. Both numbers have to be integers. We end up dividing what we are sharing with the number of people. For example, 3/2 can be 2 people sharing 3 burgers. Each person would get 1.5 burgers.

Absolute Value

What we are going to do to these rational numbers is to take their **absolute value**, or the distance the number is away from 0. In math, the symbol for absolute value is two pipes, or straight lines, one on either side of our number. So, the absolute value of 2 is written like this: |2|. The absolute value of 3/2 is written like this: |3/2|. I've given you the technical definition of absolute value. In problems, it is much easier to remember your absolute value as simply the positive version of your number. For example, the absolute value of -2 is 2. The absolute value of -3/2 is 3/2.

Distance from 0

Yes, basically, what the absolute value symbol does is just delete your negative symbol. |-11| becomes 11. |-5/6| becomes 5/6. Looking at the number line, the absolute value is the distance away from 0. We can see that -5/6 is 5/6 away from 0. -3/2 is 3/2 away from 0. Distance is always positive, so absolute value is also always positive.

A More Complex Problem

While you may come across absolute values of just one rational number, you may also see problems where you have a mini problem inside the absolute value. When you see this, do the problem first and then find the absolute value of the mini problem's answer. Think to yourself, how far away from 0 is the answer to the mini problem. For example, say you have the problem |5/4 - 7/4|. You would first do the subtraction of 5/4 - 7/4. You get -2/4 as your answer, which simplifies to -1/2. Now that we've finished the problem inside the absolute value, we can take the absolute value of our answer, -1/2, which is 1/2. So our answer is 1/2.

Lesson Summary

Let's review what we've learned. **Rational numbers** are the numbers that can be written as the fraction of two integers and **absolute value** is the distance a number is away from 0. If we look at a number line, the absolute value is the distance any number on the number line is away from 0. Distance is always positive, so our absolute value is always 0. An easy way to remember absolute value is simply the positive version of any number. If there is a mini problem inside the absolute value, we first solve the mini problem before finding the absolute value of the answer.

Learning Outcome

Once you are done with this lesson you should be able to solve an absolute value problem that deals with rational numbers.