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# How to Compare Integers

In this lesson, you'll learn how numbers or integers compare to others integers. In no time, you will be able to easily and quickly determine whether one number is smaller than, larger than, or equal to another.

## Integers

You and your friend are playing this amazingly fun board game. To start the game, both of you picked a number from 1 to 100, and whoever chose the smallest number got to go first. How far you go on your turn is determined by a spin on a wheel with the numbers 1 to 10.

In math, we call these numbers **integers**. Integers actually include all the positive and negative whole numbers, so all the numbers you would see on the number line are integers. As you can see, integers are important in life. Not only do mathematicians and scientists use them to solve problems, you also use them to play games!

One of the skills that is helpful when you play games and such is the ability to determine whether one number is less than, greater than, or equal to another number. This is the topic of this lesson. Let's get going!

## Less Than

First, let's talk about how to determine if one integer is less than another integer. The best and easiest way is to picture your number line. If you have two numbers, the number to the left is smaller. Say you picked the number 3 and your friend picked the number 6. Which one picked the smaller number? Well, if you find these numbers on the number line you will see that the number 3 is to the left of the 6. This means that the number 3 is less than 6.

We can write this with the less than symbol (<):

$3 < 6$

This says that the 3 is less than 6. Notice how the wider part of the mouth-like thing is pointing toward the 6? The wider part shows you which number is larger. The point shows you which number is smaller.

What if you had to decide between the numbers -10 and -5? These are negative integers now: Remember how when we get to the negative numbers the numbers look like they are getting bigger, but in reality they are getting smaller and smaller. Locating these numbers on the number line, we see that the -10 is to the left of -5. This means that the -10 is smaller than the -5:

$-10 < -5$

## Greater Than

Now, let's look at deciding whether an integer is greater than another integer. Again, let's picture our number line. Remember, the larger number will be to the right. Say you picked the number 13 and your friend picked the number 8. Which integer is greater? Well, finding these numbers on the number line, we see that the number 13 is to the right of the number 8. This means that 13 is greater than 8. We can write it like this:

$13 > 8$

Remember, the wider side of the sign goes toward the larger number.

Now, what if you were comparing the numbers -4 and -8: Which one is greater? The -4 is greater because the -4 is to the right of the -8 on the number line. We write:

$-4 > -8$

## Equal To

Lastly, let's go over how to decide if the integers are equal to each other. This one is easy: If the integers are equal to each other then they will be exactly the same. If they look different in any way, then they are not equal. So 1 is equal to 1 and -2 is equal to -2. We can write:

$1 = 1$

$-2 = -2$

-1 is not equal to 1 because they are not exactly the same: One has a negative sign and the other one doesn't.

# Lesson Summary

Let's review what we've learned now. **Integers** include all the positive and negative whole numbers. An integer is less than another integer if it is located to the left of the other integer on the number line. An integer is greater than another integer if it is located to the right of the other integer on the number line. An integer is equal to another integer if it is exactly the same.