

**Lesson 1: Positive and Negative Numbers on the Number Line—Opposite Direction and Value**

What is the starting position on both number lines?

0

What is the last whole number depicted on both number lines?

10

On a horizontal number line, do the numbers increase or decrease as you move further to the right of zero?

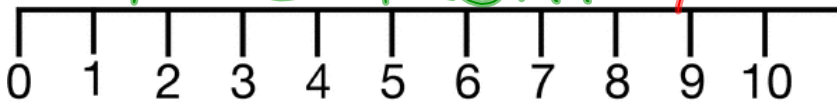
increase

On a vertical number line, do the numbers increase or decrease as you move further above zero?

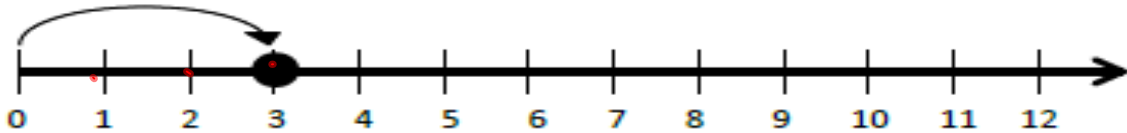
increase going up

horizontal

Vertical



Dec 2-9:05 AM



Starting at 0, as I move to the right on a horizontal number line, the values get larger. These numbers are called positive numbers because they are greater than zero. Notice the arrow is pointing to the right to show a positive direction.

How far is the number from zero on the number line?

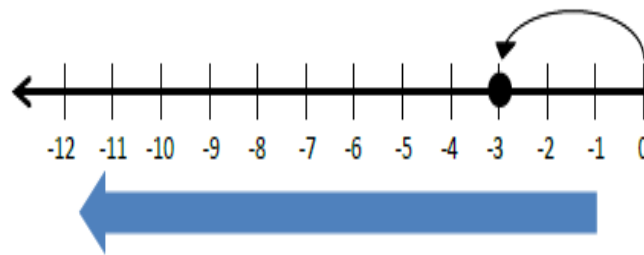
3 units

If 0 was a mirror facing towards the arrow, what would be the direction of the arrow in the mirror?

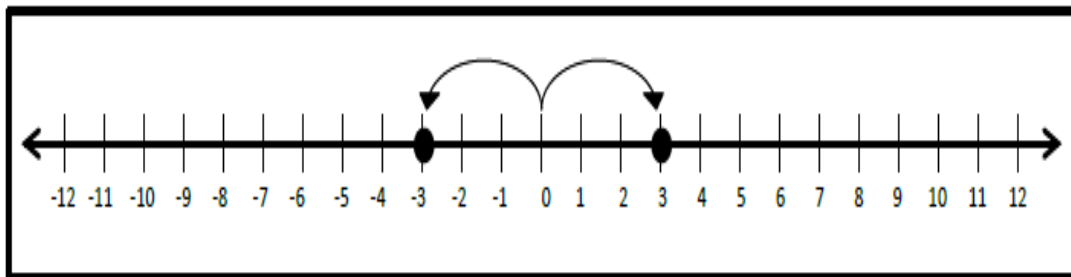
To The Left

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Starting at 0, as I move further to the left of zero on a horizontal number line, the values get smaller. These numbers are called negative numbers because they are less than zero. Notice the curved arrow is pointing to the left to show a negative direction. The position of the point is now, negative 3, written as  $-3$ .



- Negative numbers are less than zero. As you look to the left, the values of the numbers decrease.



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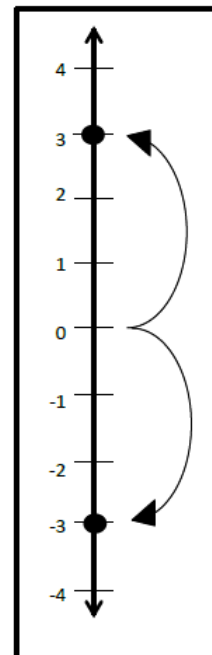
What is the relationship between 3 and  $-3$  on the number line?

As we look further right on the number line, the values of the numbers increase. For example,  $-1 < 0 < 1 < 2 < 3$ .

This is also true for a vertical number line. On a vertical number line, positive numbers are located above zero. As we look upward on a vertical number line, the values of the numbers increase. On a vertical number line, negative numbers are located below zero. As we look further down on a vertical number line, the values of the numbers decrease.

The set of whole numbers and their opposites, including zero, are called integers. Zero is its own opposite. Number line diagram shows integers listed in increasing order from left to right using equal spaces. For example:

$-4, -3, -2, -1, 0, 1, 2, 3, 4$ .



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# The Ultimate Trivia Questions!

To the Left of the zero.

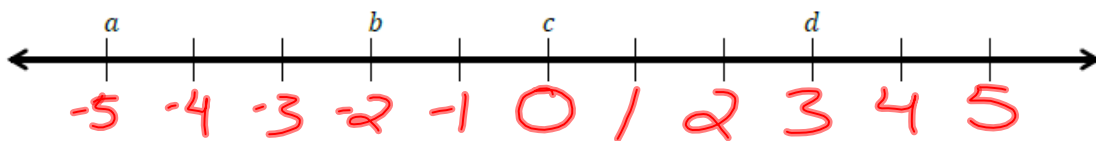
- Where are negative numbers located on a horizontal number line?
- Where are negative numbers located on a vertical number line?
- What is the opposite of 2?  $(-2)$
- What is the opposite of 0?  $(0)$
- Describe the relationship between 10 and  $-10$ .



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## NOW YOU TRY!

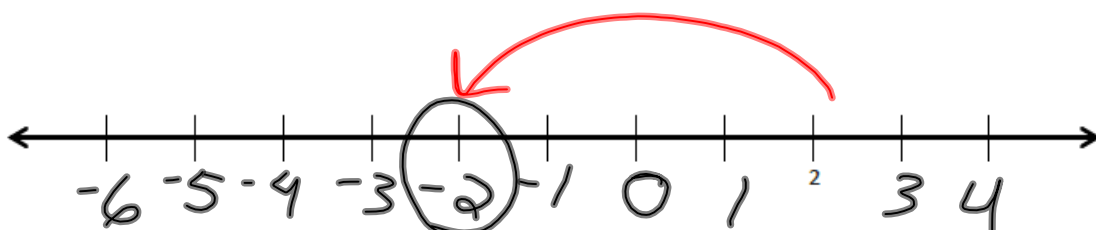
If zero lies between  $a$  and  $d$ , give one set of possible values for  $a$ ,  $b$ ,  $c$ , and  $d$ .



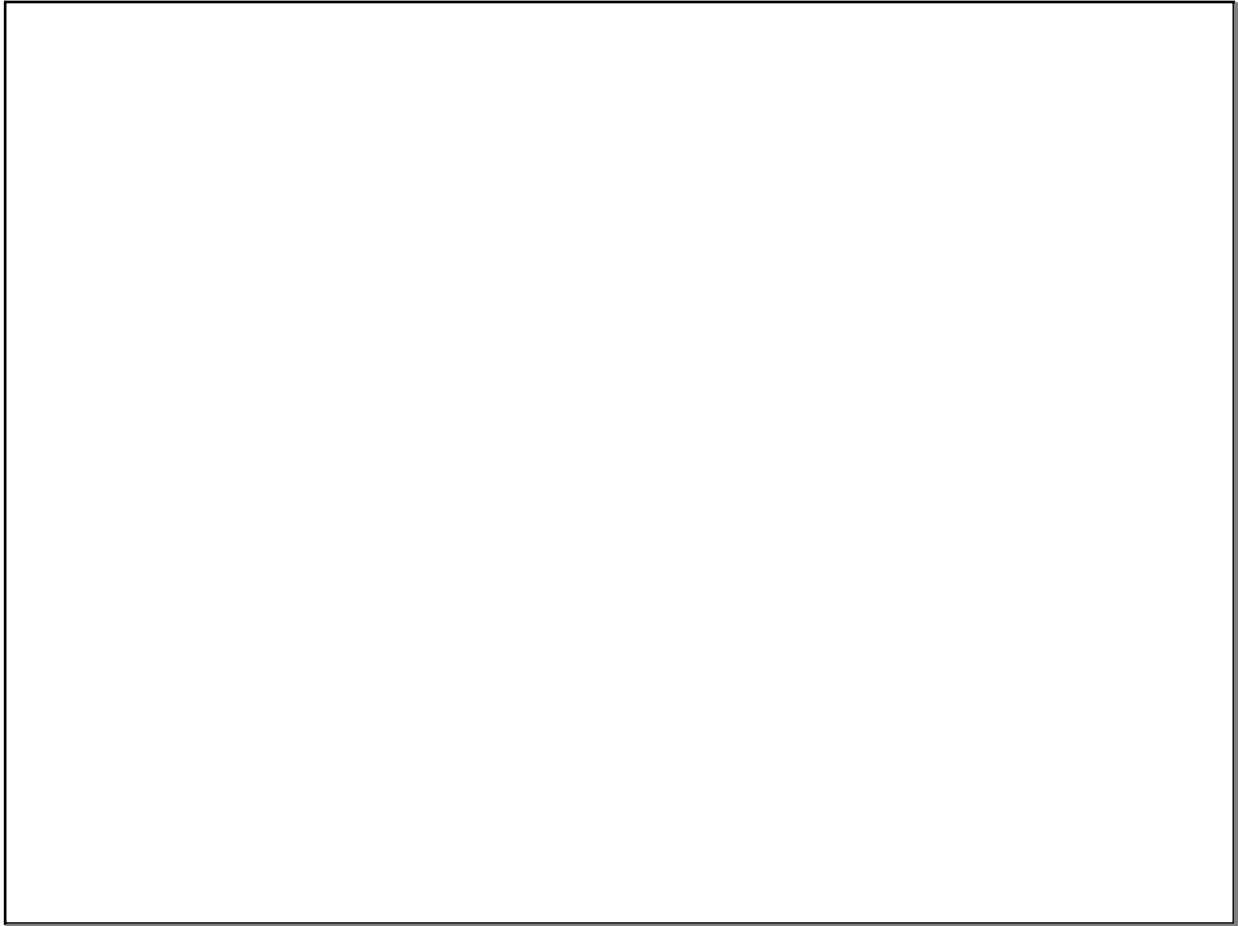
Below is a list of numbers in order from least to greatest. Use what you know about the number line to complete the list of numbers by filling in the blanks with the missing numbers.

$-6, -5, \underline{-4}, -3, -2, -1, \underline{0}, 1, 2, \underline{3}, 4, \underline{5}, 6$

Complete the number line scale. Explain and show how to find 2 and the opposite of 2 on a number line.



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Dec 2-2:13 PM