

9.2.14

Learning Objective

We will identify¹ opposite numbers on the number line.

Common Core Standard 7.NS.1

Apply and extend previous understandings of addition and subtraction to add and subtract integers (AND other rational numbers); represent addition and subtraction on a horizontal or vertical number line diagram.

CFU

What are we going to do?

What does *identify* mean?
Identify means _____.

Make Connection

Students, you already know how to plot numbers onto a number line. Now, we will identify opposite numbers on a number line.

Vocabulary

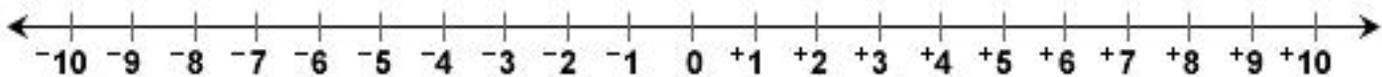
¹ find (synonym)

Activate Prior Knowledge

Plot the points onto the number line below.

A. 3

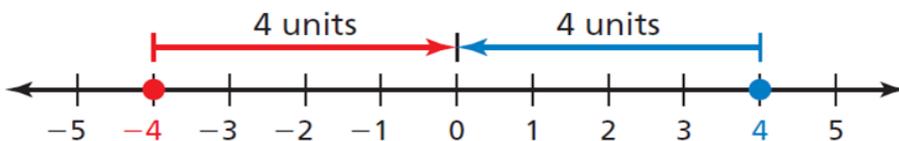
B. -6



Key Idea

Absolute Value

Words The **absolute value** of an integer is the distance between the number and 0 on a number line. The absolute value of a number a is written as $|a|$.

**Numbers**

$$|-4| = 4$$

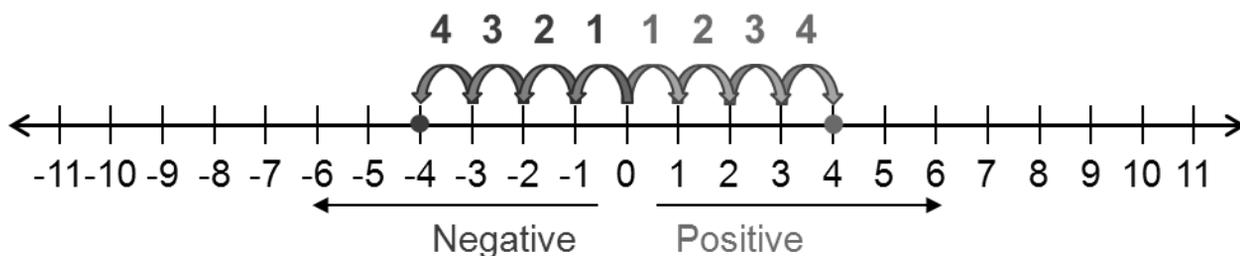
$$|4| = 4$$

Opposite numbers are the same distance from 0 on the number line but are on opposite sides.

- *Positive numbers are on the right side of 0 and are shown with a (+) sign or with no sign at all.*
- *Negative numbers are on the left side of 0 and are shown with a (-) sign.*
- *Zero (0) is its own opposite.*

Opposite Numbers

4 and -4



Not Opposite Numbers

3 and -6

-1 and -1

3 and 3

CFU

Which of the following numbers are opposites? How do you know?

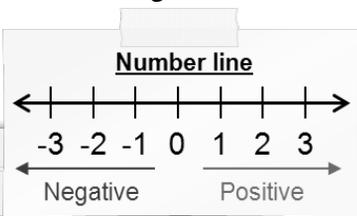
- A 5, -8 B 6, -6 C 4, 4 D 0, 0

What is the difference between positive and negative numbers?

In your own words, what are opposite numbers? "Opposite numbers are _____."

Opposite numbers are the same distance from 0 on the number line but are on opposite sides.

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- Zero (0) is its own opposite.



Identify opposite numbers on a number line.

- 1 Identify the number on the number line. (plot and label)
- 2 Identify the opposite of the number on the number line. (plot and label)

Hint: The opposite is the same distance from 0 on the opposite side.

- 3 Interpret₂ the solution. “The opposite of ___ is ___.”

1. $A = 3$

2. $C = 7$

Label the opposite of 3 as the letter *B*.

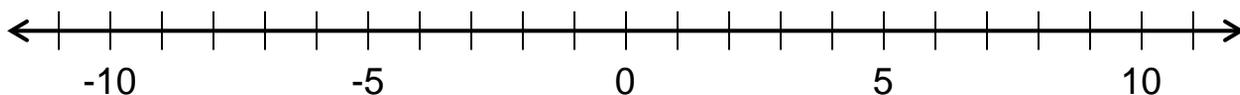
Label the opposite of 7 as the letter *D*.

3. $F = -2$

4. $R = -5$

Label the opposite of -2 as the letter *G*.

Label the opposite of -5 as the letter *S*.



CFU

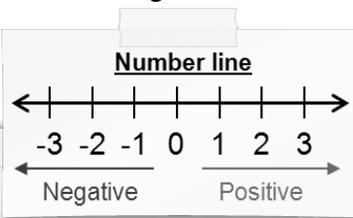
- 1 How did I/you identify the number on the number line?
- 2 How did I/you identify the opposite number on the number line?

Vocabulary

² explain

Opposite numbers are the same distance from 0 on the number line but are on opposite sides.

- *Positive numbers* are on the **right side** of 0 and are shown with a (+) sign or with no sign at all.
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- *Zero (0)* is its own opposite.



Identify opposite numbers on a number line.

- 1 Identify the number on the number line. (plot and label)
- 2 Identify the opposite of the number on the number line. (plot and label)

Hint: The opposite is the same distance from 0 on the opposite side.

- 3 Interpret the solution. “*The opposite of ___ is ___.*”

5. $Q = -8$

Label the opposite of -8 as the letter R .

6. $M = -10$

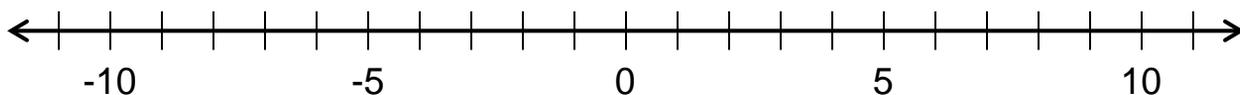
Label the opposite of -10 as the letter N .

7. $S = 11$

Label the opposite of 11 as the letter W .

8. $X = 0$

Label the opposite of 0 as the letter Y .



CFU

- 1 How did I/you identify the number on the number line?
- 2 How did I/you identify the opposite number on the number line?

Opposite numbers are the same distance from 0 on the number line but are on opposite sides.

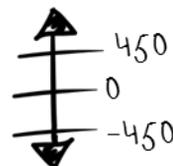
- *Positive numbers* are on the **right side** of 0 and are shown with a (+) sign or with no sign at all.
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- Zero (0) is its own opposite.

1 *Identifying opposite numbers on a number line will help you with real-life problems.*

Uncle Will gave blood at the blood bank. The bank received 450 ml of blood while Will gave up 450 ml of blood, about 10% of his total blood.

Blood for the bank: 450 ml

Blood given by Will: -450 ml



2 *Identifying opposite numbers on a number line will help you do well on tests.*

Sample Test Question:

Which of the following statements are true? Select Yes or No for A-D.

- A Yes No The numbers 3 and -3 are opposites.
 B Yes No The numbers 4 and 4 are opposites.
 C Yes No The numbers -10 and 10 are opposites.
 D Yes No The number 0 has no opposites.

CFU

Does anyone else have another reason why it is relevant to identify opposite numbers on a number line? (Pair-Share) Why is it relevant to identify opposite numbers on a number line? You may give one of my reasons or one of your own. Which reason is more relevant to you? Why?

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Skill Closure

Identify opposite numbers on a number line.

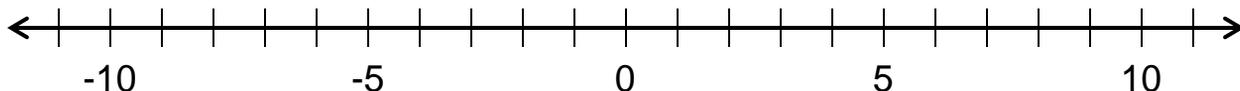
- 1 Identify the number on the number line. (plot and label)
- 2 Identify the opposite of the number on the number line. (plot and label)
Hint: The opposite is the same distance from 0 on the opposite side.
- 3 Interpret the solution. "The opposite of ___ is ___."

1. $B = 4$

Label the opposite of 4 as the letter *P*.

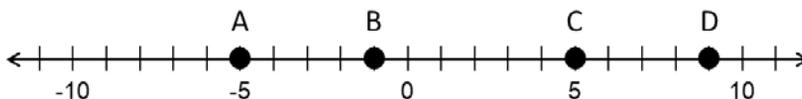
2. $T = -7$

Label the opposite of -7 as the letter *R*.



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Adolfo thinks that the points A and D are opposites. Do you agree with him? Why or why not?

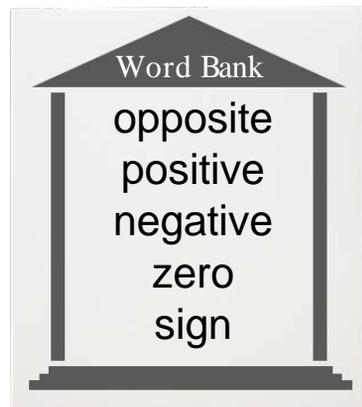


Summary Closure

What did you learn today about identifying opposite numbers on a number line? (Pair-Share) Use words from the word bank.

Day 1 _____

Day 2 _____



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Identify opposite numbers on a number line.

- 1 Identify the number on the number line. (plot and label)
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Hint: The opposite is the same distance from 0 on the opposite side.
- 3 Interpret the solution. "The opposite of ___ is ___."

1. $A = -4$

Label the opposite of -4 as the letter *B*.

2. $C = -11$

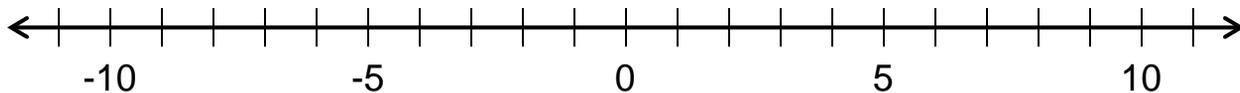
Label the opposite of -11 as the letter *D*.

3. $F = 2$

Label the opposite of 2 as the letter *G*.

4. $R = 9$

Label the opposite of 9 as the letter *P*.



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Hint: The opposite is the same distance from 0 on the opposite side.
- 3 Interpret the solution. "The opposite of ___ is ___."

5. $Q = -5$

Label the opposite of -5 as the letter R .

6. $M = -10$

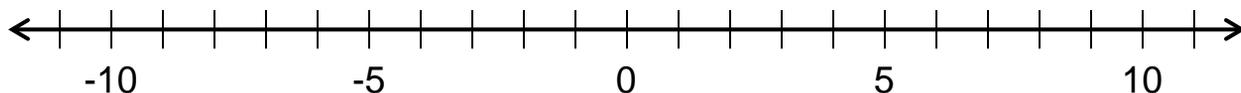
Label the opposite of -10 as the letter N .

7. $S = 0$

Label the opposite of 0 as the letter W .

8. $X = 7$

Label the opposite of 7 as the letter Y .

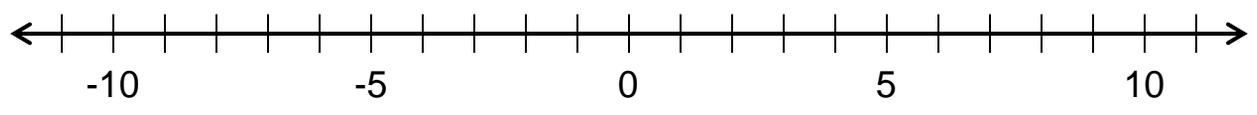


1. $C = -6$

2. $W = 10$

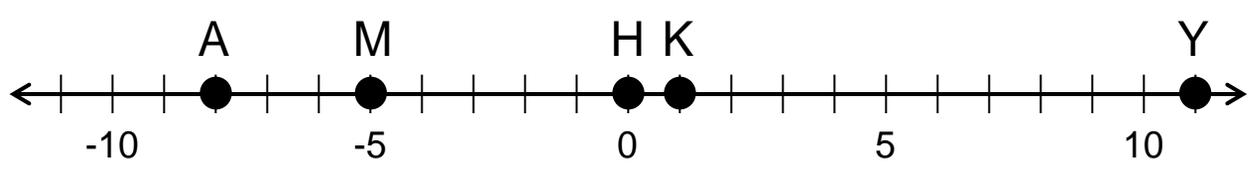
Label the opposite of -6 as the letter D .

Label the opposite of 10 as the letter X .



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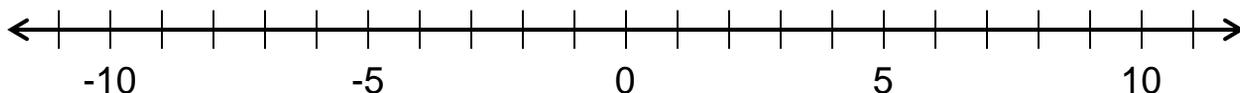
Identify the opposites of the numbers on the number line below.



1. $Z = -8$

Label the opposite of -8 as the letter A .

2. $F = 6$

Label the opposite of 6 as the letter P .

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Hikaru identified the opposites of the numbers below. Correct any mistakes he made. Use the number line above, if needed.

1. $Q = -8$

The opposite
of -8 is -8 .

2. $F = -3$

The opposite
of -3 is 3 .

3. $S = -1$

The opposite
of -1 is -2

4. $I = 0$

The opposite
of 0 is 4 .

5. $R = 4$

The opposite
of 4 is -4 .

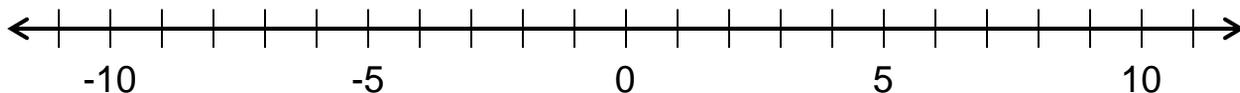
6. $U = 7$

The opposite
of 7 is 0

1. $Q = 5$

Label the opposite of 5 as the letter R .

2. $M = -9$

Label the opposite of -9 as the letter N .

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Which of the following statements are true? Select Yes or No for A-D.

- A Yes No The numbers 3 and -3 are opposites.
- B Yes No The numbers 4 and 4 are opposites.
- C Yes No The numbers -10 and 10 are opposites.
- D Yes No The number 0 has no opposites.

In the following questions, describe the error that was made:

1.



$$-10 + (-10) = 0$$

2.



$$9 + (-6) = -3$$

QUESTION # 1:

Describe the error:

Now rewrite problem in box provided showing work correctly (you may use counters or draw a number line to help).

QUESTION # 2:

Describe the error:

Now rewrite problem in box provided showing work correctly (you may use counters or draw a number line to help).