2-1 Integers

Warm Up

Problem of the Day

Lesson Presentation

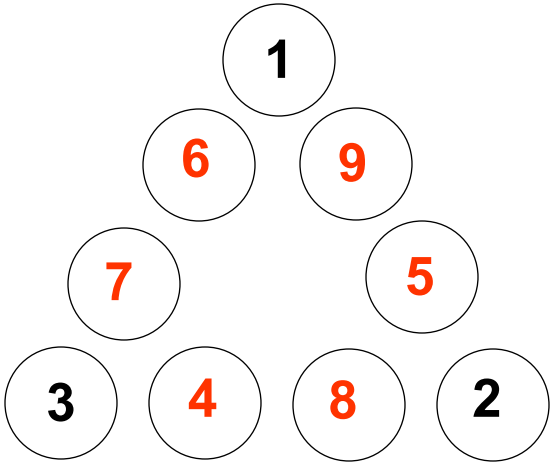
Warm Up

Compare. Use <, >, or =

1. 7 ▢ 5 >
2. 32 ▢ 65 <
3. 82 ▢ 28 >
4. 64 ▢ 48 >

Problem of the Day

Place 4, 5, 6, 7, 8, and 9 in the empty circles so that each side has the same sum.



2-1 Integers

Learn to compare and order integers and to determine absolute value.

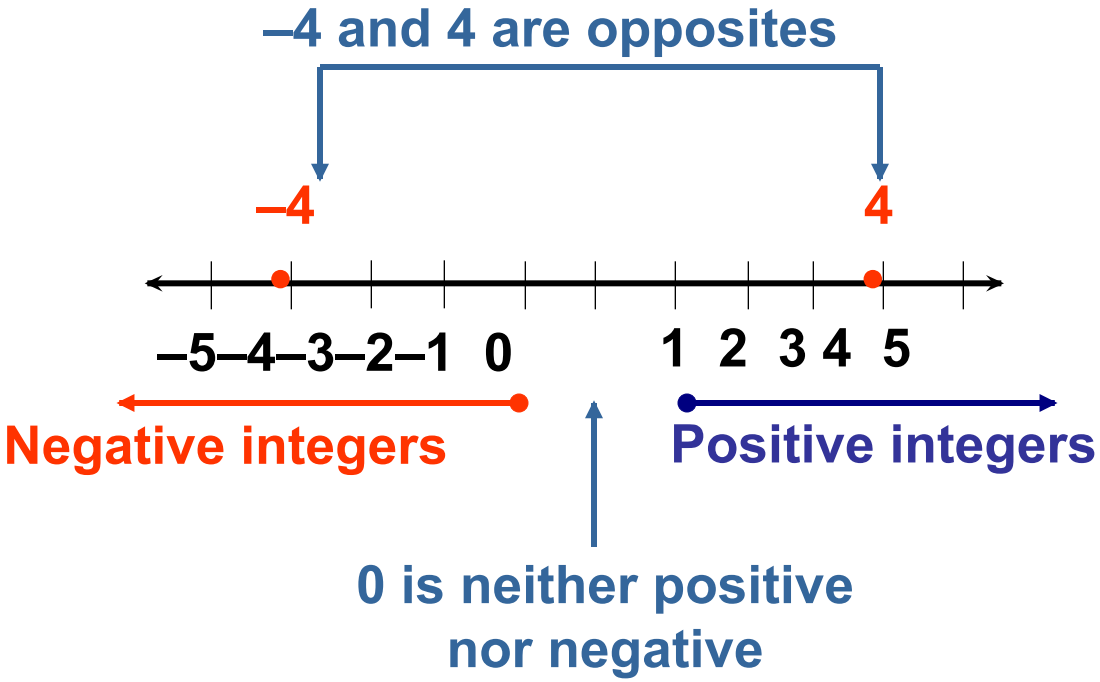
Vocabulary

opposite

integer

absolute value

The **opposite** of a number is the same distance from 0 on a number line as the original number, but on the other side of 0. Zero is its own opposite.



2-1 Integers

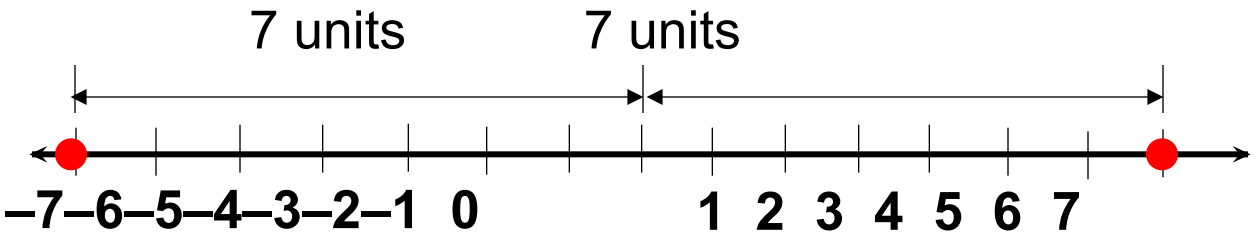
The **integers** are the set of whole numbers and their opposites. By using integers, you can express elevations above, below, and at sea level. Sea level has an elevation of 0 feet.

Remember!

The whole numbers are the counting numbers and zero: 0, 1, 2, 3, ...

Additional Example 1: Graphing Integers and Their Opposites on a Number Line

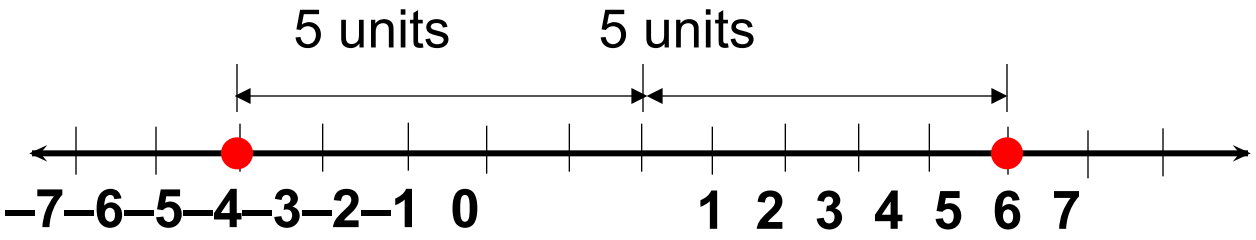
Graph the integer –7 and its opposite on a number line.



The opposite of –7 is 7.

Check It Out: Example 1

Graph the integer –5 and its opposite on a number line.



The opposite of –5 is 5.

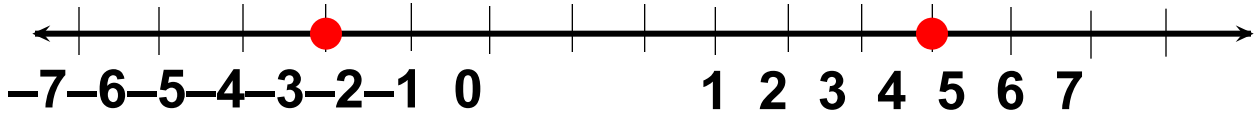
2-1 Integers

You can compare and order integers by graphing them on a number line. Integers increase in value as you move to the right along a number line. They decrease in value as you move to the left.

Additional Example 2A: Comparing Integers Using a Number Line

Compare the integers. Use < or >.

4 **>** -4



4 is farther to the right than -4, so 4 > -4.

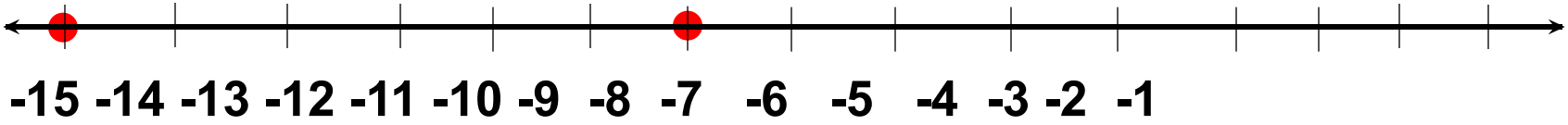
Remember!

The symbol < means “is less than,” and the symbol > means “is greater than.”

Additional Example 2B: Comparing Integers Using a Number Line

Compare the integers. Use < or >.

-15 < -9

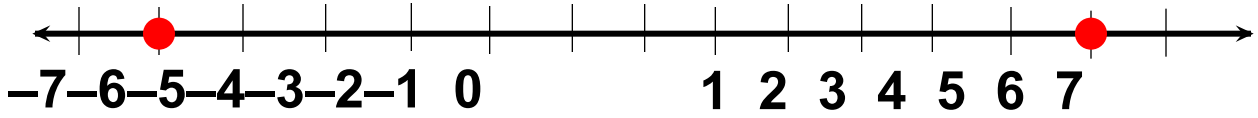


-9 is farther to the right than -15, so -15 < -9.

Check It Out: Example 2A

Compare the integers. Use < or >.

6 > -6

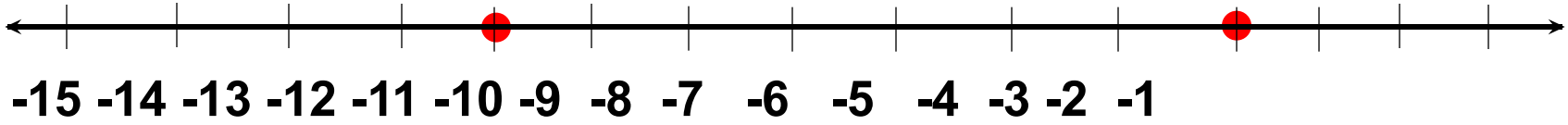


6 is farther to the right than -6, so 6 > -6.

Check It Out: Example 2B

Compare the integers. Use < or >.

-4 > -11

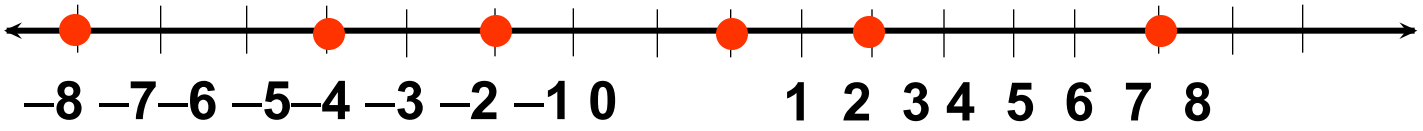


-4 is farther to the right than -11, so -4 > -11.

Additional Example 3: Ordering Integers Using a Number Line.

Use a number line to order the integers from least to greatest.

–3, 6, –5, 2, 0, –8

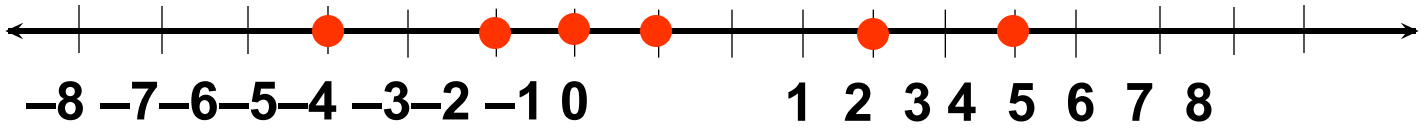


The numbers in order from least to greatest are –8, –5, –3, 0, 2, and 6.

Check It Out: Example 3

Use a number line to order the integers from least to greatest.

–5, 4, –3, 2, –1, –2



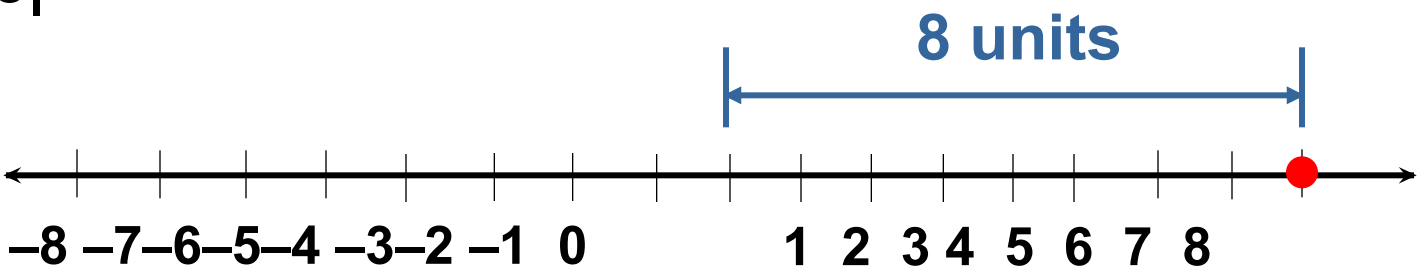
The numbers in order from least to greatest are –5, –3, –2, –1, 2, and 4.

A number's **absolute value** is its distance from 0 on a number line. Since distance can never be negative, absolute values are never negative. They are always positive or zero.

Additional Example 4A: Finding Absolute Value

Use a number line to find each absolute value.

|8|



8 is 8 units from 0, so |8| = 8.

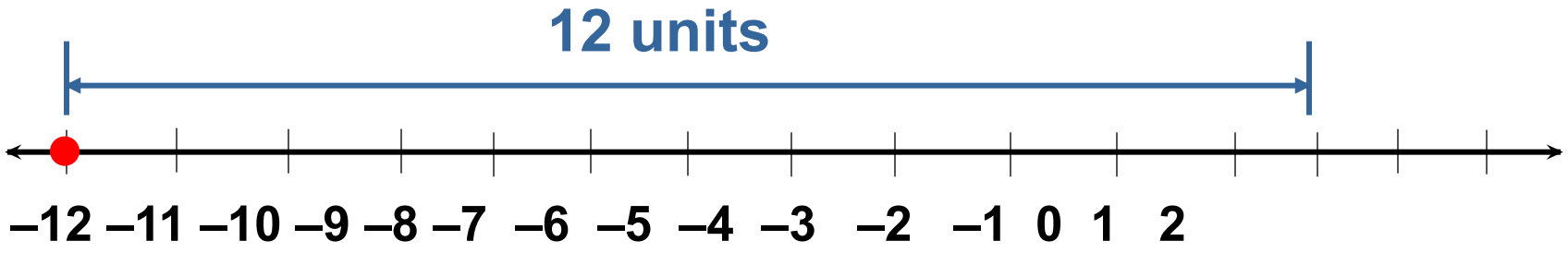
Reading Math

The symbol $|\ |$ is read as "the absolute value of." For example $|-3|$ is the absolute value of -3.

Additional Example 4B: Finding Absolute Value

Use a number line to find each absolute value.

|–12|

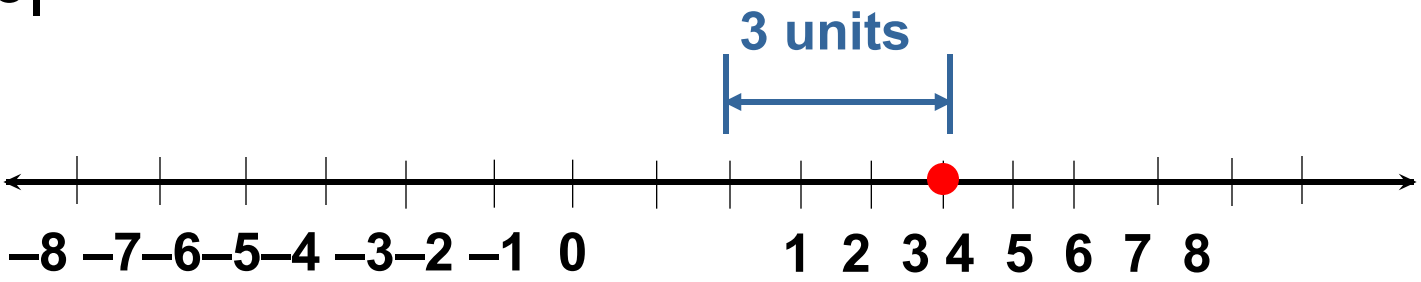


–12 is 12 units from 0, so |–12| = 12.

Check It Out: Example 4A

Use a number line to find each absolute value.

|3|

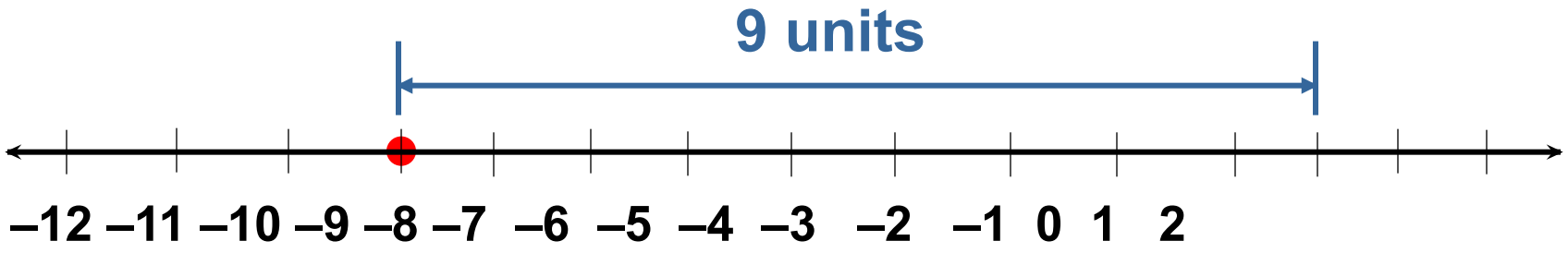


3 is 3 units from 0, so |3| = 3.

Check It Out: Example 4B

Use a number line to find the absolute value.

|–9|



–9 is 9 units from 0, so |–9| = 9.

Lesson Quiz: Part I

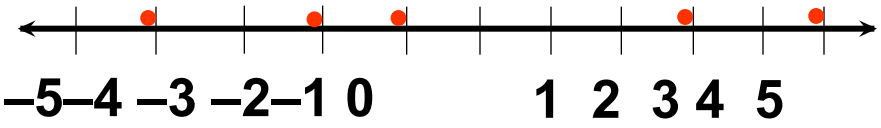
Compare. Use <, >, or =.

1. –32 ▢ 22 <

2. 26 ▢ |–26| =

3. –8 ▢ 12 >

4. Use a number line to order the integers –2, 3, –4, 5, and –1 from least to greatest.

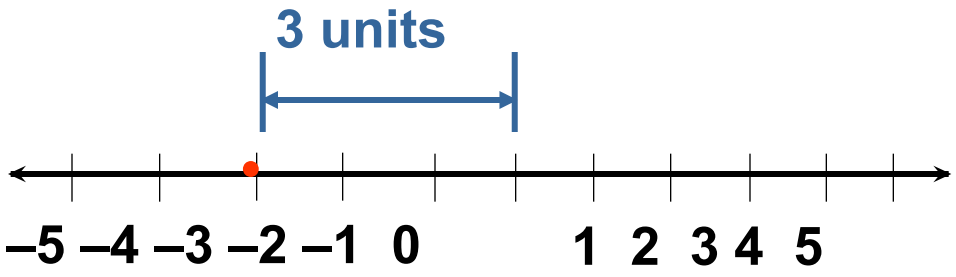


–4, –2, –1, 3, 5

Lesson Quiz: Part II

Use a number line to find the absolute value.

5. $|-3|$



3