

Grade 6 - Ordering Rational Numbers and Absolute Value - Lesson

Common Core 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.7c, 6.NS.C.7d · maths-pdf.fr/en/

To compare rational numbers, use a number line: the number farther to the right is greater, so $-4 < -1$. The absolute value of a number is its distance from 0, so $|-6| = 6$. Order and absolute value are different: -12 is less than -5 , but its absolute value, 12 , is greater than 5 .

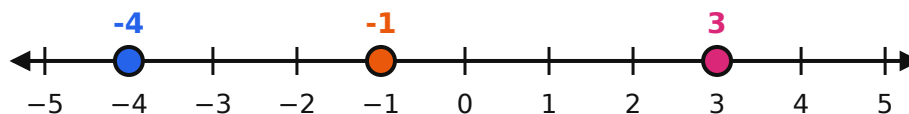
Grade 6 · Common Core State Standards: **6.NS.C.7a, 6.NS.C.7b, 6.NS.C.7c, 6.NS.C.7d**

Key facts

- Numbers increase from left to right on a number line.
- Every positive number is greater than every negative number.
- Among negatives, the one closer to 0 is greater.
- Absolute value is the distance from 0, so it is never negative.
- A number can be less than another and still have the greater absolute value.

How do you compare rational numbers?

On a number line, numbers increase from left to right. The number farther to the right is greater. Use the symbols $<$, $>$, and $=$ to write a comparison.



Numbers increase from left to right: $-4 < -1 < 3$.

Every positive number is greater than every negative number, and 0 is between them. When both numbers are negative, the one closer to 0 is greater, so $-4 < -1$.

How do you order fractions and decimals?

Write all numbers in the same form (decimals or fractions with a common denominator), then place them on a number line. For example, $-\frac{3}{4} = -0.75$ is less than $-\frac{1}{2} = -0.5$.

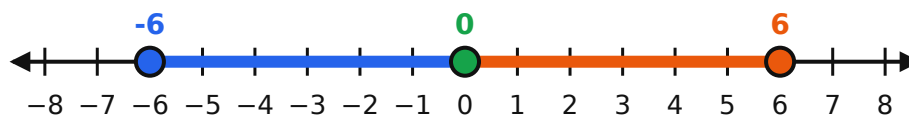
To write a comparison from a story, name each quantity as a signed number first. If a team

has a score of -3 and another team has $+2$, then $-3 < 2$. In words, you can also write $2 > -3$. Both statements say the same thing, so read the symbol with the "open mouth" facing the greater number.

What is absolute value?

Absolute value

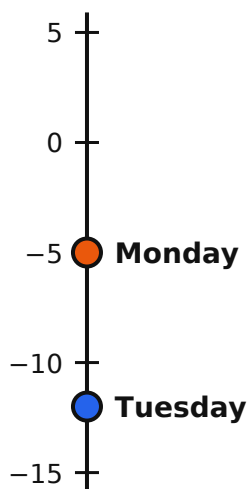
The **absolute value** of a number is its distance from 0 on the number line. It is written $|x|$ and is never negative. For example, $|-6| = 6$ and $|6| = 6$.



Both -6 and 6 have an absolute value of 6.

Why does order differ from absolute value?

Order tells where a number is on the line. Absolute value tells how far it is from 0. Compare a temperature of -12°F and -5°F . The temperature -12 is colder because $-12 < -5$. It is also farther from 0, because $|-12| = 12 > 5 = |-5|$.



On a thermometer, -12 is lower than -5.

Number	Order	Absolute value
-12	less	12
-5	greater	5

The number that is less can have the greater absolute value.

Absolute value is also used to describe sizes in real life: a debt of \$50 has a size of \$50, even though the debt is the number -50 . Careful readers always say which idea they use. "Greater debt" refers to the size of the debt, which is the absolute value, while "less money" refers to order on the number line.

1. Decide whether you are comparing values (order) or distances (absolute value).
2. Place the numbers on a number line or thermometer.
3. For order, read from left to right; for absolute value, find the distance to 0.
4. Write the comparison with a symbol and state it in words for the context.

Questions about ordering rational numbers and absolute value

How do you compare two negative numbers?

Place them on a number line. The one closer to 0 is greater, so -3 is greater than -8 .

What is absolute value?

Absolute value is the distance of a number from 0 on a number line. The absolute value of -9 is 9, and the absolute value of 9 is also 9.

Can absolute value be negative?

No. Absolute value is a distance, and distances are never negative. The absolute value of 0 is 0.

How do you order negative decimals and fractions?

Write them in the same form, such as decimals, then place them on a number line. For -0.75 and -0.5 , -0.75 is farther left and is therefore less.

Why is -12 degrees colder than -5 degrees?

On a thermometer, -12 is lower than -5 . Colder means less, so -12 is less than -5 , even though 12 is greater than 5.