

Adding and Subtracting Positive and Negative Numbers

Grade 7 math · Lesson · Standards: 7.NS.A.1a, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d

Quick answer: Combine signed numbers by walking a number line: adding a positive goes right, adding a negative goes left, and opposites cancel to 0. Replace any subtraction $p - q$ with $p + (-q)$. The gap between two numbers equals $|p - q|$. Decimals and fractions follow identical rules.

Standards: 7.NS.A.1a, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d · **Level:** Grade 7

What happens when you combine positive and negative numbers?

Picture a walk along a number line. The first number is where you stand; a positive second number sends you east (right), a negative one sends you west (left). Numbers like 8 and -8 sit equally far from zero on opposite sides. Mathematicians call such a pair *opposites*, and together they always total 0.

Additive inverse

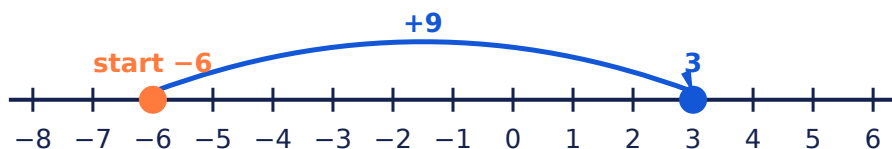
The opposite of p is $-p$, and $p + (-p) = 0$. For example, $3.5 + (-3.5) = 0$ and $-\frac{2}{3} + \frac{2}{3} = 0$.

Rules for adding

Signs	What to do	Example
Same sign	Add the sizes (absolute values) and keep that shared sign	$-5 + (-7) = -12$
Different signs	Take the bigger size minus the smaller size, then use the sign of the bigger one	$-9 + 4 = -5$
Opposites	The total is exactly 0	$6 + (-6) = 0$

Worked example

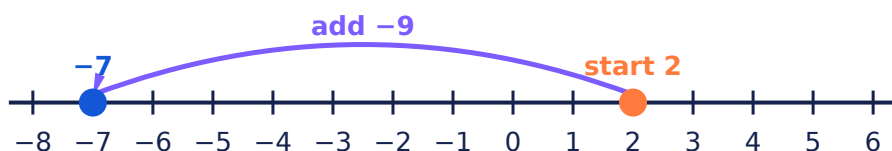
A checking account is overdrawn at $-\$6$. A deposit of $\$9$ is made. Then $-6 + 9$: start at -6 and move 9 right, which lands on **3**. The balance is $\$3$.



$-6 + 9 = 3$: adding a positive moves right.

How can subtraction become addition?

To subtract q , add $-q$ instead: $p - q = p + (-q)$. That turns $2 - 9$ into $2 + (-9) = -7$, and $3 - (-4)$ into $3 + 4 = 7$.



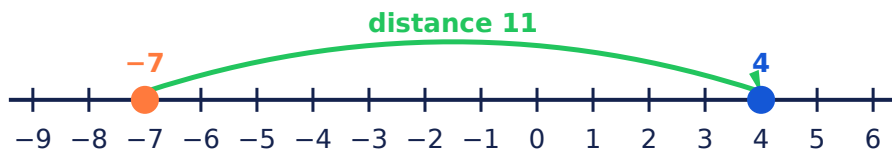
$2 - 9 = 2 + (-9) = -7$: subtracting 9 moves left.

Method: add or subtract rational numbers

1. Rewrite every subtraction as adding the opposite.
2. Look at the signs: same signs add, different signs subtract absolute values.
3. Give the answer the sign of the number farther from 0.
4. Check with a number line or an opposite pair.

How far apart are two numbers?

Subtract one from the other and drop any negative sign by taking the absolute value. A gap can never be below 0, and swapping the two numbers changes nothing: $|p - q| = |q - p|$.



The gap between -7 and 4 is $|4 - (-7)| = 11$.

Common mistake

Dropping the sign: treating $-9 - 4$ as 5. Rewrite it as $-9 + (-4) = -13$. Both numbers push in the same direction, left.

Mathbot's tip

Read the minus sign as "add the opposite." Then you only ever have to add.

Key points to remember

- Opposites add to 0: $p + (-p) = 0$.
- Same signs: add absolute values and keep the sign. Different signs: subtract and keep the sign of the larger absolute value.
- Subtracting a number is adding its opposite: $p - q = p + (-q)$.
- The distance between p and q is $|p - q|$.
- The same rules apply to positive and negative decimals and fractions.

Adding and Subtracting Positive and Negative Numbers: frequently asked questions

What is an additive inverse?

The additive inverse of a number is its opposite, the number that adds to it to give 0. The inverse of 7 is -7 and the inverse of -2.5 is 2.5.

Why does subtracting a negative number make the result larger?

Subtracting a negative means adding its opposite, which is positive. So $3 - (-4) = 3 + 4 = 7$, a move of 4 to the right.

How do I add a positive and a negative number?

Subtract the smaller absolute value from the larger and keep the sign of the number with the larger absolute value. For $-9 + 4$, $9 - 4 = 5$, and the sign is negative, so the answer is -5 .

How do I find the distance between two numbers?

Subtract them in either order and take the absolute value. The distance between -7 and 4 is $|4 - (-7)| = 11$.

Do the same rules work for fractions and decimals?

Yes. You can add and subtract positive and negative fractions and decimals by the same sign rules, after writing fractions with a common denominator.