Adding Two Integers with the Same Sign

Adding Integers

Vocabulary A-Z

Let us learn some vocabulary

Opposites

Two numbers with the same absolute value but different signs are called opposites.

−4 and 4 are OPPOSITES

Additive inverse

An integer and its opposite are also called additive inverses.

$$-5 + 5 = 0$$

$$14 + -14 = 0$$

Number

Additive inverse

Key Concept

Adding Integers with the Same Sign

Words: To add integers with the same sign, addtheir absolute value.
The sum is:
- Positive if both integers are positive.
- Negative if both integers are negative.

Examples: −5 + (−2) = −7   6 + 3 = 9

Adding Integers with different Signs

Words: To add integers with different signs, subtract their absolute values.
The sum is:
- Positive if the positive integer's absolute value is greater.
- Negative if the negative integer's absolute value is greater.

Additive Inverse Property

Words: The sum of any number and its additive inverse is zero.
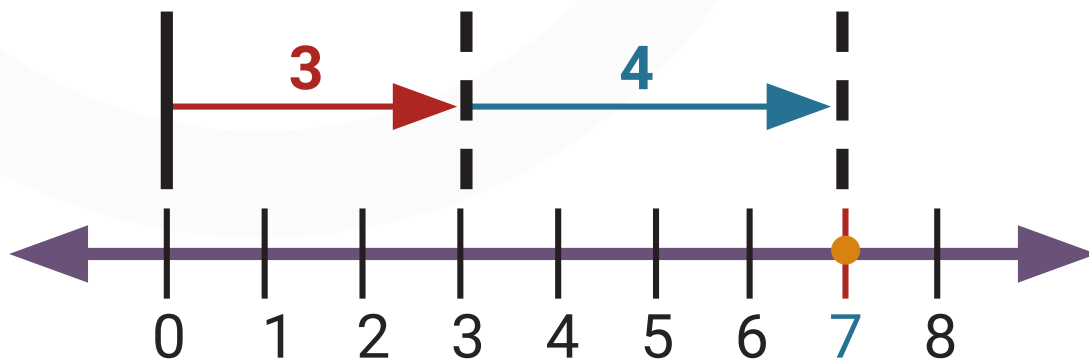
Symbols: $x + (-x) = 0$

Examples: 6 + (−6) = 0

Add Integers on a Number Line

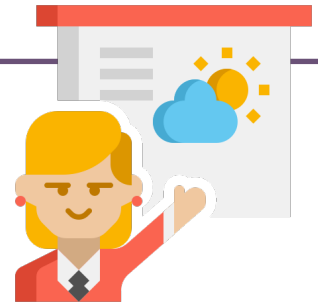Find 3 + 4.

Start at zero.

Move three units to the right.

From there, move four more units to the right.

ANSWER $3 + 4 = 7$

REAL WORLD EXAMPLE

WEATHER
On February 1, the temperature at dawn was −22°F. By noon, it had risen 19 degrees. What was the temperature at noon?

Words
The temperature at dawn was −22°F. It had risen 19 degrees by noon.
What was the temperature at noon?

▼

Variable
Let x = the temperature at noon.

▼

Equation

Temperature at dawn	plus	increase by noon	equals	Temperature at noon
↓	↓	↓	↓	↓
−22	+	19	=	x

Solve the Equation.

−22 + 19 = x   To find the sum, subtract | 19 | from | −22 |.

−3 = x   The sum is negative because | −22 | > | 19 |.

ANSWER   **The temperature at noon was −3⁰ F.**

Add Integers with the Same Sign

Find −5 + (−4).

−5 + (−4) = −9   Add |−5| and |−4|. Both numbers are negative, so the sum is negative.

ANSWER   −9

Your Turn!

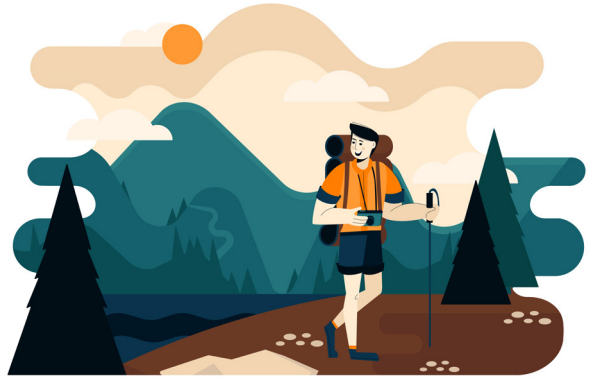## Add Integers on a Number Line

Find −2 + 5

A. 7
B. −7
C. 3
D. −3

Add Integers with the Same Sign

Find −3 + −8

A. 5
B. −5
C. 11
D. -11

Adding Two Integers with the Same Sign

HIKING

Dave started his hike at 32 feet below sea level. During the hike he gained an altitude of 29 feet. At what altitude did Dave complete his hike?

A. 3 feet above sea level
B. 3 feet below sea level
C. 61 feet above sea level
D. 61 feet below sea level