

Section Overview

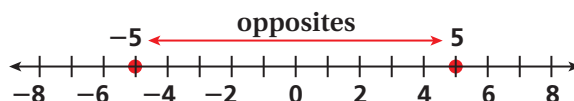
Understanding Integers

Lesson 2-1

Why? Integers are used to represent real-world quantities, such as temperatures below zero.

The **integers** are the set of whole numbers and their **opposites**.

Opposites are the same distance from 0, but on opposite sides of 0.



Integer Operations and Equations

Lessons 2-2 through 2-5

Why? When you know how to operate with integers, you can solve equations and problems involving integers.

| Operation | Rule | Examples |
|------------------------------------|---|--|
| Add integers with the same sign. | Find the sum of their absolute values. Then use the sign of the integers. | $5 + 4 = 9$ $(-6) + (-2) = -8$ |
| Add integers with different signs. | Find the difference of their absolute values. Then use the sign of the integer with the greater absolute value. | $9 + (-3) = 6$ $-8 + 7 = -1$ |
| Subtract integers. | To subtract an integer, add its opposite. | $2 - (-3) = 2 + 3 = 5$ $-7 - 1 = -7 + (-1) = -8$ |
| Multiply or divide integers. | If the signs are the same, the answer will be positive. If the signs are different, the answer will be negative. | $4 \cdot 5 = 20$ $-24 \div (-6) = 4$ $-8 \cdot 3 = -24$ $36 \div (-4) = -9$ |

When solving equations with integers, the goal is the same as with whole numbers—*isolate the variable on one side of the equation.*

$$\begin{array}{r} -8z = -72 \\ \underline{-8z = -72} \\ -8 \quad -8 \\ z = 9 \end{array}$$

Divide both sides by -8 .