LESSON 1.3

# Adding Integers

CA Standards
NS 1.2
AF 1.3

**Goal:** Add integers.

**Vocabulary**

Additive identity: The number 0

Additive inverse: The opposite of a number

## EXAMPLE 1 Adding Integers Using a Number Line

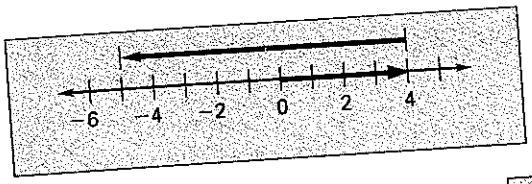
**Use a number line to find the sum.**

**a.** $4 + (-9)$ **b.** $-7 + 8$ **c.** $-5 + (-2)$

**Solution**

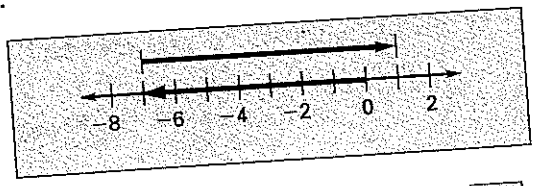
Remember that when you add a positive integer, you move to the right. When you add a negative integer, you move to the left.

**a.** Start at 0, move 4 units to the right. Then move 9 units to the left.



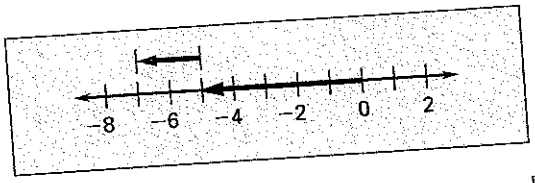

**Answer:** The final position is −5. So, $4 + (-9) = -5$.

**b.** Start at 0, move 7 units to the left. Then move 8 units to the right.




**Answer:** The final position is 1. So, $-7 + 8 = 1$.

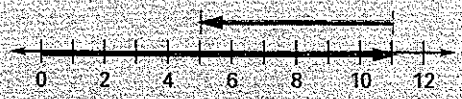
**c.** Start at 0, move 5 units to the left. Then move 2 units to the left.



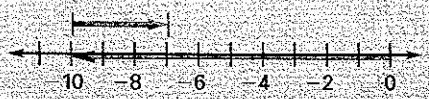

**Answer:** The final position is −7. So, $-5 + (-2) = -7$.

**Guided Practice** **Use the number line to find the sum.**

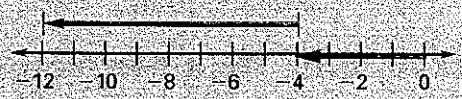
**1.** $11 + (-6)$




**2.** $-10 + 3$




**3.** $-4 + (-8)$




**4.** $1 + (-1)$

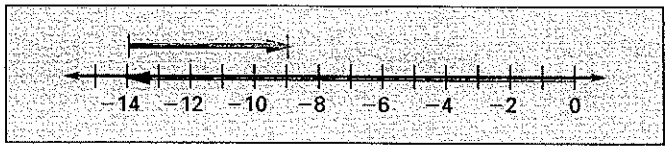

## EXAMPLE 2 Adding Integers

**Find the sum $-14 + 5$.**

$-14 + 5 =$ [ $-9$ ] ← Different signs, so subtract [ $|5|$ ] from [ $|-14|$ ].

↳ Use sign of number with greater absolute value.

✓ **Check** Use a number line to find the sum.




### Identity Property of Addition

**Words** The sum of a number and [ 0 ] is the number.

**Numbers** $-7 + 0 =$ [ $-7$ ] **Algebra** $a + 0 = a$

### Inverse Property of Addition

**Words** The sum of a number and its opposite is [ 0 ].

**Numbers** $4 +$ [ $(-4)$ ] $= 0$ **Algebra** $a + (-a) = 0$

### Closure Property of Addition

The sum of two integers is an integer.

## EXAMPLE 3 Using Addition Properties

**Find the sum using the order of operations.**

$-56 + 56 + (-98) + 84 = \boxed{0}\ (-98) + 84$ Inverse property of addition

$= \boxed{-98} + 84$ Identity property of addition

$= \boxed{-14}$ Use sign of number with greatest absolute value.

## EXAMPLE 4 Adding More Than Two Integers

**Banking** You start a bank account. The table shows the deposits and withdrawals of the account during the first month. How much money is in the account at the end of the month?

| | |
|---|---|
| January 2 | $675 |
| January 9 | −$80 |
| January 19 | −$25 |
| January 24 | $168 |
| January 30 | −$40 |

**Solution**

$675 + (-80) + (-25) + 168 + (-40) = \boxed{595} + (-25) + 168 + (-40)$

$= \boxed{570} + 168 + (-40)$

$= \boxed{738} + (-40)$

$= \boxed{698}$

Think: What operation would I use to find how much money is in the account at the end of the month?

**Answer:** You have $\boxed{\$698}$ in the account at the end of the month.

**Guided Practice** **Find the sum.**

| | |
|---|---|
| **5.** $-28 + (-12)$ | **6.** $19 + 0 + (-51)$ |
| **7.** $310 + 123 + (-68) + (-365)$ | **8.** $-240 + (-516) + 193 + 113$ |

**Homework**