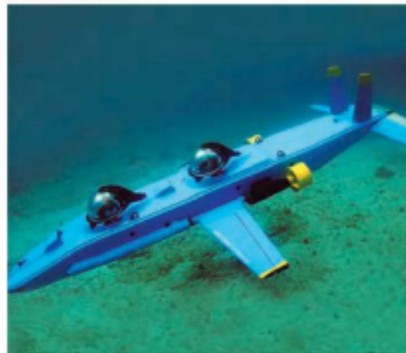# Subtracting Integers

## What You'll Learn

To subtract integers and to solve problems by subtracting integers
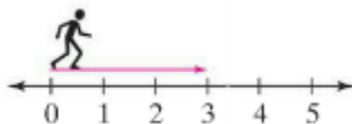
## Why Learn This?

You can subtract integers to find changes in the depth of vehicles or creatures underwater.
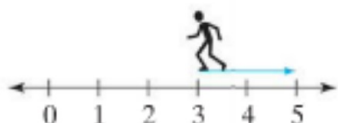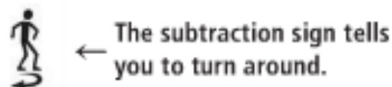
You can use a model to subtract integers. On a number line, the subtraction operation tells you to turn around and face the opposite direction.

**EXAMPLE**  **Using a Number Line to Subtract**
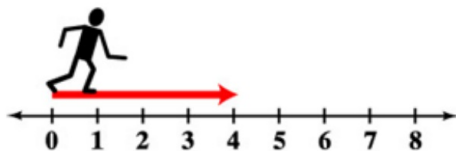
1  Use a number line to find $3 - (-2)$.

Start at 0. Face the positive direction.
Move forward 3 units for 3.
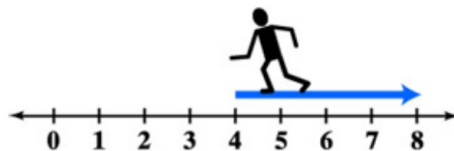
The subtraction sign tells you to turn around.

Then move backward 2 units for $-2$.
You stop at 5.

So $3 - (-2) = 5$.

**1 EXAMPLE** Use a number line to find 4 − (−4).
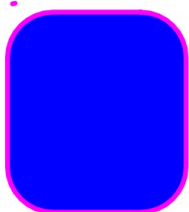
Start at 0. Face the positive direction. Move forward 4 units for 4.

For subtraction, turn around. Then move backward 4 units for −4. You stop at 8.

So, 4 − (−4) = 8.

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1. Find $5 - (-1)$?

A. 6

B. 4

C. −4

D. −6
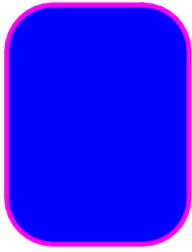
2. Find $-3 - 3$?

    A. $-6$

    B. $-3$

    C. $3$

    D. $0$

---

Subtracting an integer is the same as adding its opposite.
$$3 - 2 = 1 \text{ and } 3 + (-2) = 1$$

**KEY CONCEPTS** **Subtracting Integers**

You subtract an integer by adding its opposite.

**Examples:**

$$10 - 6 = 10 + (-6) \qquad 10 - (-6) = 10 + 6$$
$$-10 - 6 = -10 + (-6) \qquad -10 - (-6) = -10 + 6$$

**EXAMPLE**  **Subtracting Integers**

**2**  **a.** Find $-8 - (-3)$.

$$-8 - (-3) = -8 + 3 \qquad \leftarrow \text{To subtract } -3, \text{ add its opposite, 3.}$$
$$= -5 \qquad\qquad \leftarrow \text{Simplify.}$$

**b.** Find $-2 - 7$.

$$-2 - 7 = -2 + (-7) \qquad \leftarrow \text{To subtract 7, add its opposite, } -7.$$
$$= -9 \qquad\qquad\quad \leftarrow \text{Simplify.}$$

---

**a.** $-5 - (-7)$

$$-5 - (-7) = -5 + 7 \qquad \leftarrow \text{To subtract } -7, \text{ add its opposite, 7.}$$
$$-5 + 7 = 2 \qquad\qquad \leftarrow \text{Simplify.}$$

**b.** $-9 - 6$

$$-9 - 6 = -9 + (-6) \qquad \leftarrow \text{To subtract 6, add its opposite, } -6.$$
$$= -15 \qquad\qquad\quad \leftarrow \text{Simplify.}$$
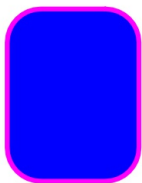
1. Find the difference.

$-6 - (-2)$

A. $-8$

B. $-4$

C. $4$

D. $8$

---

**EXAMPLE**    **Application: Submarines**

**3** The submarine *Alvin* was 1,500 feet below sea level $(-1,500)$. Then it moved to 1,872 feet below sea level $(-1,872)$. How far did *Alvin* move?

Find $-1,872 - (-1,500)$.

$$-1,872 - (-1,500) = -1,872 + 1,500 \quad \leftarrow \text{To subtract } -1,500, \text{ add its opposite.}$$

$$= -372 \quad \leftarrow \text{Simplify.}$$

*Alvin* moved down 372 feet.

**③ EXAMPLE** Juan owes his sister $14. She told him to subtract $8 of what he owes if he feeds the dog. Write an integer to show how much money Juan will owe if he feeds the dog.
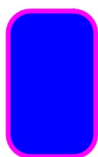
Find $-14 - (-8)$.

$$-14 - (-8) = -14 + 8 \quad \leftarrow \text{To subtract } -8, \text{ add its opposite.}$$
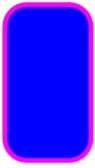
$$= -6 \quad \leftarrow \text{Simplify.}$$

The integer $-6$ shows that Juan will owe his sister $6.
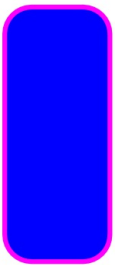
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**Rewrite each difference as a sum.**

3.  $-10 - 3$

     A. $10 + (-3)$

     B. $-10 + 3$

     C. $-10 + (-3)$

     D. $10 + 3$

**Rewrite each difference as a sum.**

4.  $2 - (-8)$

    A. $-2 + 8$

    B. $2 + (-8)$

    C. $2 + 8$

    D. $2 - (+8)$

**Rewrite each difference as a sum.**

5.  $-1 - (-3)$

    A. $1 + (-3)$

    B. $1 + 3$

    C. $-1 + 3$

    D. $-1 + (-3)$

## Extra practice problems.

**Use a number line to find each difference.**

**6.** $7 - 4$     **7.** $4 - (-5)$     **8.** $3 - 8$

**9.** $-1 - 6$     **10.** $-2 - (-3)$     **11.** $-4 - (-1)$

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Power down your clickers and put them away.

You have an assignment worksheet. You may find your numberlines and stickpeople helpful to complete the worksheet.
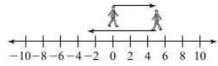
# Reteaching 11-4

**Subtracting Integers**

To subtract an integer, add the opposite.
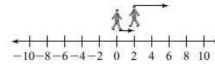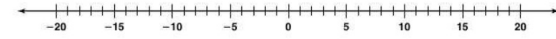
*Example 1:* Subtract $5 - 8$.

Add the opposite: $5 + (-8)$



$-10 -8 -6 -4 -2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10$

$5 - 8 = -3$

*Example 2:* Subtract $2 - (-4)$.

Add the opposite: $2 + 4$



$-10 -8 -6 -4 -2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10$

$2 - (-4) = 6$



$-20 \qquad -15 \qquad -10 \qquad -5 \qquad 0 \qquad 5 \qquad 10 \qquad 15 \qquad 20$

**Use a number line. Find each difference.**

**1.** $3 - (-6)$ _____

**2.** $2 - (-4)$ _____

**3.** $-1 - 2$ _____

**4.** $-3 - (-5)$ _____

**5.** $-8 - (-3)$ _____

**6.** $4 - (-4)$ _____

**7.** $-8 - 2$ _____

**8.** $8 - (-2)$ _____

**9.** $-8 - (-2)$ _____

**10.** $-7 - 4$ _____

**11.** $-10 - 2$ _____

**12.** $-5 - (-5)$ _____

**13.** $-5 - 6$ _____

**14.** $9 - (-3)$ _____

**15.** $-11 - (-6)$ _____

**Find each difference.**

**16.** $15 - (-4)$ _____

**17.** $-12 - 3$ _____

**18.** $21 - (-7)$ _____

**19.** $3 - (-12)$ _____

**20.** $-2 - 10$ _____

**21.** $-13 - 13$ _____

**22.** $5 - (-5)$ _____

**23.** $18 - (-10)$ _____

**24.** $-7 - (-13)$ _____

**25.** $14 - 16$ _____

**26.** $3 - 15$ _____

**27.** $-6 - (-9)$ _____