

Grade 7 Adding Integers

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Key Vocabulary
 Opposites, p. 10
 Additive inverse, p. 10

Key Idea
Adding Integers with the Same Sign
Words Add the absolute values of the integers. Then use the common sign.
Numbers $2 + 5 = 7$ $-2 + (-5) = -7$

EXAMPLE 1 **Adding Integers with the Same Sign**
 Find $-2 + (-4)$. Use a number line to check your answer.
 $-2 + (-4) = -6$ Add $|-2|$ and $|-4|$.
 Use the common sign.
 The sum is -6 .
Check

The Meaning of a Word
Opposite
 When you walk across a street, you are moving to the opposite side of the street.

On Your Own
 Add.
 1. $7 + 13$ 2. $-8 + (-5)$ 3. $-20 + (-15)$

Two numbers that are the same distance from 0, but on opposite sides of 0 are called **opposites**. For example, -3 and 3 are opposites.

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Meaning Word

Opposite

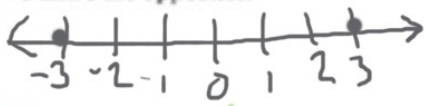
Walk across
are moving
opposite side of

On Your Own

Add.

1. $7 + 13$ 2. $-8 + (-5)$ 3. $-20 + (-15)$

Two numbers that are the same distance from 0, but on opposite sides of 0, are called **opposites**. For example, -3 and 3 are opposites.



Key Ideas

Adding Integers with Different Signs

Words Subtract the lesser absolute value from the greater absolute value. Then use the sign of the integer with the greater absolute value.

Numbers $8 + (-10) = -2$ $-13 + 17 = 4$

Additive Inverse Property

Words The sum of an integer and its **additive inverse**, or **opposite**, is 0.

Numbers $6 + (-6) = 0$ $-25 + 25 = 0$ **Algebra** $a + (-a) = 0$

$$\begin{array}{r} -10 \\ +8 \\ \hline -2 \end{array}$$

$$\begin{array}{r} +17 \\ -13 \\ \hline 4 \end{array}$$

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EXAMPLE 2 Adding Integers with Different Signs

a. Find $5 + (-10)$.

$5 + (-10) = -5$ $| -10 | > | 5 |$. So, subtract $| 5 |$ from $| -10 |$.

Use the sign of -10 .

❖ The sum is -5 .

b. Find $-3 + 7$.

$-3 + 7 = 4$ $| 7 | > | -3 |$. So, subtract $| -3 |$ from $| 7 |$.

Use the sign of 7 .

❖ The sum is 4 .

c. Find $-12 + 12$.

$-12 + 12 = 0$ The sum is 0 by the Additive Inverse Property.

-12 and 12 are opposites.

❖ The sum is 0 .

Same number pos/neg cancel out to zero. \emptyset

EXAMPLE 3 Adding More Than Two Integers

The list shows four bank account transactions in July. Find the change C in the account balance.

JULY TRANSACTIONS	
Withdrawal	-\$40
Deposit	\$50
Deposit	\$75
Withdrawal	-\$50

Find the sum of the four transactions.

$C = -40 + 50 + 75 + (-50)$ Write the sum.

$= -40 + 75 + 50 + (-50)$ Commutative Property of Addition

$= -40 + 75 + [50 + (-50)]$ Associative Property of Addition

$= -40 + 75 + 0$ Additive Inverse Property

$= 35 + 0$ Addition Property of Zero

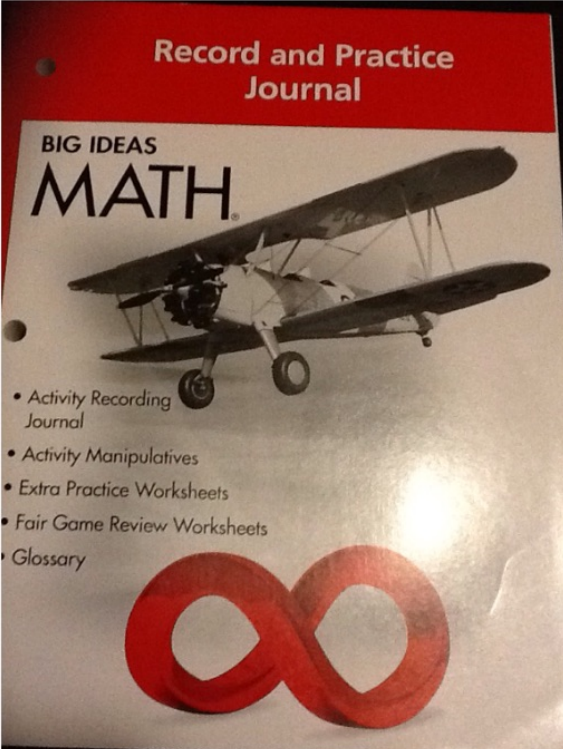
$= 35$

❖ Because $C = 35$, the account balance increased \$35 in July.

Study Tip

A deposit of \$50 and a withdrawal of \$50 represent opposite quantities, $+50$ and -50 , which have a sum of 0.

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MATH

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- Activity Manipulatives
- Extra Practice Worksheets
- Fair Game Review Worksheets
- Glossary

Pg 10
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$$1. -9 + 2 = -7$$


$$2. 5 + (-5) = 0$$

$$3. -12 + (-6) = 18$$

$$4. \begin{array}{r} -10 + 19 + 5 \\ \quad \quad \quad \downarrow \\ = 9 + 5 \\ = \end{array}$$

$$5. \begin{array}{r} -11 + (-20) + 9 \\ = -31 + 9 \\ = -22 \end{array}$$

6 on your own

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7. $x + (-5) = 4$
9 - 5 = 4
 $x = 9$

8. $y + 6 = -2$

9. On your own

10. Extra Credit

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