

2-2 Study Guide and Intervention**Adding Integers**

Adding Integers with the Same Sign	Add their absolute values. The sum is: <ul style="list-style-type: none"> • positive if both integers are positive. • negative if both integers are negative.
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Example 1 Find the sum $-3 + (-4)$.

$$-3 + (-4) = -7 \quad \text{Add } |-3| \text{ and } |-4|. \text{ The sum is negative.}$$

Adding Integers with Different Signs	Subtract their absolute values. The sum is: <ul style="list-style-type: none"> • positive if the positive integer's absolute value is greater. • negative if the negative integer's absolute value is greater.
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Example 2 Find each sum.**a. $-5 + 4$**

$$\begin{aligned} -5 + 4 &= |-5| - |4| && \text{Subtract } |4| \text{ from } |-5|. \\ &= 5 - 4 \text{ or } 1 && \text{Simplify.} \\ &= -1 && \text{The sum is negative because } |-5| > |4|. \end{aligned}$$

b. $6 + (-2)$

$$\begin{aligned} 6 + (-2) &= |6| - |-2| && \text{Subtract } |-2| \text{ from } |6|. \\ &= 6 - 2 \text{ or } 4 && \text{Simplify.} \\ &= 4 && \text{The sum is positive because } |6| > |-2|. \end{aligned}$$

Exercises**Find each sum.**

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|--------------------------|--------------------------|--------------------------|
| 1. $6 + (-3)$ | 2. $-3 + (-5)$ | 3. $7 + (-3)$ |
| 4. $-4 + (-4)$ | 5. $-8 + 5$ | 6. $-12 + (-10)$ |
| 7. $6 + (-13)$ | 8. $-14 + 4$ | 9. $6 + (-6)$ |
| 10. $-15 + (-5)$ | 11. $-9 + 8$ | 12. $20 + (-8)$ |
| 13. $-19 + (-11)$ | 14. $17 + (-9)$ | 15. $-16 + (-5)$ |
| 16. $-12 + 14$ | 17. $9 + (-25)$ | 18. $-36 + 19$ |
| 19. $7 + (-18)$ | 20. $-12 + (-15)$ | 21. $10 + (-14)$ |
| 22. $-33 + 19$ | 23. $-20 + (-5)$ | 24. $-12 + (-10)$ |
| 25. $-15 + 4$ | 26. $-34 + 29$ | 27. $46 + (-32)$ |

2-2 Study Guide and Intervention *(continued)***Adding Integers**

Add More Than Two Integers Two numbers with the same absolute value but different signs are **opposites**. An integer and its opposite are also called **additive inverses**. This property is useful when adding 2 or more integers.

Additive Inverse Property

Words The sum of any number and its additive inverse is zero.

Example $5 + (-5) = 0$

Symbols $a + (-a) = 0$

Example Find each sum.

a. $-7 + (-16) + 7$

$$\begin{aligned} -7 + (-16) + 7 &= -7 + 7 + (-16) && \text{Commutative Property} \\ &= 0 + (-16) && \text{Additive Inverse Property} \\ &= -16 && \text{Identity Property of Addition} \end{aligned}$$

b. $12 + (-4) + 9 + (-7)$

$$\begin{aligned} 12 + (-4) + 9 + (-7) &= 12 + 9 + (-4) + (-7) && \text{Commutative Property} \\ &= (12 + 9) + [-4 + (-7)] && \text{Associative Property} \\ &= 21 + (-11) \text{ or } 10 && \text{Simplify.} \end{aligned}$$

Exercises

Find each sum.

- | | |
|-------------------------------|-------------------------------|
| 1. $2 + 14 + (-2)$ | 2. $-8 + (-7) + 8$ |
| 3. $-13 + 11 + (-4)$ | 4. $7 + (-5) + (-6)$ |
| 5. $15 + 14 + (-12)$ | 6. $-9 + 17 + (-3)$ |
| 7. $24 + (-5) + 3$ | 8. $54 + 39 + (-54)$ |
| 9. $-42 + 20 + (-8)$ | 10. $-11 + (-6) + 22$ |
| 11. $35 + (-43) + (-4)$ | 12. $-100 + 50 + (-25)$ |
| 13. $6 + (-14) + (-5) + (-6)$ | 14. $-18 + 9 + (-7) + 18$ |
| 15. $5 + 13 + (-11) + 6$ | 16. $-20 + 15 + (-10) + 3$ |
| 17. $-33 + (-7) + 20 + 9$ | 18. $16 + (-12) + 21 + (-25)$ |