Name _____ Date _____

2-4 More About Adding Integers

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The associative and commutative properties make it possible to find a sum of integers with fewer steps.

Adding Integers	One way to add several integers is to group all of the positive numbers and all of the negative numbers. Look for groupings that make the addition simpler, such as two integers that add to zero.

EXAMPLES

A Solve $t = -3 + 4 + 3 + 5 + 1$.

Use the commutative property to move the integers so the −3 and 3 are next to each other. Then use the associative property to group them.

$t = -3 + 4 + 3 + 5 + 1$
$t = 4 + (-3) + 3 + 5 + 1$
$t = 4 + [(-3) + 3] + 5 + 1$
$t = 4 + 0 + 5 + 1$
$t = 10$

B Solve $5 + (-2) + 1 + (-7) + 3 = r$.

Use the commutative and associate properties to group the positive and negative integers.

$5 + (-2) + 1 + (-7) + 3 = r$
$[5 + 1 + 3] + [(-2) + (-7)] = r$
$9 + (-9) = r$
$0 = r$

Try These Together

1. Solve $8 + (-3) + (-2) = x$.
HINT: Group the last two addends.

2. Solve $p = 10 + 12 + (-12)$.
HINT: Group the last two addends for an easy sum.

PRACTICE

Solve each equation. Check by solving another way.

3. $z = -12 + (-8) + (-5)$

4. $(-30) + (-3) + 15 = n$

5. $m = 27 + (-6) + (-27)$

6. $-18 + 26 + 32 + (-45) = y$

7. $11 + 12 + (-11) + (-13) = t$

8. $23 + (-20) + 3 + (-8) = r$

Evaluate each expression if q = −4, r = −8, and s = 3.

9. $q + (-2) + r + s$

10. $r + s + (-5) + 4$

11. $q + (-18) + s + r$

12. $8 + q + r + s$

13. **Sports** A football team ran four plays. On the first play, they lost 8 yards. On the second play, they gained 55 yards. On the third play, they gained 2 yards. On the fourth play, they lost 15 yards. How many yards forward did they move as a result of these four plays?

14. **Standardized Test Practice** In a treasure hunt, Kurt walks 12 paces away from a tree, 3 paces back toward the tree, and then 5 paces away from the tree. How many paces away from the tree is he now?

A 7 **B** 14 **C** 20 **D** 9

Answers: **1.** 3 **2.** 10 **3.** −25 **4.** −18 **5.** −6 **6.** −5 **7.** −1 **8.** −2 **9.** −11 **10.** −6 **11.** −27 **12.** −1 **13.** 34 yards **14.** B

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