Name _____ Date _____

Lesson 1.3 Reteach

To solve an equation with variables on both sides, you need to collect the variable terms on one side and the constant terms on the other. Use properties of equality to apply inverse operations and "undo" the operations in the equation.

EXAMPLE Solving an Equation with Variables on Both Sides

Solve $5y - 14 = 2y - 2$.

$5y - 14 = 2y - 2$	Write the equation.
$-2y \quad -2y$	Subtraction Property of Equality
$3y - 14 = -2$	Simplify.
$+14 \quad +14$	Addition Property of Equality
$3y = 12$	Simplify.
$\frac{3y}{3} = \frac{12}{3}$	Division Property of Equality
$y = 4$	Simplify.

▶ So, the solution is $y = 4$.

Some equations have no solution. There is no value of the variable that makes the equation true. If you apply properties correctly and obtain an equivalent that is never true, then the equation has no solution.

EXAMPLE Solving an Equation with No Solution

Solve $4x - 3 = 4x + 2$.

$4x - 3 = 4x + 2$	Write the equation.
$-4x \quad -4x$	Subtraction Property of Equality
$-3 = 2$ ✗	Simplify.

▶ $-3 = 2$ is never true. So, the equation has no solution.

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Lesson 1.3 Reteach (continued)

Some equations have infinitely many solutions. The equation is true for all values of the variable. If you apply properties correctly and obtain an equivalent equation with the same number on both sides, then the equation has infinitely many solutions.

EXAMPLE Solving an Equation with Infinitely Many Solutions

Solve $-3(x + 5) = -(3x + 15)$.

$-3(x + 5) = -3(x + 5)$	Write the equation.
$-3x - 15 = -3x - 15$	Distributive Property
$+ 3x \quad + 3x$	Addition Property of Equality
$-15 = -15$	Simplify.

▶ $-15 = -15$ is always true. So, the equation has infinitely many solutions.

Solve the equation. Check your solution.

1. $9a + 2 = 4a - 18$

2. $4x + 4 = 2x + 36$

3. $-15 + 6z = -8z + 13$

4. $2(j - 4) = 3j$

5. $5(n - 3) = 2n - 6$

6. $6(w + 3) = -2(w + 31)$

7. $2p + 10 = 2p + 3$

8. $3(2x - 1) = 6x - 3$

9. $5h + 4 = 10h + 8$

10. $4m + 5 = 2(2m + 1)$

11. $\frac{1}{2}(8b + 14) = 4b + 7$

12. $10k + 5 - 3 = 6k + 4k + 2$