2.13 Solving a Linear Equation with Several Occurrences of the Variable: Problem Type 5

• Example 1

Solve $2(3x - 1) - 3(x + 5) = 4$.

$$2(3x - 1) - 3(x + 5) = 4$$
$$6x - 2 - 3x - 15 = 4$$
$$3x - 17 = 4$$
$$3x = 21$$
$$x = 7$$

The solution is 7.
To check, return to the original equation to replace x with 7.

$$2(3 \cdot 7 - 1) - 3(7 + 5) = 4$$

This gives

$$4 = 4.$$

The solution is verified.

CHECK YOURSELF 1

Solve for x.

$$5(2x + 4) = 7 - 3(1 - 2x)$$

CHECK YOURSELF ANSWER

1. -4.

2.13 Exercises

Name

Section Date

ANSWERS

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Solve and check the following equations.

1. $2(2x - 1) = 3(x + 1)$

2. $3(3x - 1) = 4(2x + 1)$

3. $5(4x + 2) = 6(3x + 4)$

4. $4(6x - 1) = 7(3x + 2)$

5. $9(8x - 1) = 5(4x + 6)$

6. $7(3x + 11) = 9(3 - 6x)$

7. $-4(2x - 1) + 3(3x + 1) = 9$

8. $7(3x + 4) = 8(2x + 5) + 13$

9. $5(2x - 1) - 3(x - 4) = 4(x + 4)$

10. $2(x - 3) - 3(x + 5) = 3(x - 2) - 7$

11. $3(3 - 4x) + 30 = 5x - 2(6x - 7)$

12. $3x - 5(3x - 7) = 2(x + 9) + 45$

13. $5(5x - 3) = 6(4x + 1)$

14. $3(7x + 2) = 5(4x + 1) + 17$

15. $5(5x + 3) = 3(8x - 2) + 4$