

Lesson 4 Reteach

Solve Equations with Variables on Each Side

Some equations, like $3x - 9 = 6x$, have variables on each side of the equals sign. Use the Addition or Subtraction Property of Equality to write an equivalent equation with the variables on one side of the equals sign. Then solve the equation.

Example 1

Solve $3x - 9 = 6x$. Check your solution.

$$3x - 9 = 6x$$

Write the equation.

$$3x - 3x - 9 = 6x - 3x$$

Subtraction Property of Equality

$$-9 = 3x$$

Simplify by combining like terms.

$$-3 = x$$

Mentally divide each side by 3.

To check your solution, replace x with -3 in the original equation.

Check $3x - 9 = 6x$

Write the equation.

$$3(-3) - 9 \stackrel{?}{=} 6(-3)$$

Replace x with -3 .

$$-18 = -18 \checkmark$$

The sentence is true.

The solution is -3 .

Example 2

Solve $4a - 7 = 5 - 2a$.

$$4a - 7 = 5 - 2a$$

Write the equation.

$$4a + 2a - 7 = 5 - 2a + 2a$$

Addition Property of Equality

$$6a - 7 = 5$$

Simplify by combining like terms.

$$6a - 7 + 7 = 5 + 7$$

Addition Property of Equality

$$6a = 12$$

Simplify.

$$a = 2$$

Mentally divide each side by 6.

The solution is 2.

Check this solution.

Exercises

Solve each equation. Check your solution.

1. $6s - 10 = s$ **2**

2. $8r = 4r - 16$ **-4**

3. $25 - 3u = 2u$ **5**

4. $14t - 8 = 6t$ **1**

5. $k + 20 = 9k - 4$ **3**

6. $11m + 13 = m + 23$ **1**

7. $-4b - 5 = 3b + 9$ **-2**

8. $6y - 1 = 27 - y$ **4**

9. $1.6h - 72 = 4h - 30$ **-175**

10. $8.5 - 3z = -8z$ **-1.7**

11. $10x + 8 = 5x - 3$ **-2.2**

12. $16 - 7d = -3d + 2$ **3.5**