



Name \_\_\_\_\_ Date \_\_\_\_\_

# Solving Subtraction and Addition Equations

(Pages 17–20)

You can use the properties of algebra to find the solution to an equation.

<b>Addition Property of Equality</b>	<p>If you add the same number to each side of an equation, then the two sides remain equal.</p> <p style="text-align: center;"><b>Arithmetic</b></p> $3 = 3$ $3 + 5 = 3 + 5$ $8 = 8$ <p style="text-align: center;"><b>Algebra</b></p> $a = b$ $a + c = b + c$
<b>Subtraction Property of Equality</b>	<p>If you subtract the same number from each side of an equation, then the two sides remain equal.</p> <p style="text-align: center;"><b>Arithmetic</b></p> $3 = 3$ $3 - 2 = 3 - 2$ $1 = 1$ <p style="text-align: center;"><b>Algebra</b></p> $a = b$ $a - c = b - c$

To solve an equation in which a number is added to or subtracted from the variable, you can use the opposite, or **inverse**, operation. Addition and subtraction are **inverse** operations.

## EXAMPLES

**A** Solve  $y + 5 = 13$ .

$$y + 5 = 13$$

$$y + 5 - 5 = 13 - 5 \quad \text{Use the subtraction property of equality.}$$

$$y = 8 \quad \text{Then check your solution.}$$

The solution to the equation is 8.

**B** Solve  $b - 6 = 72$ .

$$b - 6 = 72$$

$$b - 6 + 6 = 72 + 6 \quad \text{Use the addition property of equality.}$$

$$b = 78 \quad \text{Then check your solution.}$$

The solution to the equation is 78.

## Try These Together

**Solve each equation. Check your solution.**

1.  $15 + z = 26$       2.  $x - 12 = 7$       3.  $y = 34 + 8$       4.  $39 = 25 + w$

*HINT: Remember to use the inverse operation.*

## PRACTICE

**Solve each equation. Check your solution.**

5.  $36 = 24 + r$       6.  $q - 8 = 17$       7.  $p + 5 = 18$       8.  $10 + s = 26$   
 9.  $120 = t - 65$       10.  $j - 64 = 50$       11.  $1.5 + h = 3$       12.  $k - 0.7 = 0.3$   
 13.  $45 = \ell + 2$       14.  $41 + 5 = m$       15.  $n - 8.1 = 3.1$       16.  $a = 1.6 + 1.3$



**17. Standardized Test Practice** Solve the equation  $48.2 = z + 25.1$ .

- A** 23.1      **B** 24.3      **C** 23.5      **D** 24.8

Answers: 1. 11    2. 19    3. 42    4. 14    5. 12    6. 25    7. 13    8. 16    9. 185    10. 114    11. 1.5    12. 1    13. 43    14. 46    15. 11.2    16. 2.9    17. A