NAME _____ DATE _____

3-5

Solving Equations by Using Models

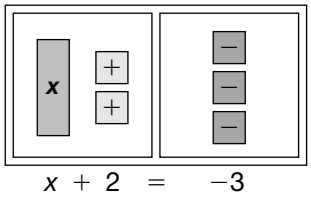
(Pages 117–121)

You can use algebra tiles to solve equations.

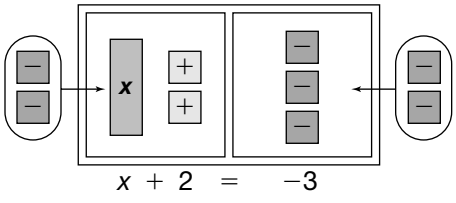
EXAMPLE

Solve the equation $x + 2 = -3$.

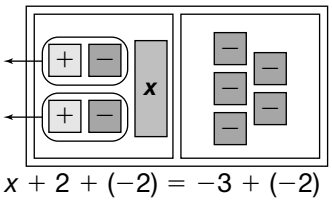
Step 1 *Use white tiles for positive values, and shaded tiles for negative values. To model the equation $x + 2 = -3$, place 1 x-tile and 2 white square tiles on one side of the mat to represent $x + 2$. Place 3 shaded square tiles on the right side to represent -3.*



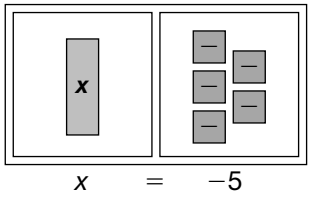
Step 2 *To get the x-tile by itself, you need to remove 2 white square tiles from each side. Since there are no white tiles on the right side, you will need to add 2 shaded tiles to each side to make 2 zero pairs on the left side of the mat.*



Step 3 *Remove the zero pairs to get the x-tile by itself.*



Step 4 *The x-tile on the left is matched with 5 shaded square tiles on the right. Therefore, $x = -5$.*



PRACTICE

Solve each equation. Use algebra tiles if necessary.

1. $p + 3 = -3$ **2.** $n - 4 = 9$ **3.** $-5 = h - 7$

4. $-2 + x = 5$ **5.** $r + (-6) = -10$ **6.** $7 = z + 8$

7. $11 + f = 3$ **8.** $17 = b + 6$ **9.** $-4 + p = -8$

10. $a - 6 = -9$ **11.** $w + (-9) = -4$ **12.** $-1 = d - 2$

13. **Standardized Test Practice** What is the value of g if $g + 7 = -3$?

A -10 **B** -4 **C** 4 **D** 10

Answers: 1. −6 2. 13 3. 2 4. 7 5. −4 6. −1 7. −8 8. 11 9. −4 10. −3 11. 5 12. 1 13. A