NAME _____ DATE _____

1-6 Variables and Equations (Pages 32–35)

A mathematical sentence such as $2001 - 1492 = 509$ is called an **equation**. An equation that contains a variable is called an **open sentence**. When the variable in an open sentence is replaced with a number, the sentence may be true or false. A value for the variable that makes an equation true is called a **solution** of the equation. The process of finding a solution is called **solving the equation**.

EXAMPLES

Identify the solution to each equation from the list given.

A $13 + s = 72$; 48, 53, 59

Replace s with each of the possible solutions to solve the equation.

$13 + 48 = 72$
$61 = 72$ *False. 48 is not a solution.*
$13 + 53 = 72$
$66 = 72$ *False. 53 is not a solution.*
$13 + 59 = 72$
$72 = 72$ *True. 59 is the solution to the equation.*

B $3y - 2 = 4$; 1, 2

Replace y with each of the possible solutions to solve the equation.

$3(1) - 2 = 4$, or $3 - 2 = 4$
$1 = 4$ *False. 1 is not the solution.*
$3(2) - 2 = 4$, or $6 - 2 = 4$
$4 = 4$ *True. 2 is the solution.*

Try These Together

Identify the solution to each equation from the list given.

1. $15 - 8 = x$; 23, 10, 7

2. $6 = \frac{24}{p}$; 8, 6, 4

HINT: Replace the variable with each possible solution to see if it makes the open sentence true.

PRACTICE

Identify the solution to each equation from the list given.

3. $4x + 1 = 21$; 7, 5, 4

4. $98 - c = 74$; 24, 30, 34

5. $7 = \frac{x}{4}$; 28, 30, 32

6. $82 + a = 114$; 62, 32, 22

7. $19 = a + 7$; 17, 12, 8

8. $6x = 48$; 6, 7, 8

Solve each equation mentally.

9. $n + 6 = 12$

10. $56 = 7j$

11. $y - 17 = 41$

12. $\frac{32}{k} = 4$

13. $10 + p = 17$

14. $6m = 48$

15. **Standardized Test Practice** Sanford and Audrey are driving 65 miles per hour. If they travel 358 miles without stopping or slowing down, about how long will their trip take?

A 4.5 hours **B** 5.0 hours **C** 5.5 hours **D** 6.0 hours

Answers: 1. 7 2. 4 3. 5 4. 24 5. 28 6. 32 7. 12 8. 8 9. 6 10. 8 11. 58 12. 8 13. 7 14. 8 15. C