1-7 **Study Guide and Intervention**

Algebra: Equations

- An **equation** is a sentence in mathematics that contains an equals sign, =.
- The **solution** of an equation is the value that when substituted for the variable makes the equation true.

Example 1 Solve $23 + y = 29$ mentally.

$23 + y = 29$	Write the equation.
$23 + 6 = 29$	You know that $23 + 6$ is 29.
$29 = 29$	Simplify.

The solution is 6.

Example 2

TRAVEL On their annual family vacation, the Whites travel 790 miles in two days. If on the first day they travel 490 miles, how many miles must they drive on the second day to reach their destination?

The total distance to travel in two days is 790 miles.

Let m represent the distance to travel on day two.

$m + 490 = 790$

$m + 490 = 790$	Write the equation.
$300 + 490 = 790$	Replace m with 300 to make the equation true.
$790 = 790$	Simplify.

The number 300 is the solution. The distance the Whites must travel on day two is 300 miles.

Exercises

Solve each equation mentally.

1. $k + 7 = 15$

2. $g - 8 = 20$

3. $6y = 24$

4. $\frac{a}{3} = 9$

5. $\frac{x}{6} = 9$

6. $8 + r = 24$

7. $12 \cdot 8 = h$

8. $n \div 11 = 8$

9. $48 \div 12 = x$

10. $h - 12 = 24$

11. $19 + y = 28$

12. $9f = 90$

Define a variable. Then write and solve an equation.

13. **MONEY** Aaron wants to buy a video game. The game costs $15.50. He has $10.00 saved from his weekly allowance. How much money does he need to borrow from his mother in order to buy the video game?