NAME _____ DATE _____ PERIOD _____

1-5 Study Guide and Intervention

Variables and Equations

An equation that contains a variable is called an **open sentence**. When the variable is replaced with a number, you can determine whether the sentence is true or false. A value that makes the sentence true is called a **solution**.

Example 1 **ALGEBRA Find the solution of $27 - p = 14$. Is it 11, 13, or 15?**

Value for p	27 − p = 14	True or False?
11	$27 - 11 \stackrel{?}{=} 15$	false
13	$27 - 13 \stackrel{?}{=} 14$	true
15	$27 - 15 \stackrel{?}{=} 14$	false

Verbal sentences can be translated into equations and then solved.

Example 2 **ALGEBRA The sum of a number and six is twenty-one. Find the number.**

Let n = the number.

Words The sum of a number and six is twenty-one.

Variables Let n = the number.

Equation

$n + 6 = 21$	Write the equation.
$15 + 6 = 21$	Think: What number added to 6 is 21?
$n = 15$	The solution is 15.

Exercises

ALGEBRA Find the solution of each equation from the list given.

1. $b + 11 = 29$; 16, 18, 20

2. $h + 7 = 42$; 35, 37, 39

3. $37 - x = 24$; 9, 11, 13

4. $26 - m = 18$; 6, 8, 10

5. $v - 6 = 5$; 7, 9, 11

6. $6r = 48$; 6, 8, 10

7. $\frac{63}{a} = 9$; 7, 9, 11

8. $k - 16 = 15$; 31, 33, 35

9. $121 = 11p$; 9, 11, 13

10. $\frac{x}{5} = 15$; 70, 75, 80

11. $2n + 1 = 7$; 3, 4, 5

12. $11 = 3y - 25$; 10, 11, 12

ALGEBRA Define the variable. Then write the equation and solve.

13. The product of seven and a number is fifty-six.

14. The quotient of eighty-two and a number is two.

15. The difference between a number and four is twelve.

Lesson 1-5

NAME _____ DATE _____ PERIOD _____

1-5 Practice

Variables and Equations

ALGEBRA Find the solution of each equation from the list given.

1. $w + 16 = 31$; 13, 15, 17

2. $z + 31 = 72$; 37, 39, 41

3. $25 - p = 0$; 21, 23, 25

4. $s - 14 = 2$; 12, 14, 16

5. $19 = t - 21$; 40, 42, 44

6. $b = 15 - 3$; 12, 14, 16

7. $9q = 72$; 6, 8, 10

8. $35 = 5m$; 7, 9, 11

9. $\frac{75}{n} = 15$; 5, 7, 9

10. $\frac{p}{8} = 10$; 80, 84, 88

ALGEBRA Solve each equation mentally.

11. $g + 19 = 29$

12. $26 + h = 35$

13. $n - 6 = 12$

14. $36 \div a = 12$

15. $\frac{90}{45} = u$

16. $3t = 39$

17. $15 + r = 30$

18. $34 - v = 20$

ALGEBRA Define a variable. Then write an equation and solve.

19. The sum of 3, 5, and a number is 15.

20. The difference of a number and 16 is 5.

21. The quotient of 56 and a number is 7.

22. A number increased by 30 is 63.

23. Eight times a number is 32.

24. A number decreased by 4 is 41.

25. WEATHER During the month of July, meteorologists recorded 5 inches of rainfall. This is 6 inches below average. Define a variable and write an equation that can be used to determine the average rainfall for July. Find the average rainfall for July.

26. FOOD Junot and Lisa ordered a pizza and cut it into six slices. If Junot ate one slice and Lisa ate one slice, how many slices are left?

Lesson 1-5

NAME _____ DATE _____ PERIOD _____

1-5 Study Guide and Intervention

Variables and Equations

An equation that contains a variable is called an **open sentence**. When the variable is replaced with a number, you can determine whether the sentence is true or false. A value that makes the sentence true is called a **solution**.

Example 1 **ALGEBRA Find the solution of 27 2 *p* 5 14. Is it 11, 13, or 15?**

Value for p	27 p 14	True or False?
11	27 11 15	false
13	27 13 14	true
15	27 15 14	false

Verbal sentences can be translated into equations and then solved.

Example 2 **ALGEBRA The sum of a number and six is twenty-one. Find the number.**

Let n 5 the number.

Words The sum of a number and six is twenty-one.

Variables Let n 5 the number.

Equation n 1 6 5 21 Write the equation.

15 1 6 5 21 Think: What number added to 6 is 21?

n 5 15 The solution is 15.

Exercises

ALGEBRA Find the solution of each equation from the list given.

1. b 1 11 5 29; 16, 18, 20

2. h 1 7 5 42; 35, 37, 39

3. 37 2 x 5 24; 9, 11, 13

4. 26 2 m 5 18; 6, 8, 10

5. v 2 6 5 5; 7, 9, 11

6. 6r 5 48; 6, 8, 10

7. $\frac{63}{a}$ 5 9; 7, 9, 11

8. k 2 16 5 15; 31, 33, 35

9. 121 5 11p; 9, 11, 13

10. $\frac{x}{5}$ 5 15; 70, 75, 80

11. 2n 1 1 5 7; 3, 4, 5

12. 11 5 3y 2 25; 10, 11, 12

ALGEBRA Define the variable. Then write the equation and solve.

13. The product of seven and a number is fifty-six. Let *n* the number; 7*n* 56; 8

14. The quotient of eighty-two and a number is two. Let *n* the number; 82 *n* 2; 41

15. The difference between a number and four is twelve. Let *n* the number; *n* 4 12; 16

Glencoe Pre-Algebra

NAME _____ DATE _____ PERIOD _____

1-5 Practice

Variables and Equations

ALGEBRA Find the solution of each equation from the list given.

1. $w + 16 = 31$; 13, 15, 17

2. $z + 31 = 72$; 37, 39, 41

3. $25 - p = 0$; 21, 23, 25

4. $s - 14 = 2$; 12, 14, 16

5. $19 = t - 21$; 40, 42, 44

6. $b = 15 - 3$; 12, 14, 16

7. $9q = 72$; 6, 8, 10

8. $35 = 5m$; 7, 9, 11

9. $\frac{75}{n} = 15$; 5, 7, 9

10. $\frac{p}{8} = 10$; 80, 84, 88

ALGEBRA Solve each equation mentally.

11. $g + 19 = 29$ 10

12. $26 + h = 35$ 9

13. $n - 6 = 12$ 18

14. $36 - a = 12$ 3

15. $\frac{90}{45} = u$ 2

16. $3t = 39$ 13

17. $15 + r = 30$ 15

18. $34 - v = 20$ 14

ALGEBRA Define a variable. Then write an equation and solve.

19. The sum of 3, 5, and a number is 15. Let *n* the number; 3 5 *n* 15; 7

20. The difference of a number and 16 is 5. Let *k* the number; *k* 16 5; 21

21. The quotient of 56 and a number is 7. Let *r* the number; 56 *r* 7; 8

22. A number increased by 30 is 63. Let *g* the number; *g* 30 63; 33

23. Eight times a number is 32. Let *j* the number; 8*j* 32; 4

24. A number decreased by 4 is 41. Let *c* the number; *c* 4 41; 45

25. **WEATHER** During the month of July, meteorologists recorded 5 inches of rainfall. This is 6 inches below average. Define a variable and write an equation that can be used to determine the average rainfall for July. Find the average rainfall for July. Let *r* the average rainfall for July. So, *r* 6 5. The average rainfall is 11 inches.

26. **FOOD** Junot and Lisa ordered a pizza and cut it into six slices. If Junot ate one slice and Lisa ate one slice, how many slices are left? Let *s* the number of slices. So, 1 1 *s* 6. There are 4 slices left.

Answers