LESSON 3.3

Solving Equations *with* Variables *on* Both Sides

Review Vocabulary

equation, p. 85
solution of an equation, p. 85

BEFORE	*Now*	WHY?
You solved two-step equations.	You'll solve equations with variables on both sides.	So you can find the price of a DVD, as in Ex. 10.

1258

$25(3x+1) + \frac{1}{2}(24)(3x+1) = 1258$

LESSON 3.3

Name _____ Date _____

Practice A

For use with pages 130–136

Tell whether the given value of the variable is a solution of the equation.

1. $8x = 6x - 20; x = -10$

2. $6x - 1 = 3x + 8; x = -3$

3. $-3x - 13 = -7x + 15; x = -7$

4. $-2x + 5 = 7x - 22; x = 3$

Solve the equation. Check your solution.

5. $9x = 7x + 22$

6. $14x - 3 = 10x + 1$

7. $6x + 5 = 4x - 9$

$-10x + 14x - 3 = 10x + 1 - 10x$

$3 + 4x - 3 = 1 + 3$

$\frac{1}{4}4x = 4\frac{1}{4}$

$x = 1$

8. $10 + 3x = 26 - 5x$ **9.** $3(4x - 1) = 12x$ **10.** $11 - 2x = 31 - 7x$

$3(4x-1) = 12x$

$-12x \quad 12x - 3 = 12x - 12x$

$-3 = 0$

No Sol

11. $9x - 10 = 5x + 14$ **12.** $16x + 21 = 30 + 13x$ **13.** $-8x - 1 = -5x + 23$

$-13x \quad 16x + 21 = 30 + 13x \quad -13x$

$-21 \quad 3x + 21 = 30 \quad -21$

$\frac{1}{3} \quad 3x = 9 \quad \frac{1}{3}$

$x = 3$

14. $4x + 10 = 2(2x + 5)$ **15.** $12x - 7 = 5x + 49$ **16.** $-4x + 10 = 6x - 40$

$4x + 10 = 2(2x + 5)$

$-4x \quad -4x + 10 = 4x + 10 \quad -4x$

$10 = 10$

R

Write the verbal sentence as an equation. Then solve the equation.

17. Five minus 6 times a number is equal to −11 plus 2 times the number.

18. Four less than −7 times a number is equal to 13 minus 6 times the number.

$-7x - 4 = 13 - 6x$

$+6x \quad +6x$

$-x - 4 = 13$

$+4 \quad +4$

$-x = 17$

$x = -17$

19. Eight times a number plus 5 is equal to 5 times the number minus 13.

20. One less than 10 times a number is equal to -2 times the number plus 35.

$$2x+10x+1 = -2x+35+2x$$

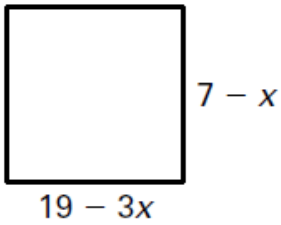
$$12x+1 = 35+1$$

$$\frac{1}{12}12x = 36\cdot\frac{1}{12}$$

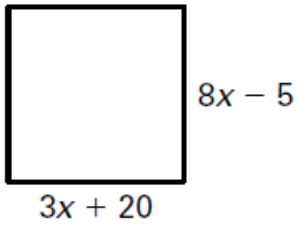
$$x = 3$$

Find the value of x for the given square.

21.



22.



23. You and your brother are saving money to buy a camcorder. You already have $60 saved and your brother has $45 saved. You plan on saving an additional $5 each week. Your brother plans on saving an additional $8 each week. Write and solve an equation to find how many weeks it takes both of you to save the same amount. Let w represent the number of weeks.

$$.5w + 60 + 5w = 45 + 8w - 5w$$

$$-.4T + 60 = 45 + 3w + -45$$

$$\frac{1}{3} \cdot 15 = 3w \cdot \frac{1}{3}$$

$$5 = w$$

$$w = 5$$

24. The length of a football field including the end zones is 48 feet longer than four times the length of a tennis court. It is also 282 feet longer than a tennis court. Write and solve an equation to find the length (in feet) of a tennis court and a football field. Let t represent the length of a tennis court.

t, $4t + 48 = t + 282$ $-t$

-48, $3t + 48 = 282$ -48

$\frac{1}{3}3t = 234 \cdot \frac{1}{3}$

$t = 78$

$282 + 78 = 360$

$F \rightarrow 360$