LESSON 5.3

NAME _____ DATE _____

Practice B

For use with pages 264–270

Simplify the expression.

1. $\sqrt{147}$

2. $\sqrt{60}$

3. $\sqrt{63}$

4. $4\sqrt{18} \cdot 2\sqrt{48}$

5. $\sqrt{8} \cdot \sqrt{18} \cdot 5\sqrt{4}$

6. $\sqrt{10} \cdot \sqrt{15}$

7. $\sqrt{\frac{225}{289}}$

8. $\sqrt{\frac{7}{3}} \cdot \sqrt{\frac{14}{3}}$

9. $\sqrt{15} \cdot \sqrt{\frac{35}{12}}$

Solve the equation.

10. $x^2 = 324$

11. $x^2 - 81 = 0$

12. $5x^2 - 180 = 0$

13. $3x^2 - 100 = 332$

14. $\frac{2}{3}x^2 - 8 = 16$

15. $\frac{1}{2}x^2 - 5 = 5$

16. $x^2 + 1 = 3x^2 - 13$

17. $2(x^2 + 4) = 10$

18. $3(x^2 - 1) = 9$

19. $2(x + 3)^2 = 8$

20. $3(x - 2)^2 + 4 = 52$

21. $(3x + 1)^2 - 36 = 0$

22. $(2x - 3)^2 = 25$

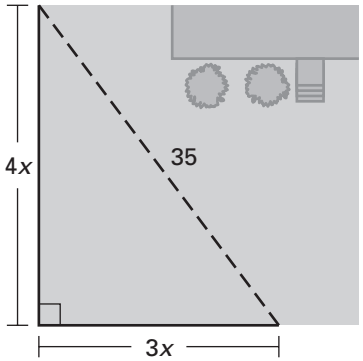
23. $\frac{1}{2}(x - 4)^2 = 8$

24. $\frac{1}{4}(x + 1)^2 - 16 = 0$

25. ***Falling Object*** Use the falling-object model $h = -16t^2 + s$ where t is measured in seconds and h is measured in feet to find the time required for an object to reach the ground from a height of $s = 100$ feet and $s = 200$ feet. Does an object that is dropped from twice as high take twice as long to reach the ground? Explain your answer.

26. ***Truck Registrations*** From 1990 to 1993, the number of truck registrations (in millions) in the United States can be approximated by the model $R = 0.29t^2 + 45$ where t is the number of years since 1990. During which year were approximately 46.16 million trucks registered?

Short Cut Suppose your house is on a large corner lot. The children in the neighborhood cut across your lawn, as shown in the figure at the right. The distance across the lawn is 35 feet.



27. Use the Pythagorean theorem to find x.

28. Find the distance the children would have to travel if they did not cut across your lawn.

29. How many feet do the children save by taking the "short cut?"