EXERCISES

For more exercises, see *Extra Skill and Word Problem Practice.*

Practice and Problem Solving

A Practice by Example

GO for Help

Example 1 (page 580)

Find the value of n such that each expression is a perfect square trinomial.

1. $k^2 + 14k + n$
2. $m^2 - 8m + n$
3. $y^2 - 40y + n$
4. $p^2 - 6p + n$
5. $v^2 + 24v + n$
6. $w^2 - 36w + n$

Example 2 (page 580)

Solve each equation by completing the square. If necessary, round to the nearest hundredth.

7. $r^2 + 8r = 48$
8. $x^2 - 10x = 40$
9. $q^2 + 22q = -85$
10. $m^2 + 6m = 9$
11. $r^2 + 20r = 261$
12. $g^2 - 2g = 323$

Example 3 (page 580)

13. $r^2 - 2r - 35 = 0$
14. $x^2 + 10x + 17 = 0$
15. $p^2 - 12p + 11 = 0$
16. $w^2 + 3w - 5 = 0$
17. $m^2 + m - 28 = 0$
18. $a^2 + 9a - 682 = 0$

Example 4 (page 581)

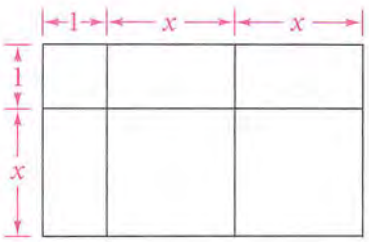
What term do you need to add to each side to complete the square?

19. $2k^2 + 4k = 10$
20. $3x^2 + 12x = 24$
21. $5t^2 + 9t = 15$

Solve each equation by completing the square. If necessary, round to the nearest hundredth.

22. $4y^2 + 8y - 36 = 0$
23. $3q^2 - 12q = 15$
24. $2x^2 - 10x - 20 = 8$

25. **a.** Write an expression for the total area of the model below.



b. The total area is 28 square units. Write an equation to find x.
c. Solve by completing the square.

B Apply Your Skills

Solve each equation. If necessary, round to the nearest hundredth. If there is no solution, write *no solution*.

26. $b^2 + 4b + 1 = 0$
27. $c^2 + 7c = -12$
28. $h^2 + 6h - 40 = 0$
29. $y^2 - 8y = -12$
30. $4m^2 - 40m + 56 = 0$
31. $k^2 + 4k + 11 = -10$
32. $2x^2 - 15x + 6 = 41$
33. $3d^2 - 24d = 3$
34. $x^2 + 9x + 20 = 0$

35. **Gardening** Suppose you want to enclose a rectangular garden plot against a house using fencing on three sides, as shown at the left. Assume you have 50 ft of fencing material and want to create a garden with an area of 150 ft^2.
a. Let w = the width. Write an expression for the length of the plot.
b. Write and solve an equation for the area of the plot. Round to the nearest tenth of a foot.
c. What dimensions should the garden have?
d. Critical Thinking Find the area of the garden by using the dimensions you found in part (b). Does the area equal 150 ft^2? Explain.