Practice

Form G

Factoring to Solve Quadratic Equations

Use the Zero-Product Property to solve each equation.

1. $(y + 6)(y - 4) = 0$

2. $(3f + 2)(f - 5) = 0$

3. $(2x - 7)(4x + 10) = 0$

4. $(8t - 7)(3t + 5) = 0$

5. $d(d - 8) = 0$

6. $3m(2m + 9) = 0$

Solve by factoring.

7. $n^2 + 2n - 15 = 0$

8. $a^2 - 15a + 56 = 0$

9. $z^2 - 10z + 24 = 0$

10. $8x^2 + 10x + 3 = 0$

11. $3b^2 + 7b - 6 = 0$

12. $5p^2 - 9p - 2 = 0$

13. $w^2 + w = 12$

14. $s^2 + 12s = -32$

15. $d^2 = 5d$

16. $3j^2 - 20j = -12$

17. $12y^2 + 40y = 7$

18. $27r^2 + 69r = 8$

Use the Zero-Product Property to solve each equation. Write your solutions as a set in roster form.

19. $k^2 - 11k + 30 = 0$

20. $x^2 - 6x - 7 = 0$

21. $n^2 + 17n + 72 = 0$

22. The volume of a sandbox shaped like a rectangular prism is 48 ft^3. The height of the sandbox is 2 feet. The width is w feet and the length is $w + 2$ feet. Use the formula $V = lwh$ to find the value of w.

23. The area of the rubber coating for a flat roof was 96 ft^2. The rectangular frame the carpenter built for the flat roof has dimensions such that the length is 4 feet longer than the width. What are the dimensions of the frame?

24. Ling is cutting carpet for a rectangular room. The area of the room is 324 ft^2. The length of the room is 3 feet longer than twice the width. What should the dimensions of the carpet be?

Practice (continued)   *Form G*
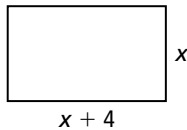
Factoring to Solve Quadratic Equations

Write each equation in standard form. Then solve.
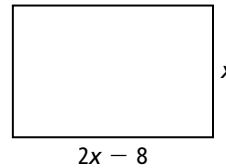
25. $21x^2 + 5x - 35 = 3x^2 - 4x$

26. $3n^2 - 2n + 1 = -3n^2 + 9n + 11$

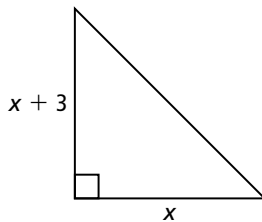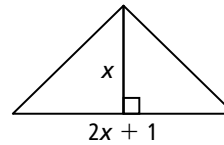**Find the value of x as it relates to each rectangle or triangle.**

27. Area $= 60$ cm^2

x

$x + 4$

28. Area $= 234$ yd^2

x

$2x - 8$

29. Area $= 20$ in.^{2}

$x + 3$

x

30. Area $= 150$ m^2

x

$2x + 1$

Reasoning For each equation, find k and the value of any missing solutions.

31. $x^2 - kx - 16 = 0$ where -2 is one solution of the equation.

32. $x^2 - 6x = k$ where 10 is one solution of the equation.

33. $kx^2 - 13x = 5$ where $-\frac{1}{3}$ is one solution of the equation.

34. Writing Explain how you solve a quadratic equation by factoring.