Name _____ Class _____ Date _____

Practice

Form G

Solving Quadratic Equations

Solve each equation by graphing the related function. If the equation has no real-number solution, write *no solution*.

1. $x^2 - 16 = 0$ 4; −4

2. $x^2 + 12 = 0$ no solution

3. $2x^2 - 18 = 0$ 3; −3

4. $7x^2 = 0$ 0

5. $\frac{1}{2}x^2 - 2 = 0$ 2; −2

6. $x^2 + 49 = 0$ no solution

7. $x^2 - 15 = -15$ 0

8. $4x^2 - 36 = 0$ 3; −3

9. $x^2 + 36 = 0$ no solution

Solve each equation by finding square roots. If the equation has no real-number solution, write *no solution*.

10. $t^2 = 25$ 5; −5

11. $k^2 = 484$ 22; −22

12. $z^2 - 256 = 0$ 16; −16

13. $d^2 - 14 = -50$
no solution

14. $9y^2 - 16 = 0$
$\frac{4}{3}$; $-\frac{4}{3}$

15. $2g^2 - 32 = -32$
0

16. $4a^2 = 36$ 3; −3

17. $7x^2 + 28 = 0$ no solution

18. $6n^2 - 54 = 0$ 3; −3

19. $81 - c^2 = 0$ 9; −9

20. $16x^2 - 49 = 0$ $\frac{7}{4}$; $-\frac{7}{4}$

21. $64 + j^2 = 0$ no solution

Model each problem with a quadratic equation. Then solve. If necessary, round to the nearest tenth.

22. Find the side length of a square with an area of 196 ft^2.
$x^2 = 196$; 14 ft

23. Find the radius of a circle with an area of 100 in^2.
$\pi r^2 = 100$; 5.6 in.

24. Find the side length of a square with an area of 50 cm^2.
$x^2 = 50$; $5\sqrt{2}$ cm or 7.1 cm

Name _____ Class _____ Date _____

Practice (continued) *Form G*

Solving Quadratic Equations

25. The square tarp you are raking leaves onto has an area of 150 ft^2. What is the side length of the tarp? Round your answer to the nearest tenth of a foot if necessary.
12.2 ft

26. There is enough mulch to spread over a flower bed with an area of 85 m^2. What is the radius of the largest circular bed that can be covered by the mulch? Round your answer to the nearest tenth of a meter if necessary.
5.2 m

Mental Math Tell how many solutions each equation has.

27. $q^2 - 22 = -22$
one

28. $m^2 + 15 = 0$
none

29. $b^2 - 12 = 12$
two

Solve each equation by finding square roots. If the equation has no real-number solution, write *no solution.* If a solution is irrational, round to the nearest tenth.

30. $3.35z^2 + 2.75 = -14$
no solution

31. $100t^2 + 36 = 100$
0.8; −0.8

32. $5a^2 - \frac{1}{125} = 0$
0.04; −0.04

33. $\frac{1}{3}h^2 - 12 = 0$
6; −6

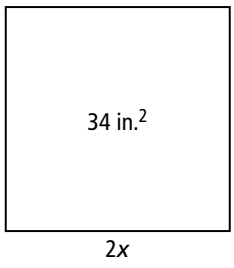
34. $-\frac{1}{2}m^2 + 5 = -10$
5.5; −5.5

35. $11x^2 - 0.75 = 3.21$
0.6; −0.6

36. Find the value of n such that the equation $x^2 - n = 0$ has 24 and -24 as solutions.
576

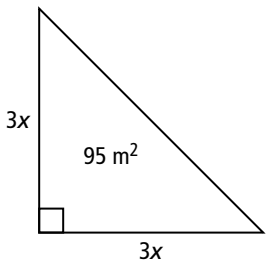
Find the value of *x* for the square and triangle. If necessary, round to the nearest tenth.

37.



2.9 in.

38.



4.6 m

39. Writing Explain how the number of solutions for a quadratic equation relates to the graph of the function.

When there is no solution, the graph does not cross the *x* –axis. When there is only one solution, the vertex of the graph is on the *x*-axis. When the graph has two *x*-intercepts, the equation has two solutions.