Name _____ Class _____ Date _____

Practice

Form G

The Quadratic Formula and the Discriminant

Use the quadratic formula to solve each equation.

1. $7c^2 + 8c + 1 = 0$

2. $2w^2 - 28w = -98$

3. $2j^2 - 3j = -1$

4. $2x^2 - 6x + 4 = 0$

5. $2n^2 - 6n = 8$

6. $-7d^2 + 2d + 9 = 0$

7. $2a^2 + 4a - 6 = 0$

8. $-3p^2 + 17p = 20$

9. $4d^2 - 8d + 3 = 0$

Use the quadratic formula to solve each equation. Round answers to the nearest hundredth.

10. $h^2 - 2h - 2 = 0$

11. $5x^2 + 3x = 1$

12. $-z^2 - 4z = -2$

13. $t^2 + 10t = -22$

14. $3n^2 + 10n = 5$

15. $s^2 - 10s + 14 = 0$

16. A basketball is passed through the air. The height h of the ball in feet after the distance d in feet the ball travels horizontally is given by $h = -d^2 + 10d + 5$. How far horizontally from the player passing the ball will the ball land on the ground?

Which method(s) would you choose to solve each equation? Justify your reasoning.

17. $h^2 + 4h + 7 = 0$

18. $a^2 - 4a - 12 = 0$

19. $24y^2 - 11y - 14 = 0$

20. $2p^2 - 7p - 4 = 0$

21. $4x^2 - 144 = 0$

22. $f^2 - 2f - 35 = 0$

23. Writing Explain how the discriminant can be used to determine the number of solutions a quadratic equation has.

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Name _____ Class _____ Date _____

Practice (continued) *Form G*

The Quadratic Formula and the Discriminant

Find the number of real-number solutions of each equation.

24. $x^2 - 8x + 7 = 0$

25. $x^2 - 6x = 0$

26. $2x^2 - 5x + 16 = 0$

27. $-3x^2 - 4x - 8 = 0$

28. $7x^2 + 12x - 21 = 0$

29. $2x^2 + 4x + 2 = 0$

Use any method to solve each equation. If necessary, round answers to the nearest hundredth.

30. $5m^2 - 3m - 15 = 0$

31. $9y^2 + 6y = -12$

32. $4a^2 = 36$

33. $6t^2 - 96 = 0$

34. $z^2 + 7z = -10$

35. $-g^2 + 4g + 3 = 0$

Find the value of the discriminant and the number of real-number solutions of each equation.

36. $x^2 + 11x - 10 = 0$

37. $x^2 + 7x + 8 = 0$

38. $3x^2 + 5x - 9 = 0$

39. $-2x^2 + 10x - 1 = 0$

40. $3x^2 + 6x + 3 = 0$

41. $6x^2 + x + 12 = 0$

42. The weekly profit of a company is modeled by the function $w = -g^2 + 120g - 28$. The weekly profit, w, is dependent on the number of gizmos, g, sold. If the break-even point is when $w = 0$, how many gizmos must the company sell each week in order to break even?

43. Reasoning The equation $4x^2 + bx + 9 = 0$ has no real-number solutions. What must be true about b?

44. Open-Ended Describe three different methods to solve $x^2 - x - 56 = 0$. Tell which method you prefer. Explain your reasoning.

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