Name _____ Class _____ Date _____

Practice 5-8

The Quadratic Formula

Evaluate the discriminant of each equation. Tell how many solutions each equation has and whether the solutions are real or imaginary.

1. $y = x^2 + 10x - 25$
2. $y = x^2 + 10x + 10$
3. $y = 9x^2 - 24x$
4. $y = 4x^2 - 4x + 1$
5. $y = 4x^2 - 5x + 1$
6. $y = 4x^2 - 3x + 1$
7. $y = x^2 + 3x + 4$
8. $y = x^2 + 7x - 3$
9. $y = -2x^2 + 3x - 5$
10. $y = x^2 - 5x + 4$
11. $y = x^2 + 12x + 36$
12. $y = x^2 + 2x + 3$
13. $y = 2x^2 - 13x - 7$
14. $y = -5x^2 + 6x - 4$
15. $y = -4x^2 - 4x - 1$

Solve each equation using the Quadratic Formula.

16. $x^2 + 6x + 9 = 0$
17. $x^2 - 15x + 56 = 0$
18. $3x^2 - 5x + 2 = 0$
19. $2x^2 + 3x + 5 = 0$
20. $10x^2 - 23x + 12 = 0$
21. $4x^2 + x - 5 = 0$
22. $x^2 + 8x + 15 = 0$
23. $3x^2 + 2x + 1 = 0$
24. $4x^2 + x + 5 = 0$
25. $x^2 - 4x - 12 = 0$
26. $x^2 = 3x + 2$
27. $2x^2 - 5x + 2 = 0$
28. $x^2 + 6x - 4 = 0$
29. $x^2 = 2x - 5$
30. $3x^2 + 7 = -6x$
31. $2x^2 + 6x + 3 = 0$
32. $x^2 = -18x - 80$
33. $x^2 + 9x - 13 = 0$
34. $x^2 - 8x + 25 = 0$
35. $4x^2 + 13x = 12$
36. $3x^2 - 5x = -12$
37. $3x^2 + 4x + 5 = 0$
38. $2x^2 = 3x - 7$
39. $5x^2 + 2x + 1 = 0$
40. $5x^2 + x + 3 = 0$
41. $5x^2 + x = 3$
42. $5x^2 - 2x + 7 = 0$
43. $x^2 - 2x + 3 = 0$
44. $-2x^2 + 3x = 24$
45. $4x^2 = 5x - 6$
46. $x^2 + 6x + 5 = 0$
47. $x^2 - 6x = -8$
48. $x^2 - 6x = -6$

Solve.

49. A model of the daily profits p of a gas station based on the price per gallon g is $p = -15{,}000g^2 + 34{,}500g - 16{,}800$. Use the discriminant to find whether the station can profit \$4000 per day. Explain.

Solve each equation using the Quadratic Formula. Find the exact solutions. Then approximate any radical solutions. Round to the nearest hundredth.

50. $x^2 - 2x - 3 = 0$
51. $x^2 + 5x + 4 = 0$
52. $x^2 - 2x - 8 = 0$
53. $7x^2 - 12x + 3 = 0$
54. $5x^2 + 5x - 1 = 0$
55. $4x^2 + 5x + 1 = 0$
56. $6x^2 + 5x - 4 = 0$
57. $x^2 + x = 6$
58. $x^2 - 13x = 48$
59. $2x^2 + 5x = 0$
60. $x^2 + 3x - 3 = 0$
61. $x^2 - 4x + 1 = 0$
62. $9x^2 - 6x - 7 = 0$
63. $x^2 - 35 = 2x$
64. $x^2 + 7x + 10 = 0$