Honors Math 2
Unit 4 day 6

Name_____
Period_____Date_____

Problems #3-29 odd, 31-39, 41-47odd, 52-58

EQUATIONS IN STANDARD FORM **Use the quadratic formula to solve the equation.**

3. $x^2 - 4x - 5 = 0$
4. $x^2 - 6x + 7 = 0$
5. $t^2 + 8t + 19 = 0$
6. $x^2 - 16x + 7 = 0$
7. $8w^2 - 8w + 2 = 0$
8. $5p^2 - 10p + 24 = 0$
9. $4x^2 - 8x + 1 = 0$
10. $6u^2 + 4u + 11 = 0$
11. $3r^2 - 8r - 9 = 0$

12. ★ **MULTIPLE CHOICE** What are the complex solutions of the equation $2x^2 - 16x + 50 = 0$?

(A) $4 + 3i, 4 - 3i$
(B) $4 + 12i, 4 - 12i$
(C) $16 + 3i, 16 - 3i$
(D) $16 + 12i, 16 - 12i$

EQUATIONS NOT IN STANDARD FORM **Use the quadratic formula to solve the equation.**

13. $3w^2 - 12w = -12$
14. $x^2 + 6x = -15$
15. $s^2 = -14 - 3s$
16. $-3y^2 = 6y - 10$
17. $3 - 8v - 5v^2 = 2v$
18. $7x - 5 + 12x^2 = -3x$
19. $4x^2 + 3 = x^2 - 7x$
20. $6 - 2t^2 = 9t + 15$
21. $4 + 9n - 3n^2 = 2 - n$

SOLVING USING TWO METHODS **Solve the equation using the quadratic formula. Then solve the equation by factoring to check your solution(s).**

22. $z^2 + 15z + 24 = -32$
23. $x^2 - 5x + 10 = 4$
24. $m^2 + 5m - 99 = 3m$
25. $s^2 - s - 3 = s$
26. $r^2 - 4r + 8 = 5r$
27. $3x^2 + 7x - 24 = 13x$
28. $45x^2 + 57x + 1 = 5$
29. $5p^2 + 40p + 100 = 25$
30. $9n^2 - 42n - 162 = 21n$

USING THE DISCRIMINANT **Find the discriminant of the quadratic equation and give the number and type of solutions of the equation.**

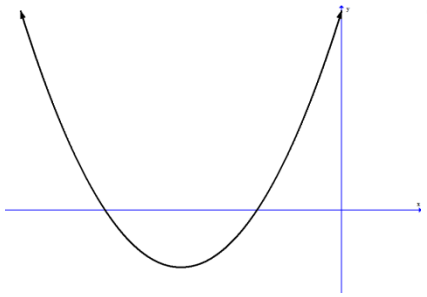
31. $x^2 - 8x + 16 = 0$
32. $s^2 + 7s + 11 = 0$
33. $8p^2 + 8p + 3 = 0$
34. $-4w^2 + w - 14 = 0$
35. $5x^2 + 20x + 21 = 0$
36. $8z - 10 = z^2 - 7z + 3$
37. $8n^2 - 4n + 2 = 5n - 11$
38. $5x^2 + 16x = 11x - 3x^2$
39. $7r^2 - 5 = 2r + 9r^2$

SOLVING QUADRATIC EQUATIONS **Solve the equation using any method.**

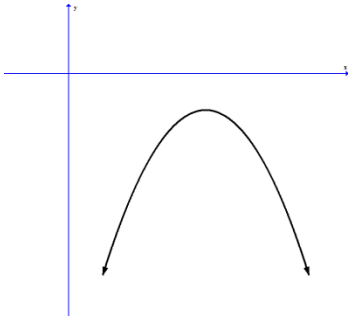
40. $16t^2 - 7t = 17t - 9$
41. $7x - 3x^2 = 85 + 2x^2 + 2x$
42. $4(x - 1)^2 = 6x + 2$
43. $25 - 16v^2 = 12v(v + 5)$
44. $\frac{3}{2}y^2 - 6y = \frac{3}{4}y - 9$
45. $3x^2 + \frac{9}{2}x - 4 = 5x + \frac{3}{4}$
46. $1.1(3.4x - 2.3)^2 = 15.5$
47. $19.25 = -8.5(2r - 1.75)^2$
48. $4.5 = 1.5(3.25 - s)^2$

Visual Thinking. In Exercises 52-54, the graph of a quadratic function $y = ax^2 + bx + c$ is shown. Tell whether the discriminant of $ax^2 + bx + c = 0$ is *positive*, *negative* or *zero*.

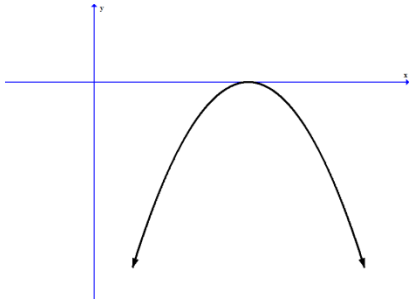
52.



53.



54.



Write a quadratic equation in the form $ax^2 + bx + c = 0$ such that c = 4 and the equation has the given solutions.

55. -4 and 3

56. $\frac{-4}{3}$ and -1

57. $-1 + i$ and $-1 - i$

58. For the period of 1990-2002, the number S (in thousands) of cellular telephone subscribers in the United States can be modeled by $S = 858t^2 + 1412t + 4982$ where t is the number of years since 1990. In what year did the number of subscribers reach 50 million?

a) 1991 b) 1992 c) 1996 d) 2000