16-1 Exercises

my.hrw.com
Homework Help

GUIDED PRACTICE

1. **Vocabulary** The solutions of the equation $3x^2 + 2x + 5 = 0$ are its __?__. (*roots* or *zeros*)

SEE EXAMPLE 1

Find the zeros of each function by using a graph and table.

2. $f(x) = x^2 + 4x - 5$
3. $g(x) = -x^2 + 6x - 8$
4. $f(x) = x^2 - 1$

SEE EXAMPLE 2

Find the zeros of each function by factoring.

5. $f(x) = x^2 - 7x + 6$
6. $g(x) = 2x^2 - 5x + 2$
7. $h(x) = x^2 + 4x$
8. $f(x) = x^2 + 9x + 20$
9. $g(x) = x^2 - 6x - 16$
10. $h(x) = 3x^2 + 13x + 4$

SEE EXAMPLE 3

11. **Archery** The height h of an arrow in feet is modeled by $h(t) = -16t^2 + 63t + 4$, where t is the time in seconds since the arrow was shot. How long is the arrow in the air?

SEE EXAMPLE 4

Find the roots of each equation by factoring.

12. $x^2 - 6x = -9$
13. $5x^2 + 20 = 20x$
14. $x^2 = 49$

SEE EXAMPLE 5

Write a quadratic function in standard form for each given set of zeros.

15. 3 and 4
16. -4 and -4
17. 3 and 0

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
18–20	1
21–26	2
27	3
28–33	4
34–36	5

my.hrw.com
Online Extra Practice

Find the zeros of each function by using a graph and table.

18. $f(x) = -x^2 + 4x - 3$
19. $g(x) = x^2 + x - 6$
20. $f(x) = x^2 - 9$

Find the zeros of each function by factoring.

21. $f(x) = x^2 + 11x + 24$
22. $g(x) = 2x^2 + x - 10$
23. $h(x) = -x^2 + 9x$
24. $f(x) = x^2 - 15x + 54$
25. $g(x) = x^2 + 7x - 8$
26. $h(x) = 2x^2 - 12x + 18$

27. **Biology** A bald eagle snatches a fish from a lake and flies to an altitude of 256 ft. The fish manages to squirm free and falls back down into the lake. Its height h in feet can be modeled by $h(t) = 256 - 16t^2$, where t is the time in seconds. How many seconds will the fish fall before hitting the water?

Find the roots of each equation by factoring.

28. $x^2 + 8x = -16$
29. $4x^2 = 81$
30. $9x^2 + 12x + 4 = 0$
31. $36x^2 - 9 = 0$
32. $x^2 - 10x + 25 = 0$
33. $49x^2 = 28x - 4$

Write a quadratic function in standard form for each given set of zeros.

34. 5 and -1
35. 6 and 2
36. 3 and 3

Find the zeros of each function.

37. $f(x) = 6x - x^2$
38. $g(x) = x^2 - 25$
39. $h(x) = x^2 - 12x + 36$
40. $f(x) = 3x^2 - 12$
41. $g(x) = x^2 - 22x + 121$
42. $h(x) = 30 + x - x^2$
43. $f(x) = x^2 - 11x + 30$
44. $g(x) = x^2 - 8x - 20$
45. $h(x) = 2x^2 + 18x + 28$