16-3 Exercises

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Homework Help

GUIDED PRACTICE

1. **Vocabulary** What information does the value of the *discriminant* give about a quadratic equation?

SEE EXAMPLE 1

Find the zeros of each function by using the Quadratic Formula.

2. $f(x) = x^2 + 7x + 10$
3. $g(x) = 3x^2 - 4x - 1$
4. $h(x) = 3x^2 - 5x$
5. $g(x) = -x^2 - 5x + 6$
6. $h(x) = 4x^2 - 5x - 6$
7. $f(x) = 2x^2 - 19$

SEE EXAMPLE 2

8. $f(x) = 2x^2 - 2x + 3$
9. $r(x) = x^2 + 6x + 12$
10. $h(x) = 3x^2 + 4x + 3$
11. $p(x) = x^2 + 4x + 10$
12. $g(x) = -5x^2 + 7x - 3$
13. $f(x) = 10x^2 + 7x + 4$

SEE EXAMPLE 3

Find the type and number of solutions for each equation.

14. $4x^2 + 1 = 4x$
15. $x^2 + 2x = 10$
16. $2x - x^2 = 4$

SEE EXAMPLE 4

17. **Geometry** One leg of a right triangle is 6 in. longer than the other leg. The hypotenuse of the triangle is 25 in. What is the length of each leg to the nearest inch?

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
18–23	1
24–29	2
30–35	3
36	4

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Online Extra Practice

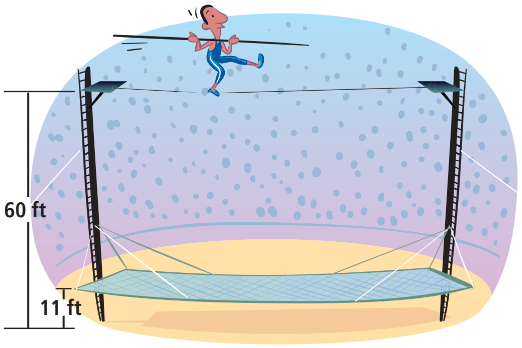
Find the zeros of each function by using the Quadratic Formula.

18. $f(x) = 3x^2 - 10x + 3$
19. $g(x) = x^2 + 6x$
20. $h(x) = x(x - 3) - 4$
21. $g(x) = -x^2 - 2x + 9$
22. $p(x) = 2x^2 - 7x - 8$
23. $f(x) = 7x^2 - 3$
24. $r(x) = x^2 + x + 1$
25. $h(x) = -x^2 - x - 1$
26. $f(x) = 2x^2 + 8$
27. $f(x) = 2x^2 + 7x - 13$
28. $g(x) = x^2 - x - 5$
29. $h(x) = -3x^2 + 4x - 4$

Find the type and number of solutions for each equation.

30. $2x^2 + 5 = 2x$
31. $2x^2 - 3x = 8$
32. $2x^2 - 16x = -32$
33. $4x^2 - 28x = -49$
34. $3x^2 - 8x + 8 = 0$
35. $3.2x^2 - 8.5x + 1.3 = 0$

36. **Safety** If a tightrope walker falls, he will land on a safety net. His height h in feet after a fall can be modeled by $h(t) = 60 - 16t^2$, where t is the time in seconds. How many seconds will the tightrope walker fall before landing on the safety net?



H.O.T. 37. **Physics** A bicyclist is riding at a speed of 20 mi/h when she starts down a long hill. The distance d she travels in feet can be modeled by the function $d(t) = 5t^2 + 20t$, where t is the time in seconds.

a. The hill is 585 ft long. To the nearest second, how long will it take her to reach the bottom?

b. **What if...?** Suppose the hill were only half as long. To the nearest second, how long would it take the bicyclist to reach the bottom?