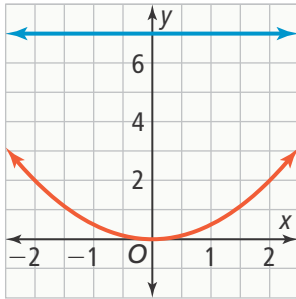


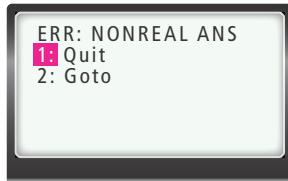


UNDERSTAND

18. **Make Sense and Persevere** Where will the parabola intersect the line? What equation did you solve to find the intersection?



19. **Use Appropriate Tools** When solving an equation of the form $ax^2 + b = c$, what does the error message indicate? What situation may cause this error?



20. **Communicate Precisely** When does solving a quadratic equation of the form $ax^2 = c$ yield the given result?
- a rational solution
 - an irrational solution
 - one solution
 - no solutions
21. **Error Analysis** Describe and correct the errors a student made in solving $-4x^2 + 19 = 3$.

$$\begin{aligned}
 -4x^2 + 19 &= 3 \\
 -4x^2 + 19 - 19 &= 3 - 19 \\
 -4x^2 &= -16 \\
 -2x &= -4 \\
 x &= 2
 \end{aligned}$$



22. **Higher Order Thinking**
- Solve $(x - 5)^2 - 100 = 0$. Show the steps for your solution.
 - Explain how you could solve an equation of the form $(x - d)^2 - c = 0$ for x .

PRACTICE

Solve each equation by inspection. SEE EXAMPLE 1

23. $x^2 = 256$ 24. $x^2 = 144$
 25. $x^2 = -20$ 26. $x^2 = -27$
 27. $x^2 = 91$ 28. $x^2 = 0.25$

Solve each equation. SEE EXAMPLE 2

29. $12x^2 = 300$ 30. $-x^2 = 0$
 31. $0.1x^2 = 100$ 32. $227x^2 = 1,816$
 33. $-36x^2 = -36$ 34. $-16x^2 = 200$

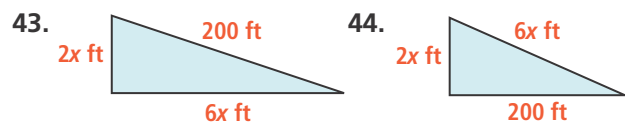
Solve each equation. SEE EXAMPLE 3

35. $x^2 + 65 = 90$ 36. $x^2 - 65 = 90$
 37. $3x^2 + 8 = 56$ 38. $3x^2 - 8 = 56$
 39. $\frac{4x^2 + 10}{2} = 5$ 40. $\frac{8x^2 - 40}{4} = 470$

Solve each equation. Approximate irrational solutions to the nearest hundredth. SEE EXAMPLE 4

41. $6x^2 + 2x^2 = 80$ 42. $6x^2 + (2x)^2 = 80$

Solve for x . Then find the side lengths of each triangle to the nearest tenth. SEE EXAMPLE 4

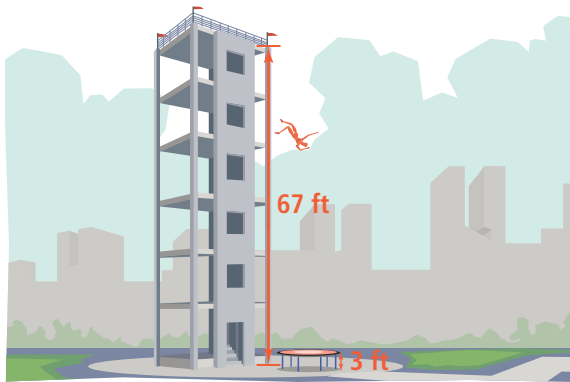


45. Use two methods to solve $x^2 - 900 = 0$. Explain.
46. At a certain time of day, the sun shines on a large flagpole causing a shadow that is twice as long as the flagpole is tall. What is the height of the flagpole to the nearest tenth of a foot?



APPLY

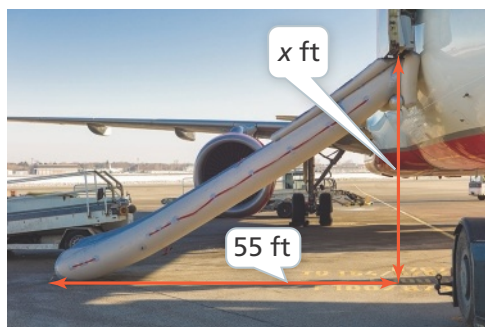
47. A mannequin is dropped from the top of a fire department training tower. Use $-16t^2$ for the change in height per second.



- Write an equation to determine the time it takes for the mannequin to drop on to the trampoline?
 - How long does it take before the mannequin is caught by the trampoline? Explain.
48. **Make Sense and Persevere** Calculate the distance in miles between the two points shown on the map.



49. **Make Sense and Persevere** The evacuation slide from an aircraft is shown. If the slide is 73 feet long, what is its height at the top in feet?

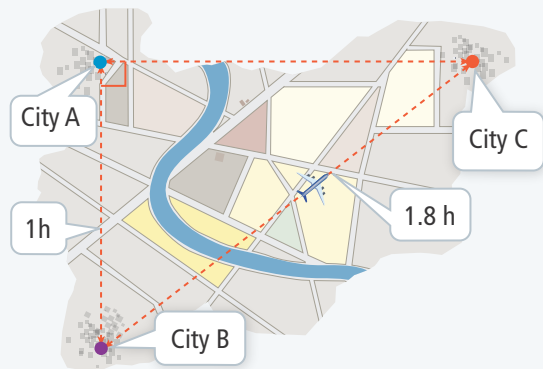


ASSESSMENT PRACTICE

50. Fill in the solutions of $2,900 - 5x^2 = 840$.

+ _____ and - _____

51. **SAT/ACT** A park has an area of 280 m^2 . A rectangular region with a length three times its width will be added to give the park a total area of 435 m^2 . Which equation can be solved to find the width of the region?
- $x + 3x + 280 = 435$
 - $(x \cdot 3x) + 280 = 435$
 - $(x^2 + 3x) + 280 = 435$
 - $x^2 + (3x)^2 + 280 = 435$
52. **Performance Task** A CEO flies to three different company locations. The flight times for two of her legs are shown.



Part A The plane travels at an average speed of 120 mph. Find the distance between City A and City B and the distance between City B and City C.

Part B Write and solve a quadratic equation that can be used to find the distance between City A and City C.

Part C How long will the flight between City C and City A last?