

Name: _____ Date: _____

Solving Quadratics by Using Square Roots

Solve each quadratic equation.

1. $x^2 + 4 = 29$

2. $3x^2 - 7 = 47$

3. $x^2 + 11 = 16$

4. $(x + 4)^2 = 121$

5. $(2x - 3)^2 = 9$

6. $(x - 7)^2 = 99$

7. $(x + 3)^2 + 6 = 18$

8. $(2x + 6)^2 - 8 = 24$

9. $x^2 + 21 = 5$

10. $3(x + 4)^2 = 9$

11. $3(x^2 - 4) = 2x^2 - 1$

12. $\frac{2}{5}x^2 - 3 = 7$

13. $x^2 - 14x + 13 = 0$

14. $2x^2 - 7x = x^2 - 12$

15. $2x^2 - 15 = -7x$

Word Problems

Waterfalls: Angel Falls in Venezuela is the tallest waterfall in the world. Water falls uninterrupted for 2421 feet before entering the river below. The height h above the river in feet of water going over the edge of the waterfall is modeled by $h(t) = -16t^2 + 2421$, where t is the time in seconds after the initial fall.

- A. Estimate the time it takes for the water to reach the river.
- B. Ribbon Falls in California has a height of 1612 ft. Approximately how much longer does it take water to reach the bottom when going over Angel Falls than when going over Ribbon Falls?

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. The safety net is 11 feet off the ground.

How many seconds will the tightrope walker fall before landing on the safety net?
