

Name:

Date:

Hour:

Algebra 1
Quadratic Application (Factoring Only)

1. A diver begins on a platform 10 meters above the surface of the water. The diver's height is given by the equation $h(t) = -2t^2 + t + 11$, where t is the time in seconds after the diver jumps. How long does it take the diver to reach a point one meter above the water?

2. The height in feet of a soccer ball kicked upward from the ground with initial velocity 60 feet per second is modeled by $h = -16t^2 + 60t$, where t is the time in seconds. Find the time it takes for the ball to return to the ground. Round to the nearest tenth of a second.

3. For a scene in a movie, a sack of money is dropped from a roof of a 600 ft skyscraper. The height of the sack above the ground is given by $h = -16t^2 + 576$, where t is the time in seconds. How long will it take the sack to reach the ground? Round to the nearest tenth of a second.

4. The height in feet h of a water bottle rocket launched from a rooftop is given by the equation $h = -16t^2 - 104t - 48$, where t is the time in seconds. After the rocket is fired, how long will it take to reach a height of 100 feet? Round your answer to the nearest tenth of a second.

5. The height of a pumpkin launched from a cannon is given by the function $h = -16t^2 + 224t + 240$, where t is the time in seconds. How many seconds is the pumpkin in the air? Round your answer to the nearest tenth of a second.

6. The height, in feet, of a pumpkin launched from a cannon is given by the function $h = -16t^2 - 32t + 240$, where t is the time in seconds. What is the maximum height of the pumpkin?
7. The height of a fireworks rocket launched from a platform 35 feet about ground can be approximated by $h = -5t^2 + 30t + 35$, where h is the height in meters and t is the time in seconds.
- Find the maximum height of the firework.
 - How long will it take to get to the maximum height?
8. The height in feet of a soccer ball kicked upward from the ground with initial velocity 60 feet per second is modeled by $h = -16t^2 + 60t$, where t is the time in seconds. Find the maximum height of the soccer ball.
9. A football is being punted and the height of the ball can be modeled by the equation $h = -16t^2 + 32t + 5$, where h is the height in feet and t is the time in seconds. What is the initial height of the football?
10. A frisbee is being thrown in a park and the height of the frisbee can be modeled by the equation $h = -5t^2 + 35t + 5$, where h is the height in meters and t is the time in seconds. How high is the frisbee after 3 seconds?