

Quadratic Application Problems

1. A toy rocket is fired into the air from the top of a barn. Its height (h) above the ground in yards after t seconds is given by the function $h(t) = -5t^2 + 10t + 20$
 - a. What was the initial height of the rocket?
 - b. When did the rocket reach its maximum height?
 - c. What was the maximum height?
 - d. How long was the rocket in the air?
 - e. Sketch a graph of the function.

2. The product of two consecutive positive odd integers is 195. Find the integers.
3. A rectangular piece of cardboard measuring 40 in. by 30 in. is to be made into an open box with a base (bottom) of 900 in^2 by cutting equal squares from the four corners and then bending up the sides. Find, to the nearest tenth of an inch, the length of the side of the square that must be cut from each corner.

4. The local park has a rectangular flower bed that measures 10 feet by 15 feet. The caretaker plans on doubling its area by adding a strip of uniform width around the flower bed. Determine the width of the strip.

5. $h(t) = -4.9t^2 + 8t + 5$ represents Jeremiah's height (h) off the ground in meters above the water t seconds after he leaves the diving board.
- a) What is the initial height of the diving board?
 - b) At what time did Jeremiah reach his maximum height?
 - c) What was Jeremiah's maximum height?
 - d) How long was Jeremiah in the air?
 - e) Sketch a graph of the function.