

**Quadratic Story Problems**

Example 1: A ball is thrown straight up from the top of a building 144 feet tall with an initial velocity of 64 feet per second. The height of the ball above the ground is given by $h(t) = -16t^2 + 64t + 144$, where t is time in seconds. Find the time it will take the ball to reach its maximum height. Then, find the maximum height. Next, find the time it takes for the ball to hit the ground.

Time to reach maximum height _____

Maximum height _____

Time to hit the ground _____

Example 2: A rectangular flat screen television set is 4 feet longer than it is wide. If its area is 32 square feet, find its dimensions.

Picture:

Equation:

Width _____ Length _____

Example 3: Nancy walks 15 m diagonally across a rectangular field. She then returns to her starting position along the outside of the field. The total distance she walks is 36 m. What are the dimensions of the field?

Picture:

Equation

Length of field _____

Width of field _____

1. The height of an object thrown upward with an initial velocity of 32 feet per second is given by the formula $h(t) = -16t^2 + 32t$, where t is the time in seconds. How long will it take the object to reach a height of 16 feet? How long will it take to reach its maximum height? What is the maximum height the object will reach? How long will it take the object to hit the ground?

Time to reach maximum height _____

Maximum height _____

Time to hit ground _____

2. The length of a rectangle is four more than its width. Find the dimensions of the rectangle if its area is 96 square inches.

Picture:

Equation:

Width _____ Length _____

3. If the measure of one side of a square is increased by 2 centimeters and the measure of the adjacent side is decreased by 2 centimeters, the area of the resulting rectangle is 32 square centimeters. Find the measure of one side of the square.

Picture:

Equation:

Measure of One Side of Square _____

4. If one leg of a right triangle is 14 meters shorter than the other leg, and the hypotenuse is 26 meters, find the length of the two legs.

Picture:

Equation

Length of shorter leg _____

Length of longer leg _____