

Example 1: The equation $h(t) = -4.9t^2 + 60t + 3$ represents the path of a rocket where h is height in meters and t is time in seconds after it has been launched.

- a) What is the height of the rocket when it is launched?
- b) How long does it take the rocket to land on the ground?
- c) What is the maximum height of the rocket?
- d) When is the rocket 4 meters above the ground?

Example 2: One leg of a right triangle is 1 cm longer than the other leg. The length of the hypotenuse is 9 cm greater than that of the shorter leg. Find the length of the three sides.

Example 3: The length of a rectangle is 16cm greater than its width. The area is 35cm^2 . Find the dimensions of the rectangle.

Example 4: The path of a soccer ball after it is kicked from a height of 0.5 meters above the ground is given by the equation $h(d) = -0.1d^2 + d + 0.5$, where h is the height in meters, and d is the horizontal distance in meters.

- a) How far has the soccer ball travelled horizontally when it lands on the ground?
- b) Find the horizontal distance when the soccer ball is at a height of 2.6 meters above the ground.
- c) What is the max height of the ball?

Example 5: A sporting goods store sells 90 ski jackets in a season for \$200 each. Each \$10 decrease in the price would result in five more jackets being sold. At what price should they sell the jackets in order to obtain a maximum revenue? What is the max revenue?