

Quadratic Word Problems

Maximum/Minimum

- ① The height h , in feet of an object above the ground is given by $h = -16t^2 + 64t + 190$, $t \geq 0$ where t is the time in seconds. Find the time it takes the object to strike the ground and the maximum height of the object.

- ② The length of a rectangle is three more than twice the width. Find its length and breadth that will give a total area of 27 m^2 . What is the minimum area that this rectangle can have?

- ③ A rectangular field has to be enclosed by 400 m of fence. What is the maximum area of the rectangular field? What dimensions will give the maximum area?

- ④ Last year in a talent show attended by 400 people, each ticket was sold for \$11. It is found that an increase of \$1 per ticket every year would cause a decrease in attendance of 20 people. What ticket price would maximize the revenue after a number of such increments in the ticket price?

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Answers

- ① The height h , in feet of an object above the ground is given by $h = -16t^2 + 64t + 190$, $t \geq 0$ where t is the time in seconds. Find the time it takes the object to strike the ground and the maximum height of the object.

254 feet

- ② The length of a rectangle is three more than twice the width. Find its length and breadth that will give a total area of 27 m^2 . What is the minimum area that this rectangle can have?

Length = 9 m, width = 3 m, no minimum area

- ③ A rectangular field has to be enclosed by 400 m of fence. What is the maximum area of the rectangular field? What dimensions will give the maximum area?

10000 m^2 , 100 m by 100 m

- ④ Last year in a talent show attended by 400 people, each ticket was sold for \$11. It is found that an increase of \$1 per ticket every year would cause a decrease in attendance of 20 people. What ticket price would maximize the revenue after a number of such increments in the ticket price?

\$15.50