

Unit 5 Review Questions

1. Skydivers jump out of an airplane at an altitude of 3.5 km. The equation $H = 3500 - 5t^2$ models the altitude, H , in metres, of the skydivers, at t seconds after jumping out of the airplane.

a) How far have the skydivers fallen after 10 s?

b) The skydivers open their parachutes at an altitude of 1000m. How long did they free fall?

2. Katie sells specialty teddy bears at various summer festivals. Her profit for a week, P , in dollars, can be modelled by $P = -0.1n^2 + 30n - 1200$, where n is the number of teddy bears she sells during the week.

a) How many teddy bears would she have to sell to earn \$500?

b) How many teddy bears would she have to sell to break even?

c) How many teddy bears would she have to sell to maximize her profit?

3. Determine the dimensions of a rectangle that has a perimeter of 40 cm and has a maximum area. What is the maximum area?

4. A farmer wants to make a rectangular corral along the side of a large barn and has only 60m of fencing. Only 3 sides must be fenced, since the barn will form the fourth side. What should the dimensions of the corral be in order to enclose the maximum area?

5. Find two numbers whose sum is 34 and whose product is a maximum.

6. The path of a basketball shot can be modelled by the equation:

$$h = -0.09d^2 + 0.9d + 2$$

where h is the height of the basketball in metres and d is the horizontal distance of the ball from the player in metres. What is the maximum height reached by the ball?

7. Give an example of a quadratic equation with

a) no real roots

b) one real root

c) two real roots

Review in Text

Pg. 316 # 1-11

Pg. 318 #1-16

Reviewing tests #3 and #4 would also be a good idea!

The rock arch of Doodle Door - England

