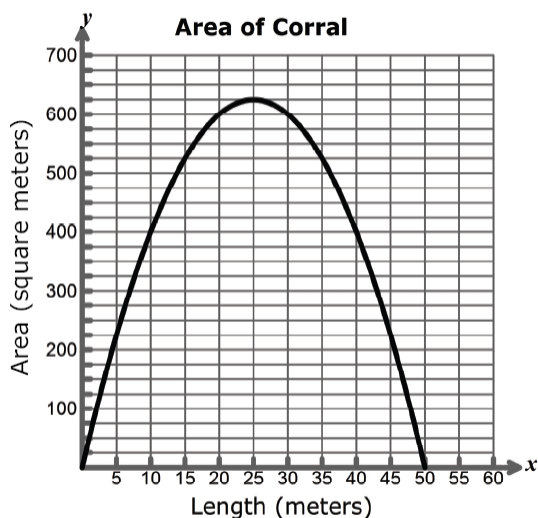


APPLICATIONS OF QUADRATIC FUNCTIONS

1. A rancher has 100 meters of fencing with which to build a rectangular corral. The graph below shows the relationship between the area and the length of the corral.



- Independent variable: _____; Dependent variable: _____
- Identify the x-intercepts: _____
- Vertex: _____ Max or Min
- What does the ordered pair (10, 400) mean for this situation?
- How much area can be enclosed when the length of the corral is 45 meters?
- Where do you look on the graph to find the greatest area the rancher can enclose?
What is the maximum area he can enclose?
- Find the possible dimensions of the corral if the area is 525 square meters.
Draw and label all possibilities.

2. Quinn, Gladys, and Bob went outside to launch model rockets. Each person in the group chooses one rocket to analyze. Answer the following questions for Bob's rocket.

a) Independent variable: _____

Dependent variable: _____

b) _____ depends on _____

c) From what height was Bob's rocket launched?

d) When did Bob's rocket hit the ground?

e) When did Bob's rocket reach its greatest height?

f) What was its greatest height?

g) How many seconds was Bob's rocket in the air?

h) At what time is the rocket at a height of 25 meters?

i) For approximately how many seconds was his rocket 45 meters or higher?

j) Bob's rocket scientist friend finds that the actual equation representing the path of the rocket is $y = -16.2x^2 + 60.75x + 10$. Using your calculator, determine the rocket's exact maximum height. Round to the nearest thousandth.

