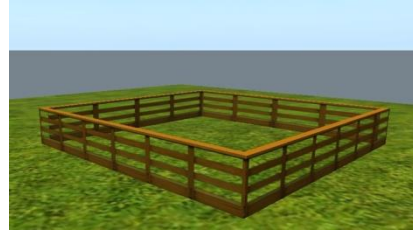
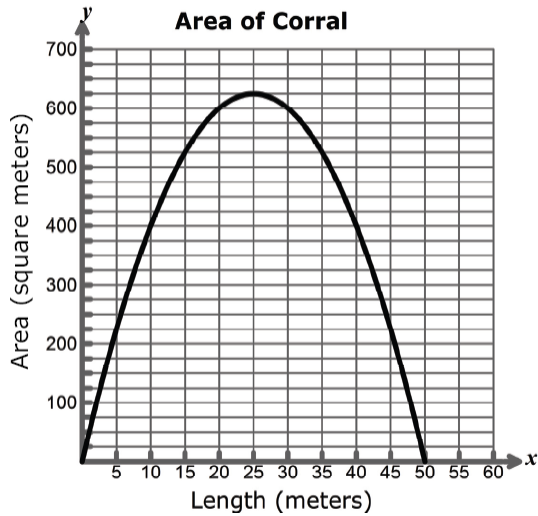


## APPLICATIONS OF QUADRATIC FUNCTIONS

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.



1. Identify the independent variable: \_\_\_\_\_
2. Identify the dependent variable: \_\_\_\_\_
3. Identify the x-intercepts: \_\_\_\_\_
4. Does the graph have a maximum or minimum? \_\_\_\_\_
5. What is the vertex of the graph? \_\_\_\_\_
5. How does the x-value of the vertex relate to the scenario?
6. How does the y-value of the vertex relate to the scenario?
7. 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: \_\_\_\_\_  
Dependent: \_\_\_\_\_

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

i) 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.

