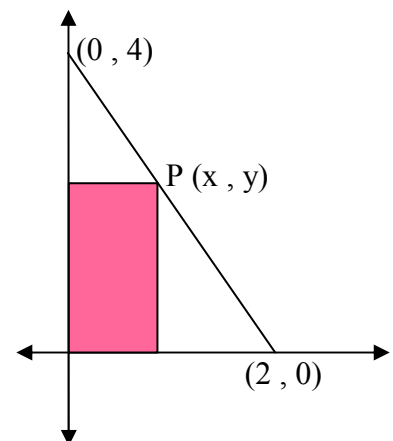# Algebra 3 Assignment # 9
Max/Min Word Problems

(1) A manufacturer finds that the daily cost in dollars, C, of producing n statues is given by the formula $C = n^2 - 120n + 4200$. How many statues should be produced per day so that the cost will be a minimum? What is the minimum daily cost?

(2) The sum of two numbers is 8. Find the numbers if the sum of the square of one of the numbers and 4 times the other number is to be as small as possible. Find the smallest sum.

(3) When a department store sold a certain style of shirt for $20, the average number of shirts sold per week was 100. The store observed that for every $1 decrease in price, 10 more shirts were sold weekly. What price should the store charge to maximize the store's weekly revenue?

(4) It is estimated that 14,000 people will attend a game when the admission price is $7.00. For each 25¢ increase in the price, the attendance will decrease by 280. What admission price should be charged to maximize the gate receipts?

(5) A farmer has 120 yards of fencing to enclose a rectangular region as shown in the figure to the right. One side of the region will lie against a building, so no fencing will be used on that side. Find the dimensions which should be used to maximize the area of the entire region. Find the maximum area which may be enclosed.
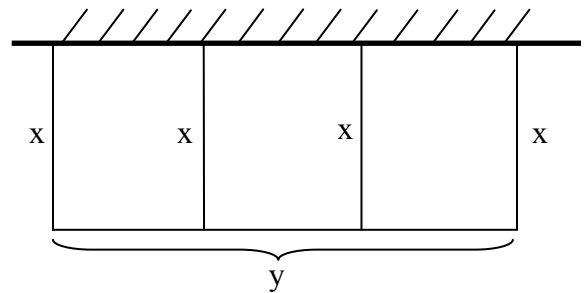
(6) Each point P on the line segment connecting the points (0 , 4) and (2 , 0) determines a rectangle as shown in the figure to the right. Find the coordinates of the point P if the area of the rectangle is to be as large as possible. Find the area of the largest rectangle.

Algebra 3 Assignment # 9

Answers

(1) 60, $600

(2) 2 & 6, sum is 28

(3) $15

(4) $9.75

(5) 15 yards by 60 yards , 900 square yards

(6) P(1 , 2) , 2