Assignment # _____ Lesson 2 – 4 Name _____

PLUS p. 56 # 28a, b; p. 61 #14, 22; p. 66 #10, 18

1. A rectangular garden is to be enclosed on 3 sides by fencing; the fourth side is the side of a barn. What is the largest garden that can be enclosed by 50 ft of fencing? What are the dimensions of the garden?

2. Find the largest area of a rectangle with a perimeter of 20 in.

3. Find a number such that the sum of the number and its square will be as small as possible.

4. A bus line carries 2000 passengers per day at a rate of 20 cents per passenger. In contemplating a rate change, the management estimates that they would lose 200 passengers for every 5 cents they increased the rates. What rate should they charge to maximize their revenue?

5. A farmer wants to make a rectangular enclosure using a wall as one side and 120 m of fencing for the other 3 sides. Find the area in terms of x and state the domain of the area function. Find the value of x that gives the greatest area.

6. A rectangle has a perimeter of 80 cm. Find the greatest possible area for this rectangle and state the domain of this area function.

7. An orange grower has 400 crates of fruit ready for market and will have 20 more each day the grower waits. The present price is $60 per crate and will drop an estimated $2 for each day waited. In how many days should the grower ship the crop to maximize his income?

Answers:
1. Area 312.5 ft^2; dimensions 12.5 ft by 25ft
2. Area 25 in^2
3. Number -1/2
4. New rate: 35 cents
5. x = 30; domain $0<x<60$
6. Area: 400 cm^2; Domain $0 < x < 40$
7. 5 days