General Algebra 2 Worksheet #6 Unit 9 page 1 _____

Use an appropriate second degree function to solve each of the following problems. Show your work and your solutions neatly organized.

1. What is the maximum area of a rectangle whose perimeter is 30 inches?

2. Find the number that when added to its own square will give a minimum sum.

3. The summer theater charges $4 per ticket and has a full house of 400 people nightly. The manager estimates that the ticket sales would decrease by 50 people for every $1 increase in the ticket price. What price per ticket would maximize the total income?

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Use an appropriate second degree function to solve each of the following problems. Show your work and your solutions neatly organized.

4. A long piece of sheet metal 24 inches wide is to be made into a rain gutter with a rectangular cross section by bending up a vertical strip along each side. How many inches should be bent up along each side so that the gutter formed has a maximum cross-sectional area?

5. A rectangular pen is made using 100 meters of fencing on three sides. The fourth side is a stone wall. What is the maximum area of such an enclosure?

6. Sam wants to fence in a rectangular plot of land and to divide it into four equal areas using three lengths of fencing parallel to two opposite sides. If he has a total of 800 feet of fencing to work with, then find the dimensions that will maximize the total area enclosed. What is the maximum area?