

## Algebra II Worksheet #8 Unit 8 page 1 \_\_\_\_\_

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

1. A rectangle has two sides on the coordinate axes and one vertex in the first quadrant on the line  $2x + 5y = 30$ . What are the dimensions of the rectangle if its area is a maximum? What is the maximum area?

2. Sue wants to fence in a rectangular plot of land **and** to divide it into three equal areas using two lengths of fencing parallel to two opposite sides. If she has a total of 2,000 feet of fencing to work with, then find the dimensions that will maximize the total area enclosed.

## **Algebra II Worksheet #8 Unit 8 page 2**

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

3. A television set manufacturer can sell 400 sets per month for \$600 per set. Marketing research indicates that the company can sell 25 more sets per month for each \$20 decrease in price. What price per set will give the greatest monthly income? What is the maximum monthly income?

4. A long piece of sheet metal 20 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?