**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**January 10th, 2012**

**AP Calculus 1, Mrs. Sulkes**

**Optimization – More Practice**

1. Which points on the graph of  are closest to the point (1,2)?

Step 1: Make a sketch and define your variables.

Step 2: Write an equation for the quantity that is to be minimized. (primary equation)



Step 3: Reduce the equation so that you have one independent variable.

Step 4: Determine the domain of the problem.

Step 5: Determine the minimum, using calculus techniques.

2. Two posts, one 12 feet high and the other 28 feet high, stand 30 feet apart. They are to be stayed by 2 wires, attached to a stake placed between the two posts, and running from ground level to the top of each post. Where should the stake be placed to use the least amount of wire?

3. Find the number of units that must be produced to maximize the revenue function . What is the maximum revenue? Also graph the function and check your answer on the graph.

4. The demand for a product can be modeled by . The cost for producing x units is given by . What price will yield a maximum profit?

*Hint to get started:* **Find profit function first: Profit = Revenue – Cost**

**Assignment: (due Friday) p. 265 # 21, 23, 29, 33**