Section 10.4- Applications of Maxima and Minima
Math 1100-4
Tuesday, February 14, 2012

Examples

1. A farmer wants to enclose a rectangular plot of land that must contain 3600 square feet. What should the dimensions be if he needs to minimize the fencing needed to enclose the area?

2. A vacationer on an island 8 miles offshore from a point that is 48 miles from town must travel to town occasionally. The vacationer has a boat capable of traveling 30 mph and can go by auto along the coast at 55 mph. At what point should the car be left to minimize the time it takes to get to town? (See the diagram for #32 on page 741 of the textbook.)

3. A rectangular field with one side along a river is to be fenced. Suppose that no fence is needed along the river, the fence on the side opposite the river costs $20 per foot, and the fence on the other sides costs $5 per foot. If the field must contain 45,000 square feet, what dimensions will minimize costs? (We will only set up this problem, since your homework involves solving the problem.)