

Assignment 9

November 6, 2013

- 1) Find two nonnegative numbers whose sum is 9 and so that the product of one number and the square of the other is a maximum.
- 2) Build a rectangular pen with three parallel partitions using 500 ft of fencing. What dimensions will maximize the total area of the pen?
- 3) An open rectangular box with square base is to be made from 48 ft^2 of material. What dimensions will result in a box with the largest possible volume?
- 4) Find the point (x, y) on the graph of $y = \sqrt{x}$ nearest to the point $(4, 0)$.
- 5) You are standing at the edge of a slow-moving river which is one mile wide and wish to return to your campground on the opposite side of the river. You can swim at 2 mph and walk at 3 mph. You must first swim across the river to any point on the opposite bank. From there walk to the campground, which is one mile from the point directly across the river from where you start your swim. What route will take the least amount of time?