

This quiz is worth 6 points. It is due at the end of class.

Unless otherwise stated, follow the steps listed below for each problem:

- (a) Write the objective function.
- (b) Write the constraint equation.
- (c) Compute the intervals of increasing and decreasing, any relative minima or maxima, and in the intervals of concavity for the objective function.
- (d) Sketch the graph of the objective function.
- (e) What is the absolute maximum or minimum of the objective function? When does it occur?

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1. Find the dimensions of a rectangular garden of greatest area that can be fenced off on all four sides with 300 meters of fencing.
 2. A canvas wind shelter for the beach has a back, two square sides, and a top. Find the dimensions that use the smallest amount of canvas possible, and still enclose a volume of 250 cubic feet.
 3. A large soup can is to be designed so that it will hold 16π cubic inches of soup. Find the values for the radius of the can (use the variable x) and the height (use the variable h) for which the amount of metal needed is as small as possible.