

MA 224 - Quiz 9 (10 minutes)

Please write your name and section number, and put your final answers in a box. **For full credit, please show your work!**

1. I am making a box with a square bottom, and I am using several different materials. The bottom is made out of a material that is twice as expensive as the materials used for the sides and the top. I want the box to have volume = 1500. What dimensions should I use to make the box as cheap as possible?
 - 1.1 (3 points) State what quantity you are trying to optimize, then write down a function that gives that quantity.
 - 1.2 (2 points) What is the constraint equation for this problem?
 - 1.3 (5 points) Use the method of Lagrange Multipliers to solve the problem. If you do not test your critical point(s), you will get no credit for this question.