

## Group Project #2

Math 1180, Fall 2007

Instructor: Jason

This is intended to be an extension of problems #73 page 135 and #52 page 158 in your text.

- 1.1: Given a  $16'' \times 16''$  piece of cardboard how could you cut out pieces in order to form a pattern which could be folded up into a box with a top? Hint: Try drawing and cutting papers to form a model.
- 1.2: Can you express the volume of this box as a function of one of its dimensions? What are the domain and range of this function? What does its graph look like?
- 1.3: What are the dimensions of the box which has maximal area? How did you determine these?
- 1.4: How does this problem change if you were given a sheet of cardboard which was  $x'' \times x''$  big?