Homework Ten

Calculus I

College of the Atlantic

Due Friday, November 18, 2022
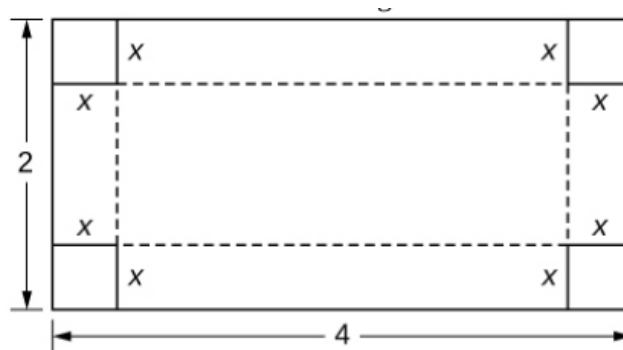
Part 1: WeBWorK. Do Homework 10 on WeBWorK. The WeBWorK page is here: `https://webwork.runestone.academy/webwork2/coa-feldman-es1024i-fall-2022/`. I recommend doing the WeBWorK part of the homework first. This will enable you to benefit WeBWorK's instant feedback before you do part two.

Part 2: Non-WeBWorK problems. Here are some instructions for how to submit this part of the assignment.

- Do the problems by hand using pencil (or pen) and paper. There is no need to type this assignment.
- Make a pdf scan of your work using genius scan or some similar scanning app. Please make the homework into a single pdf, not multiple pdfs.
- Submit the assignment on google classroom. Please don't email it to me.

Here are some non-WeBWorK problems.

1. You have a piece of cardboard that is 4 inches by two inches. You wish to use the cardboard to make a rectangular box. To do so you will cut an x by x square out of each corner and the fold up along the dotted lines, as shown in the figure. What value of x leads to the box with the greatest volume?

2. **Optional Challenge Problem.** A spherical rock on a beach on the coast of Maine erodes at a rate proportional to its surface area. As it erodes it maintains its spherical shape. The rock erodes in such a way that it loses half of its volume in 40 years. How long will it take for the rock to erode completely?