

Lecture 21 Activity: Optimization

Math 3, Fall 2022

October 27, 2023

1. You want to build a rectangular garden with a fence that costs \$1 per foot. The garden needs to have an area of 100 square feet. What shape should you make the garden to minimize the cost, and how much will the fence cost?
2. Uh-oh! Your neighbor on the east side purchased an attack dog trained to attack due west at all times. You'll need a stronger fence on the east side costing \$7 per square foot. What shape should you make the garden to minimize the cost, and what will be the total fence cost?
3. Your neighbor kindly apologizes for the attack dog and offers to subsidize your garden fence up to \$100 to offset the cost of the stronger fence. What is the maximum area you can enclose with this money, and what shape will the garden be?
4. How would your answer to question 3 change if the fence must be placed in whole 1-foot segments?