Math 241 Worksheet 11 (two-sided)

Name: _____

1. We want to make a rectangular box such that the length is 3 times the width, of volume 5 cubic meters. The material costs $\$1/\mathrm{m}^2$ except the top of the box costs $\$2/\mathrm{m}^2$. What dimensions of the box would minimize the cost? Be sure to prove that you have an absolute minimum.

2. A farmer has 240 ft of fence to make 4 side by side identical rectangular pig pens. What dimensions would maximize the total area?

Find the largest cone that can fit into a sphere of radius 1.