MAT 21A, Spring 2017
Homework Assignment 7

Due before the start of the class on Wednesday, June 7

Please read Section 4.6 of the textbook before starting on the problem set.

Written Assignment:

Section 4.6: 12. Find the volume of the largest circular cone that can be inscribed in a sphere of radius 3. *Hint: the volume of the cone equals* $\frac{1}{3}\pi R^2 h$*, where* R *is the radius of the circle at the base and* h *is the height of the cone.*

13. Two sides of the triangle have lengths a and b, and the angle between them is θ. What value of θ will maximize the triangle's area? *Hint:* $A = \frac{1}{2}ab\sin(\theta)$.

28. Find the point on the line $\frac{x}{a} + \frac{y}{b} = 1$ that is closest to the origin.

52. You operate a tour service that offers the following rates: \$200 per person if 50 people (the minimum number to book the tour) go on tour. For each additional person, up to a maximum of 80 people total, the rate per person is reduced by \$2.

It costs \$6000 plus \$32 per person to conduct the tour. How many people does it take to maximize your profit?

The homework must be legible, and written in connected sentences that explains what you are doing. Just the answer (whether correct or not) is not enough. Please put your name and section number on every page and staple the pages together. Homework should be handed in on time, late homework will not be graded.