MA 330 ASSIGNMENT # 3

Answers to problems may be handwritten.

Problem 1: Here is an algebraic version of the quadrature of the lune. Begin with a square of side length $2r$. Upon each side, construct a semicircle. Circumscribe a circle about the original square.

(1) What is the *algebraic* relationship between the area of the original square and the combined areas of the four lunes bounded by the semicircles and the circumscribed circle?
(2) From this, can you conclude that the lune is quadrable? Why or why not?
(3) Is your answer related to Hippocrates' method of quadrature? If so, how? If not, why not?

Short Essay:

Discuss what you found most interesting from both an historical, cultural, or social perspective *and* from a mathematical perspective in the readings so far in the course. Explain why these were interesting to you.

Your short essay should be typed, 2-2.5 pages long, double spaced, 12 point Times New Roman font. The short essay will be graded using the grading rubric for writing found on the course website.