The problem portfolio is 30% of your final class grade.

**Pick ten problems** for which you can claim to have made considerable mathematical growth this semester. Eight of the problems should come from the Morgan textbook and two from the Apostol. Exceptions can be made with the consent of the instructor.

Write a discussion of the problem that includes

- A statement(s) and the proof of the statement(s).
- Examples and counterexamples.

Two of the problems should include

- Application to pre-calculus, Calculus and/or other High School mathematics

Be prepared to present your solution to the class within a 5-10 minute period. We will be doing presentations of problems throughout the semester. Problems may be presented more than once to show alternate strategies. I am hoping that each student will have the opportunity to present two of her/his problems.

**DUE DATES:** One problem is due each week by midnight on the Monday before class. Send them to saunders@math.uic.edu

**Grading:** (100 points total)

80 points: Each problem will receive 8 points, as follows

- 2 pts Difficulty of the problem.
- 3 pts Sophistication of examples and counterexamples.
- 3 pts Correctness and elegance of the proof

10 points: Five points for each application to high school math

10 points: Presentation.

Once graded a problem can be revised and turned in again on November 23rd for additional credit.

Once a problem is presented and/or discussed in class, it cannot be used for this assignment by another person unless that person shows substantially different examples and arguments.

**Working with others and other source:** It is good to get ideas and inspirations from other people. It is good to be able to research problems and find solutions in books or on the internet. However, work that bears strong resemblance to another student’s work will lose points. If you work with others, make sure you write up your own version of the problem and reference other people’s work. Work copied from books or the internet is considered plagiarism, is never acceptable and worth zero points. Work that is too imitative of either the Morgan or Apostol text will also lose points.