## Math 300 Assignment 3

PROBLEMS: 2.51a, 2.53, 3.5, 3.15, 3.18, 3.22, 3.23, 3.26, 3.55, 3.56a

## DR. LOVELESS PROBLEMS

**PROBLEM I:** Complete the Exploratory Problem 1: Where Sums and Product Meet

**PROBLEM II:** Work through each Exam 1 in the exam archive! Make sure you understand all the posted solutions. There are plenty of additional induction problems that you can practice from old exams. (There is nothing to hand in for Problem II).

The problems above are FRIDAY, JANUARY 28th.

## HOMEWORK NOTES/HINTS

- PROBLEM 2.51a: Remember that the solution for 2.51b is online, I want you to mimic my proof.
- PROBLEM 3.22: You will need to use the triangle inequality at some point in the inductive step.
- PROBLEMS 3.55 and 3.56a: All of these problems use second order recurrences, so you will need to show the first two cases in your base step so that you can use the recurrence formula in the inductive step. Then note that you are technically using strong induction when you are using an inductive hypothesis that involves more than just the previous step.
- For more basic induction practice try any (or all) of the following problems:

3.5 - 3.9, 3.14 - 3.19, 3.27 - 3.32, or any induction problems from old exams

• If you finish the homework early or if you are looking for some extra practice try the following problems:

## CHALLENGE PROBLEMS: 3.38, 3.39

These are not due, but if you hand them in with your homework, I will award you up to one extra credit point per problem (if you do this, then please put the challenge problems at the end and clearly label them).