

MATH 636, Fall 2013

HOMEWORK 4

To be prepared for presentation on Thursday, October 3.

Background reading: *Combinatorics: A Guided Tour*, Sections 2.1–2.3 and the notes on combinatorial proofs.

If you wish to present one of these questions in class, claim it upon arrival. (If you have already presented, please let others present this time.)

4-1. Understand and explain to the class Combinatorial Proof #2 on page 55, as well as the solutions to Questions 62 and 63.

4-2. Use the square-domino interpretation of the Fibonacci numbers to prove that

$$f_{2n} = 1 + \sum_{i=1}^n f_{2i+1}.$$

4-3. Understand and explain to the class the proof of Theorem 2.3.2 on page 71, as well as the solution to Question 79.

4-4. Exercise 2.1.6

4-5. Exercise 2.2.8

4-6. Exercises 2.3.8 and 2.3.9