

Homework

Thursday, September 8

Written homework. Due in writing, at the beginning of class,

Thursday, September 15. 2.3, 2.6, 2.7, 2.14, 2.15.

Warmup exercises. To present in class

Tuesday, September 13. 2.25, 2.28.

Thursday, September 15. 2.44, 2.49 (use the extra assumption that the sequence actually converges to *some* limit).

Reading assignment. Read sections 2.3 and 3.1, and be ready to answer the following reading questions.

1. Repeat Example 2.28, this time counting 4-element subsets of a 6-element set. Use your example to explain Lemma 2.29.
2. Give another example of small table that can be easily described both by a closed formula (function) and by a recursive formula, similar to the one at the beginning of Section 2.3. Then imitate the process on pages 74–75 that leads to a proof by induction that the two formulas are the same.
3. Write out the first 17 terms of the Fibonacci sequence. Try to spot some interesting pattern that you would like to prove about it.
4. Illustrate Proposition 6.15 (which, in spite of its numbering, appears at the beginning of Section 3.1) on a polynomial of your choosing. Pick a “good example”.
5. Verify $\omega^3 = \bar{\omega}^3 = 1$. Plot ω and $\bar{\omega}$ on the complex plane. What, if anything, do you notice?
6. Find a “good example” demonstrating Lemma 3.2.
7. Find a “good example” demonstrating Lemma 3.6.