

EXTRA PRACTICE FROM BONA (3RD EDITION) FOR FINAL EXAM

The extra practice problems I posted for Midterm 1 and Midterm 2 are still relevant. The problems below cover material that was not tested on the midterms.

All of these have solutions in the book.

- Chapter 11: 9, 13
- Chapter 12: 8, 10

The following do not have solutions in the book. I will not provide a solutions manual due to time constraints. However, I am happy to discuss these problems either in office hours or over Piazza.

- Chapter 11: 21, 26
- Chapter 12: 18, 23
- Chapter 13: 22, 30

Finally, here is what would have been Homework 8. It is not due for grading, but you should expect at least one problem very similar to appear on the final exam.

- (1) Let G be a simple planar graph with at least 4 vertices. Prove that G has at least 4 vertices with degree ≤ 5 .
- (2) Let G be a simple planar graph with < 30 edges. Prove that G has a vertex v with $\deg(v) \leq 4$. Use this to prove the 4-color theorem for planar graphs with < 30 edges.
- (3) Prove Theorem 9.14 and Corollary 9.16 from the notes.
- (4) Show that every way of coloring the edges of $K_{3,3}$ either red or blue has a monochromatic path of length 3.