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 $\leq 5$.
2. Let $G$ be a simple planar graph with $< 30$ edges. Prove that $G$ has a vertex $v$ with $\text{deg}(v) \leq 4$. Use this to prove the 4-color theorem for planar graphs with $< 30$ edges.
4. Show that every way of coloring the edges of $K_{3,3}$ either red or blue has a monochromatic path of length 3.