MATH 544 (Section 001)
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Homework Problems for Chapter 3
The Eigenvalue Problem

Section	Page	Problems
3.1	223	# 1, 3, 6, 8, 10*, 17, 18*, 19
3.2	232	# 1–4, 7, 9, 12, 18*, 19, 21, 24, 25*, 28, 31
3.3	240	# 2, 3, 9, 10, 13, 16*, 17, 19, 22, 25*, 26
3.4	249	# 2, 4, 7, 9, 10*, 12, 16, 21, 22*
3.5	257	# 1, 2, 3, 6*, 13, 16, 18, 21, 22*, 23, 25
3.6	267	# 1–18, 19*, 22*, 23, 25, 30
3.7	280	# 1, 4, 7, 10*, 11, 14, 16, 17, 25a, 27a, 29*, 30
Review	294	Supplemental Computational Exercises # 1, 2, 4, 5, 6, 8, 10, 11, 12, 13, 14
Review	295	Supplemental Conceptual Exercises # 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14

Notes

- Problems marked with an asterisk (*) will be collected and graded. In general, problems will be due the day following the lecture in which the section was discussed.
- While this chapter is titled "The Eigenvalue Problem", it discusses much more than this. Some parts of the discussion will be quite computational, but others are much more abstract. The abstract topics will provide good practice in reading, and writing, proofs (and the creation of counterexamples).
- The second exam will be given as originally scheduled. It will be over as much material as we have covered by that time – probably a little more than half or two-thirds of Chapter 3. *Do not forget the Review problems when studying for the exam.*
- These problems have been selected as the minimum amount of work that you should be doing for this course. Some problems will be straightforward computations; some will require the construction of a logical argument using the terminology and concepts discussed in class; some problems will require you to expand your knowledge (with given information) and apply this to a new setting.
- If you need more practice, there are many other problems in the text that are similar to the ones I have assigned.
- There are two sections of review problems at the end of each chapter. None of these problems will be collected for grading. These problems should be a good test of your understanding of the main points in the chapter. I suggest solving these problems as one part of your preparation for an exam.
- Be sure you know how to do all of these problems. Do not hesitate to ask questions – in class, by e-mail, or during office hours.