

MATH 342 SECTION 33459
WRITTEN HOMEWORK 3
DUE APRIL 23, 2018.
INSTRUCTOR: ROBERT LIPSHITZ

Reminder: homework is due at the *beginning* of class, handed to me or in my mailbox on the second floor of Fenton.

Required textbook problems (hand these in):

- (1) §5.1: 1, 2, 4, 5, 9, 10, 14, 16, 19, 20, 23, 24, 25.
- (2) §5.2: 3, 4, 9, 10, 14, 15, 19, 20.
- (3) §5.3: 2, 4, 6, 9, 10, 14, 31, 32.

Suggested practice (don't hand these in):

- Please read and make sure you can do the practice problems in Sections 5.1–5.3.
- Please read and use for review problems 5.1.21, 5.1.22, 5.2.21, 5.2.22, 5.3.21.
- If you had trouble or got help with any of the assigned problems, solve another, similar problem (or two).

Bonus points. An extra 10% of the homework score will be awarded for correctly following the tutorial on using Sage for linear algebra computation, at <https://blogs.uoregon.edu/math342sp18lipshitz/> . For this week:

- (1) Work through the post “Eigenvectors and eigenvalues in Sage”.
- (2) Use Sage to check your work on problems 5.1.2, 5.1.24, 5.2.10, and 5.3.14.
- (3) How big a matrix can Sage find eigenvectors / eigenvalues for in reasonable time? Do some experiments. You might find the Sage `random_matrix` command useful for this. (If you're really ambitious, you can use the sage `time` command to time your commands.)

Print out the worksheet you create, and hand it in.

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