

Ninth Homework Assignment for Math 232 (D200)

Due: Wednesday, November 22nd.

All section references are to the Lay text.

Problems to hand in:

- Section 5.2 problems 18, 24
- Section 5.3 problems 6, 16, 24, 28
- Section 5.4 problems 6, 12, 14
- Section 6.1, problem 14.

Some other problems you might try:

Chapter 5 has the usual range of true-false questions which may help you digest the readings and lectures. They are questions 21 and 22 in Sections 5.1, 5.2 and 5.3. Section 5.4 doesn't have any, but I would recommend instead trying the verification statements 19-24, which are short algebraic proofs.

Reading for the next weeks:

- For Friday, through Section 5.4.
- For Monday, Section 6.1.
- For Wednesday, Section 6.2.

(Optional) Section 5.5 points out that matrices can have complex eigenvalues. Section 5.6 continues Section 4.8 by developing more sophisticated models based on difference equations and shows why eigenvectors are crucial to understanding the long-term behaviour of discrete dynamical systems. Section 5.7 treats the same ideas in the continuous case: eigenvectors allow you to solve systems of linear differential equations. Section 5.8 discuss a practical method of approximating the eigenvalues and vectors when they can't be calculated exactly (e.g. for large matrices).