

Ninth Homework Assignment for Math 232 (D200)

Due: Thursday, November 20th.

All section references are to the Lay text.

Reminder:

The final exam is **Monday, December 3rd** at noon. It is cumulative, covering everything we have seen this year.

Problems to hand in:

- Section 5.2 problems 14, 18
- Section 5.3 problems 4, 14, 24
- Section 5.4 problems 2, 4, 12
- Section 6.1 problem 12, 14

Some other problems you might try:

Section 5.3, questions 21 and 22 and Section 5.4 questions 19 through 24 (which are short algebraic proofs).

Reading for this week:

For Thursday, November 13th, through Section 5.4.

Note: in Section 5.4, take “W” and “V” to mean \mathbb{R}^m and \mathbb{R}^n respectively.

For Monday, Section 6.1.

For Wednesday, Section 6.2.

For Thursday, November 20th, Section 6.3.

(Optional) Section 5.5 points out that matrices can have complex eigenvalues. Section 5.6 has applications of eigenvalues to understanding the long term behaviour of ecological systems, this extends Section 1.10, and also 4.8 and 4.9 (which we did not cover). Section 5.7 shows one way that eigenvalues are used in solving differential equations. Section 5.8 discusses a practical method of approximating the eigenvalues and vectors when they can't be calculated exactly (e.g. for large matrices).