

Ninth Homework Assignment for Math 232 (D200)

Due: Friday, November 27th.

All section references are to the Lay text.

Reminder:

The final exam is **Friday, December 11th** at 8:30 a.m. It is cumulative, covering everything we have seen this year.

Problems to hand in:

Section 5.2 problems 12, 18

Section 5.3 problems 6, 16, 26

Section 5.4 problems 12, 16

Section 5.5 problem 6

Section 6.1 problem 10

Write the matrix for a rotation of $\pi/4$ degrees counterclockwise in the basis $\mathcal{B} = [b_1 b_2] = \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$.

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 Wednesday, Sections 6.1 and 6.2.

For Friday, Section 6.3.

(Optional) 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).