

Matrices & Linear Algebra II
C Term, Section C01
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Linear Algebra Assignment 5

DUE DATE: Wednesday, February 18, by 4pm in my mailbox, SH108. Alternatively, you may hand your completed assignment to me personally.

Please keep in mind the presentation rules for assignments in this course.

The following problems are worth 10 points each.

- 1.) Problem #11 on p97.
- 2.) Problem #7 on p107.
- 3.) Let $T : V \rightarrow V$ be a linear transformation from the real vector space V to itself. Let λ be a real number and consider the following subset of V :

$$W_\lambda = \{v \in V \mid T(v) = \lambda v\}.$$

Prove that W_λ is a subspace of V .

- 4.) Complete parts (b), (d) and (f) of exercise #2 on p256-7.
- 5.) Complete parts (b) and (d) of exercise #3 on p257. Here is the answer to part (i) of the question in each case:
 - (b): The eigenvalues are 1, 2 and 3.
 - (d): The eigenvalues are 0, 1 and 1.