

Matrices & Linear Algebra II
C Term, Section C01
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February 27, 2004

Linear Algebra Assignment 7

DUE DATE: Wednesday, March 3, 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.) Exercise #8 on p337.
- 2.) Complete parts (a), (f) and (h) of exercise #2 on p353.
- 3.) Let $V = C([-1, 1])$ with inner product

$$\langle f, g \rangle = \frac{2}{\pi} \int_{-1}^1 f(t)g(t)\sqrt{1-t^2} dt.$$

Apply the Gram-Schmidt orthogonalization process to the ordered set $\{1, t, t^2\}$ to find an orthonormal basis $\beta = \{v_0, v_1, v_2\}$ for $\text{span}(1, t, t^2)$.

[NOTE: You are free to use software to compute integrals if you wish, but show your work: write down the values of all the relevant integrals you compute.]

- 4.) Complete parts (b) and (d) of exercise #2 on p495.
- 5.) Complete parts (b) and (d) of exercise #3 on p495.