Math 132
Winter 2004
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REVIEW RECOMMENDATIONS — MARCH 1, 2004

The following are some recommendations for review in connection with the upcoming second midterm examination on Friday, March 5.

The coverage of the examination will correspond to everything in the online course notes `linalgnotes.pdf` from the beginning of Section II.3 through the end of Section IV.5. The corresponding material in the text is contained in Sections 6.3, 5.2 (as background material), 7.1–7.2 and 9.1–9.4.

Most of the examination (at least 65 per cent) will consist of exercises from the assignment document `linalgexercises.pdf` in the course directory or similar problems that wee worked in class. Students are responsible for knowing how to do the exercises not marked by one or two stars in `linalgexercises.pdf`; solutions to the Additional Exercises in the material for the examination appear in the files `solutions3.pdf` and `solutions4.pdf`. Several problems will recall some relevant definitions, theorems or formulas that might be useful.

As in the previous midterm examination, the main skills to be tested are working exercises like those assigned in the homework (mostly from the text) and doing simple derivations of formulas or facts. There will be six problems on the examination, with each counting 15 or 20 points. Partial credit will be given as in the first examination.

Here are some more detailed suggestions for topics to review:

(1) Orthogonal matrices, recognizing whether a matrix is orthogonal, complete description of orthogonal matrices in the 2×2 case.

(2) Similar matrices, their common properties, the meaning of similarity for diagonalizable matrices.

(3) Change of basis problems given a matrix with respect to one ordered basis and a new ordered basis given in terms of the old one.

(4) Performing standard algebraic operations with complex vectors and matrices.

(5) Diagonalizabilty properties for Hermitian, unitary and normal matrices.

(6) Diagonalizability properties for real symmetric matrices.

(7) Conjugate pairs property for nonreal eigenvalues of real matrices and their associated eigenvectors.

(8) Jordan form for matrices, how to find it for examples with small numbers of rows and columns, the meaning of Jordan form for diagonalizable matrices.