REVIEW FOR TEST 3

Math 215
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Definitions you should know:

(1) Define a linear transformation.
(2) Define the composition of 2 linear transformations.
(3) Define the inverse of a linear transformation.
(4) Define eigenvalue and eigenvector of a matrix A.
(5) Define the eigenspace corresponding to an eigenvalue λ.
(6) Let A and B be $n \times n$ matrices. What does it mean for A to be similar to B.
(7) What do we mean when we say that an $n \times n$ matrix A is diagonalizable.
(8) Define a vector space.
(9) If V is a vector space give the definition of a subspace of V.
(10) If $S = \{v_1, \ldots, v_k\}$ is a set of vectors in a vector space V, define span(S).
(11) What does it mean for a set of vectors $\{v_1, \ldots, v_k\}$ in a vectorspace V to be
a) linearly dependent?
b) linearly independent?
(12) Give the definition of a basis of a vectorspace V.
(13) What does it mean for a vectorspace V to be finite dimensional.

Theorems and properties you should know:

Section 3.6: Theorem 3.30, Theorem 3.31, Theorem 3.32, Theorem 3.33.

Section 4.1: You should be on top of finding eigenvalues, eigenvectors and eigenspaces of a given matrix

Section 4.2: You should know how to find the determinant of a given matrix.
Theorem 4.2, Theorem 4.3, Theorem 4.6, Theorem 4.7, Theorem 4.8, Theorem 4.9, Therom 4.10.
~~Know the Cramer's Rule for finding the solution of a linear~~