

MAT 175 Fall 2009: Final Exam guidelines

1. This exam is based on quizzes, exams 1& 2, in-class group problems, and homework assignments.
2. You need to know how to determine whether a given system is consistent or not.
3. You need to know how to determine whether a given set is linearly independent or linearly dependent.
4. You need to know how to determine whether a given matrix is invertible or not.
5. You need to know how to use the definition of a linear transformation to show that a given function is a linear transformation.
6. You need to know how to find a standard matrix of a given linear transformation.
7. You need to know how to determine whether a linear transformation is one-to-one, onto or not.
8. Know to find a determinant of a given matrix.
9. Know how to use a determinant to determine whether a given matrix is invertible or not.
10. Know how to use the definition of a subspace to show that a given set is a subspace.
11. Know how to determine whether the given set is a subspace or not.
12. Know how to find bases and dimensions of a Column space, a Null space and a Row space.
13. Know how to find a coordinate vector corresponding to a given basis of a given vector.
14. Know how to find a matrix representation of a given linear operator with respect to a given basis and know the relationship between such matrix with the standard matrix.
15. Know how to use properties of dot product and norm.
16. Know how to use the Gram-Schmidt process.
17. Know how to determine whether a given set is orthogonal or not.

18. Know how to determine whether a given set is orthonormal or not.
19. Know how to find eigenvalues, eigenvectors and bases of eigenspaces.
20. Know how to determine whether a given matrix is diagonalizable or not
21. Know how to use characteristic polynomials of matrices, eigenvalues and eigenspaces to determine whether given matrices are diagonalizable or not.