

MAT 175 Fall 2009: Exam 2 guidelines

1. This exam is based on quizzes, in-class group problems, and homework assignments.
2. The following is the list of definitions that you must know.
 - Linear Transformation
 - A null space and a range of a given linear transformation, and a given matrix.
 - Subspace
 - Linearly independent and Linearly dependent.
 - Basis
 - Column space, and Row Space of a given matrix.
3. You need to know how to use the definition of a linear transformation to show that a given function is a linear transformation.
4. You need to know how to find a standard matrix of a given linear transformation.
5. You need to know how to determine whether a linear transformation is one-to-one, onto or not.
6. Know to find a determinant of a given matrix.
7. Know how to use a determinant to determine whether a given matrix is invertible or not.
8. Know how to use the definition of a subspace to show that a given set is a subspace.
9. Know how to determine whether the given set is a subspace or not.
10. Know how to find bases and dimensions of a Column space, a Null space and a Row space.
11. Know how to extend a basis of a given subspace of \mathbb{R}^n to a basis of \mathbb{R}^n .
12. Know how to find a coordinate vector corresponding to a given basis of a given vector.
13. 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.