

MAT 175 Spring 2010: Guidelines for exam 1

Dr. Gaywalee Yamskulna

02/22/10

1. Exam 1 will be very similar to quizzes, bonus problems and homework assignments.
2. Students must be able to state the definitions of
 - (a) linear transformation,
 - (b) a 1-1 function,
 - (c) an onto function,
 - (d) a linear combination of vectors,
 - (e) linearly independent and linearly dependent sets, and
 - (f) a span of a set of vectors.
3. Students need to know how to determine whether a given vector is a linear combination of other vectors or not.
4. Students need to know how to determine whether a given system is consistent or inconsistent. If the system is consistent, students need to know how to determine whether it has unique solution or infinitely many solutions.
5. Students need to know how to determine whether a given set is linearly independent or linearly dependent.
6. Students need to know how to multiply matrices.
7. Students need to know how to determine whether a given matrix is invertible or not. If such matrix is invertible, students need to know how to find the inverse matrix.
8. Students need to know how to use the definition of linear transformation to show that a given function is a linear transformation.
9. For a given linear transformation T , students need to know how to find:
 - (a) $\text{Range}(T)$,
 - (b) $\text{Null}(T)$,
 - (c) the standard matrix of T .
10. Know how to determine whether a given linear transformation is 1-1, onto or not.