

Math 2210Q-004 Applied Linear Algebra
E-Mail Assignments
on the readings in the textbook

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Submit by E-Mail by 7:00 am on the date due (before class)
to dgross@math.uconn.edu.

Due for Tuesday, March 31

Section 4.5 The Dimension of a Vector Space

Section 4.6 Rank

To read: Read section 4.5 and 4.6

To Do: The homework from sections 4.4

Be sure sure to understand: Theorems 10, 100 and 12 of section 4.5; Definition of Rank, the Rank Theorem and the continuation of The Invertible Matrix Theorem

Note: Our second exam is a week from this Thursday, on April 9. It will cover all of chapter 3 and sections 1 through 7 of chapter 4. If you haven't already started studying, start now. I'm around most of the time for extra help. Don't wait for the last minute.

Email Subject Line: 2210EA 03/31 YourLastName

Questions:

1. Can there be a set of linearly independent vectors $\{\vec{v}_1, \vec{v}_2, \dots, \vec{v}_{12}\}$ that does not span \mathbb{R}^{12} ?
 2. Can there be a set of vectors $\{\vec{v}_1, \vec{v}_2, \dots, \vec{v}_{12}\}$ which span \mathbb{R}^{12} and is not linearly independent?
 3. Suppose E is an elementary matrix and A is a matrix of the same size. How are the row spaces of A and EA related to each other?
 4. If A is a 4×7 matrix with a 4-dimensional null space, what is the dimension of the row space of A ? Explain.
 5. If A is a 5×5 matrix of rank 3, what is $\det(A)$ equal to? Why?
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