

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](mailto:dgross@math.uconn.edu).

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**Due for Tuesday, January 27**

**Section 1.4** The Matrix Equation  $A\vec{x} = \vec{b}$

**Section 1.5** Solution Sets of Linear Equations

**To read:** All

**To Do:** the homework from section 1.3

**Be sure sure to understand:** The statement of Theorem 4 in §1.4; Example 3 and the statement of Theorem 6 in §1.5.

**Email Subject Line:** 2210EA 01/27 YourLastName

**Questions:**

1. Suppose  $A$  is a  $4 \times 5$  matrix with 3 pivots (i.e., pivot positions). Do the columns of  $A$  span  $\mathbb{R}^4$ ?
  2. Explain the difference between a homogeneous system of equations and a non-homogeneous system of equations.
  3. What does it mean for a system  $A\vec{x} = \vec{0}$  to have a non-trivial solution?
  4. If the system  $A\vec{x} = \vec{b}$  is consistent and  $A\vec{x} = \vec{0}$  has a nontrivial solution, how many solutions does  $A\vec{x} = \vec{b}$  have?
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