

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, March 24

Section 4.3 Linearly Independent Sets; Bases

To read: Read section 4.3

To Do: The homework from sections 4.2

Be sure sure to understand: The definition of a basis; Theorem 5 The section “Two Views of a Basis”.

Email Subject Line: 2210EA 03/24 YourLastName

Questions:

1. Let  $\vec{v}_1 = \begin{bmatrix} 1 \\ 2 \\ 0 \end{bmatrix}$ ,  $\vec{v}_2 = \begin{bmatrix} 3 \\ 4 \\ 0 \end{bmatrix}$  and  $\vec{v}_3 = \begin{bmatrix} 4 \\ 6 \\ 0 \end{bmatrix}$  be vectors in  $\mathbb{R}^3$ . Give a basis for

$$H = \text{Span}\{\vec{v}_1, \vec{v}_2, \vec{v}_3\}.$$

2. If  $A$  is a  $4 \times 5$  matrix with three pivot positions:

- (a) how many vectors does a basis for  $\text{Col}A$  have?
  - (b) how many vectors does a basis for  $\text{Nul}A$  have?
  - (c) do you notice any coincidence between your answers above and the size of the matrix  $A$ ?
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