

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, April 14

Section 5.1 Eigenvalues and Eigenvectors

Section 5.2 The Characteristic Equation

To read: All, except we will skip the section on Eigenvalues and Difference Equations – the bottom of page 307.

Be sure sure to understand: The definition of an eigenvector and an eigenvalue of a matrix; Examples 3 and 4 in section 5.1 and the characteristic equation and characteristic polynomial in section 5.2.

Email Subject Line: 2210EA 04/14 YourLastName

Questions:

1. Suppose A is the matrix $\begin{bmatrix} 7 & 2 \\ -4 & 1 \end{bmatrix}$. Verify that $\begin{bmatrix} 1 \\ -2 \end{bmatrix}$ is an eigenvector of A . What is the eigenvalue?

2. What are the eigenvalues of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 0 & 4 & 5 \\ 0 & 0 & 6 \end{bmatrix}$?

3. Suppose that A is a 3×3 matrix with eigenvalues 1, 2 and 3. What is the dimension of $\text{Nul}A$?

4. Find the characteristic polynomial for the matrix $\begin{bmatrix} 1 & 2 \\ 0 & -1 \end{bmatrix}$.
