Here are a couple of hints to Homework 13. Enjoy!

SECTION 5.1: EIGENVALUES AND EIGENVECTORS

Remember: To find the eigenvalues, calculate $\text{det}(A - \lambda I)$ and find the zeros of the resulting polynomial. To find a basis for the eigenspaces, find $\text{Nul}(A - \lambda I)$ for each eigenvalue $\lambda$ that you found! Also, you should never get $\text{Nul}(A - \lambda I) = \{0\}$

5.1.1, 5.1.5. Calculate $Av$, where $A$ is the given matrix and $v$ is the given vector.

5.1.13, 5.1.17. Remember that the determinant of an upper-triangular matrix is just the product on the entries of the diagonal! (so you can literally ‘read’ off the eigenvalues)

5.1.21.
   (a) F (x has to be nonzero)
   (b) T
   (c) T
   (d) T (depending on what you mean by easy and hard :) )
   (e) F

SECTION 5.2: THE CHARACTERISTIC EQUATION

5.2.15. Remember that the determinant of an upper/lower-triangular matrix is just the product on the entries of the diagonal!

5.2.19. Just plug in $\lambda = 0$. 

Date: Monday, October 20, 2014.
5.2.21.

(a) $\mathbf{F}$
(b) $\mathbf{F}$
(c) $\mathbf{T}$
(d) $\mathbf{F}$ ($-5$ is an eigenvalue)