Week 5
MATH 33A
TA: Jerry Luo
jerryluo8@math.ucla.edu
Website: math.ucla.edu/∼jerryluo8
Office Hours: Thursday 1PM-2PM, MS 2344
SMC hours: Tuesday 1-2PM, MS 3974

2.3.60 Find all 3×3 lower triangular matrices A such that $A^3 = 0$ (ie. zero matrix).

2.3.29 For which values of k is the following matrix invertible?

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & k \\ 1 & 2 & k^2 \end{bmatrix}$$

2.4.78 Find A for the linear transformation T such that $T\begin{bmatrix}1\\2\end{bmatrix} = \begin{bmatrix}7 & 5 & 3\end{bmatrix}$ and $T\begin{bmatrix}2\\5\end{bmatrix} = \begin{bmatrix}1 & 2 & 3\end{bmatrix}$

3.1.38 Let A be a square matrix. What is the relationship between $\ker(A), \ker(A^2), \ker(A^3), \cdots$ (ie. are they equal, is one contained in another, etc.)? How about $Im(A), Im(A^2), \cdots$?