Quiz 12. Discussion Section 103. Math 110 Fall 2014.

Name: Solution

1. Determine the Jordan form of the following matrix

$$A = \begin{bmatrix} -1 & 0 & -1 \\ 1 & -1 & 1 \\ 0 & 0 & -1 \end{bmatrix}.$$

Solution: The characteristic polynomial is $-(1+x)^3$, so that there is one eigenvalue $\lambda = -1$. We compute that $\dim \operatorname{nul}(A+I) = 1$ so that there is one -1-Jordan block and the Jordan form is

$$\begin{bmatrix} -1 & 1 & 0 \\ 0 & -1 & 1 \\ 0 & 0 & -1 \end{bmatrix}$$