

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 $\dim \text{nul}(A - I) = 1$ so that there is one 1-Jordan block. Hence, the Jordan form is

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