Math 221 Quiz 9

Name:_____   Score:_____

Instructions: You must show supporting work to receive full and partial credits. No text book, notes, formula sheets allowed.

1(3pts) One eigenvalue and its eigenvector are give for a system of linear equations $\vec{x}' = A\vec{x}$: $\lambda = 3 + 2i, \vec{v} = \begin{pmatrix} 2+i \\ i \end{pmatrix}$.

Find a general solution to the system.

2(7pts) For the system of linear differential equation $\vec{x}' = \begin{bmatrix} 3 & -1 \\ 1 & 1 \end{bmatrix} \vec{x}$.

(a) Find the eigenvalues of the system.

(b) Find an eigensolution for the system.

(c) Find an generalized eigensolution for the system.

END