

Differential Equations MAT 227

Chapter 5A Test

$$X'(t) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 2 & 2 & 0 & 0 \\ 2 & 2 & -1 & 1 \\ 2 & 1 & 0 & -2 \end{bmatrix} X(t)$$

1. (33 points) find the eigenvalues for the above system of equations.
2. (33points) find the eigenvectors for the above system of equations.
3. (34points) Show that your answers to 1 and 2 solve the differential equation that is given.