

1.) Find the general solution to each of the following systems of differential equations. Write your answer in matrix (vector) form. (All eigenvalues are complex conjugates.)

a.) $X' = \begin{pmatrix} -1 & 1 \\ -1 & -1 \end{pmatrix} X$

b.) $X' = \begin{pmatrix} 2 & -1 \\ 3 & 0 \end{pmatrix} X$

c.) $X' = \begin{pmatrix} -1 & 1 \\ -3 & 1 \end{pmatrix} X$

d.) $X' = \begin{pmatrix} 1 & 3 \\ -2 & -2 \end{pmatrix} X$

e.) $X' = \begin{pmatrix} 1 & 1 \\ -1 & 1 \end{pmatrix} X$

f.) $X' = \begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix} X$