

Name:

ID #:

Serial #:

1. [10pts] Verify that $X = e^t \begin{bmatrix} 5 \cos t \\ 3 \cos t - \sin t \end{bmatrix}$ is a solution of the system $X' = AX$ where $A = \begin{bmatrix} -2 & 5 \\ -2 & 4 \end{bmatrix}$.

2. [10pts] Find the general solution of the system $X' = AX$, where $A = \begin{bmatrix} 2 & 1 \\ -1 & 0 \end{bmatrix}$.