**Name:**                                    **ID #:**                          **Serial #:**

1. Solve the system $Y' = AY$ where $A = \begin{bmatrix} 2 & 1 & 2 \\ 1 & 2 & 2 \\ 1 & 1 & 3 \end{bmatrix}$. (Matrix $A$ has eigenvalues $\lambda_1 = 1$ (multiplicity 2) and $\lambda_2 = 5$.)

2. Solve the system $Y' = AY$ where $A = \begin{bmatrix} -3 & -2 \\ 2 & 1 \end{bmatrix}$