Gradescope Assignment: Due 4/9/21
0 pts for no work
2 pts for attempt
4 pts for full answer

1. For the two-dimensional initial-value problem

$$\frac{d}{dt}\mathbf{x} = A\mathbf{x} + \begin{pmatrix} f_1(t) \\ f_2(t) \end{pmatrix}, \quad \mathbf{x}(0) = \mathbf{x}_0,$$

   suppose A has the Jordan structure

$$A = V \begin{pmatrix} \lambda & 1 \\ 0 & \lambda \end{pmatrix} V^{-1}.$$

   - Using $\mathbf{y} = V^{-1}\mathbf{x}$, solve the transformed system. Your solution should have definite integrals from 0 to t in it.

   - Return to the original coordinates. Clearly identify the homogeneous and particular parts of your solution.