

Homogeneous Linear Systems Part II

Repeated Eigenvalues

1. Find the general solution of the system.

$$\frac{dx}{dt} = 3x - y$$

$$\frac{dy}{dt} = 9x - 3y$$

2. Find the general solution of the system.

$$\mathbf{X}' = \begin{pmatrix} -1 & 3 \\ -3 & 5 \end{pmatrix} \mathbf{X}$$

3. Find the general solution of the system.

$$\mathbf{X}' = \begin{pmatrix} 5 & -4 & 0 \\ 1 & 0 & 2 \\ 0 & 2 & 5 \end{pmatrix} \mathbf{X}$$