

Homogeneous Linear Systems Part III

Complex Eigenvalues

1. Find the general solution of the system.

$$\frac{dx}{dt} = 6x - y$$

$$\frac{dy}{dt} = 5x + 2y$$

2. Find the general solution of the system.

$$\frac{dx}{dt} = 5x + y$$

$$\frac{dy}{dt} = -2x + 3y$$

3. Find the general solution of the system.

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