

Sections: 9.5, 9.6

1. Find a fundamental matrix for the system

$$\mathbf{x}'(t) = \begin{bmatrix} -3 & -2 \\ 3 & 4 \end{bmatrix} \mathbf{x}(t).$$

2. Find the solution of the initial value problem

$$\begin{aligned} x' &= x - 2y, \\ y' &= 4x - 3y, \end{aligned}$$

$$\begin{aligned} x(0) &= 3 \\ y(0) &= 5. \end{aligned}$$

3. Find a fundamental solution set for the system

$$x' = x + 2y - z$$

$$y' = y + z$$

$$z' = -y + z.$$