

5.2.5.

$$\dot{x} = 3x - 4y$$

$$\dot{y} = x - y$$

$$A = \begin{pmatrix} 3 & -4 \\ 1 & -1 \end{pmatrix}$$

$$\text{Tr} = 2.$$

$$\Delta = -3 - (-4) = 1$$

$$\lambda_{1,2} = \frac{2 \pm \sqrt{4 - 1 \times 4}}{2}$$

$$= 1$$

$$\lambda_1 = \lambda_2 = 1$$

$$\begin{pmatrix} 3-\lambda & b \\ c & d-\lambda \end{pmatrix} \begin{pmatrix} v_1 \\ v_2 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$$\text{Eigenvector } v = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

$$A = \begin{pmatrix} 2 & -4 \\ 1 & -2 \end{pmatrix}$$

