5.2.3. $\dot{x} = y$

$\dot{y} = -2x - 3y$.

$$A_x = \begin{pmatrix} 0 & 1 \\ -2 & -3 \end{pmatrix}$$

$T = -3$.

$\Delta = 2$

$$\lambda_{1,2} = \frac{-3 \pm \sqrt{(3)^2 - (4 \times 2)}}{2}$$

$$= \frac{-3 \pm 1}{2}$$

$\lambda_2 = -2 \quad \lambda_1 = -1$

$$v_1 = \begin{pmatrix} 1 \\ -1 \end{pmatrix} \quad v_2 = \begin{pmatrix} 1 \\ -4 \end{pmatrix}$$