

6.4.2. $\dot{x} = x(3-2x-y) = 0$, $\dot{y} = y(2-x-y) = 0$, get $(0,2), (1,1), (\frac{3}{2}, 0), (0,0)$,

$$A = \begin{pmatrix} -2x-y+3 & -x \\ -y & -x-2y+2 \end{pmatrix}$$

$$(0,0) A = \begin{pmatrix} 3 & 0 \\ 0 & 2 \end{pmatrix} \lambda = 3, 2$$

$$(0,2) A = \begin{pmatrix} 1 & 0 \\ -2 & -2 \end{pmatrix} \lambda = 1, -2$$

$$(1,1) A = \begin{pmatrix} 0 & -1 \\ -1 & -1 \end{pmatrix} \begin{matrix} \tau = -1 \\ \Delta = 1 \end{matrix} \alpha = \frac{\tau}{2} = -\frac{1}{2} < 0$$

\therefore stable spiral

$$(\frac{3}{2}, 0) A = \begin{pmatrix} 0 & -\frac{3}{2} \\ 0 & \frac{1}{2} \end{pmatrix} \begin{matrix} \tau = -\frac{1}{2} \\ \Delta = 0 \end{matrix}$$

$$\lambda = 1, 0.$$

