

Příklady: Autonomní systémy

Základy vyšší matematiky (ZMTL), LDF MENDELU

Najděte stacionární body a určete jejich typ.

- $$\begin{aligned}x' &= 3x + 4y \\ y' &= 2x + y\end{aligned}$$
[[0, 0] sedlo]
- $$\begin{aligned}x' &= 3x \\ y' &= 3y\end{aligned}$$
[[0, 0] nest. uzel]
- $$\begin{aligned}x' &= x(4 - 2x - y) \\ y' &= y(7 - x - 3y)\end{aligned}$$
[[0, 0] nest. uzel, $[0, \frac{7}{3}]$ sedlo, [2, 0] sedlo, [1, 2] nest. uzel]
- $$\begin{aligned}x' &= x^2 - y^2 \\ y' &= 1 - x\end{aligned}$$
[[1, 1] sedlo, [1, -1] nest. ohnisko]
- $$\begin{aligned}x' &= x + y - 1 \\ y' &= x^2 - x + y - 1\end{aligned}$$
[[0, 1] nest. ohnisko, [2, -1] sedlo]
- $$\begin{aligned}x' &= x^2 + x - y \\ y' &= 2x - y\end{aligned}$$
[[0, 0] bod rotace nebo ohnisko, [1, 2] nest. uzel]
- $$\begin{aligned}x' &= x^3y - y \\ y' &= x - y\end{aligned}$$
[[0, 0] stab. ohnisko, [1, 1] sedlo]
- $$\begin{aligned}x' &= y - x^2 + 2 \\ y' &= xy - y^2\end{aligned}$$
[[−1, −1] nest. ohnisko, $[\sqrt{2}, 0]$ sedlo, $[-\sqrt{2}, 0]$ sedlo, [2, 2] stab. uzel]
- $$\begin{aligned}x' &= x^2 + x - y \\ y' &= 2x - 2\end{aligned}$$
[[1, 2] nest. uzel]
- $$\begin{aligned}x' &= x(x - y) \\ y' &= x^2 + 2y - 3\end{aligned}$$
[[−3, −3] stab. ohnisko, [1, 1] nest. ohnisko, $[0, \frac{3}{2}]$ sedlo]