

1. Study bifurcations of the fixed points and points of period 2 in the map

$$x \mapsto a - x^4,$$

where a is a parameter.

2. Study bifurcations of points of period 1 and 2 in the map $(x, y) \mapsto (\bar{x}, \bar{y})$

$$\begin{cases} \bar{x} = y, \\ \bar{y} = a - bx - y^2 \end{cases}$$

where a and b are parameters. What about bifurcations of points of period 3 in this map?