

Exercises

E7.16 [ODK] Let $f(x) = x - x^3$ and $x_0 \in \mathbb{R}$, and $(x_n)_{n \in \mathbb{N}}$ a sequence defined by recurrence by $x_{n+1} = f(x_n)$. Prove that there is a $\lambda > 0$ such that if $|x_0| < \lambda$ then $x_n \rightarrow 0$, while if $|x_0| > \lambda$ then $|x_n| \rightarrow \infty$; and possibly calculate this λ .

Solution 1. [ODM]