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Title: Continuous solutions of an iterative-difference equation and Brillouët-Belluot's problem

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It is an open problem proposed by N. Brillouët-Belluot to solve the equation $f^2(x) = f(x+a) - x$. Although some related results have been obtained, the problem has remained open. In this paper we prove that it has no continuous real solutions, finally answering Brillouët-Belluot's problem. Furthermore, we give existence of continuous real solutions for the general equation $f^2(x) = \lambda f(x+a) + \mu x$ on the whole $\mathbb{R}$ in some cases which neither include the equation $f^2(x) = f(x+a) - x$ nor are considered in [J. Difference Equ. Appl. **16**(11) (2010), 1237–1255].

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