

A problem about Mahler functions

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In memory of Alf van der Poorten

Abstract. Let K be a field of characteristic zero and k and l be two multiplicatively independent positive integers. We prove the following result that was conjectured by Loxton and van der Poorten during the Eighties: a power series $F(z) \in K[[z]]$ satisfies both a k - and a l -Mahler-type functional equation if and only if it is a rational function.

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