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Using Fibonacci numbers to solve certain extremal problems regarding the Mahler measure

A 2001 article of Dubickas and Smyth studies a modified version of the Mahler measure which they called the *metric Mahler measure*. Roughly speaking, the metric Mahler measure exposes a family of extremal problems many of which appear to be quite difficult. We discuss a certain collection of special cases which can be reduced to the study of the Fibonacci sequence. In these cases, we shall examine a strategy for computing the values of the metric Mahler measures. Our study also reveals an apparently difficult open problem on the Fibonacci numbers.