Generalized Mahler measure on lemniscates II

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Abstract: We introduce a natural generalization of the Mahler measure from the unit circle to an arbitrary polynomial lemniscate. This new measure for polynomials has an explicit expression, and many standard properties of the classical Mahler measure, which allows to develop a complete theory including a generalization of Kronecker’s result for cyclotomic polynomials. It turns out that the original Lehmer’s conjecture for the unit circle holds if and only if its analogue holds for any lemniscate.

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