Title: Effective results for hyper- and superelliptic equations over number fields

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Let \( f \) be a polynomial with coefficients in the ring \( \mathcal{O}_S \) of \( S \)-integers of a given number field \( K \), \( b \) a non-zero \( S \)-integer, and \( m \) an integer \( \geq 2 \). Suppose that \( f \) has no multiple zeros. We consider the equation \((*)\) \( f(x) = by^m \) in \( x, y \in \mathcal{O}_S \). In the present paper we give explicit upper bounds in terms of \( K, S, b, f, m \) for the heights of the solutions of \((*)\). Further, we give an explicit bound \( C \) in terms of \( K, S, b, f \) such that if \( m > C \) then \((*)\) has only solutions with \( y = 0 \) or a root of unity. Our results are more detailed versions of work of Trelina, Brindza, and Shorey and Tijdeman. The results in the present paper are needed in a forthcoming paper of ours on Diophantine equations over integral domains which are finitely generated over \( \mathbb{Z} \).

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