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The practical complexity of arbitrary-precision functions by Fredrik Johansson

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Abstract. Most familiar operations on N -digit real numbers (sum, product, square root, exponential, logarithm, etc.) can be computed in time quasilinear in N . However, this kind of asymptotic statement hides details which can add up to huge differences in practical running times. We will discuss how to think about optimizing arbitrary-precision algorithms, with a detailed look at state-of-the-art methods for transcendental functions.