

**Zudilin, V. V.**

**On the measure of linear and algebraic independence for values of entire hypergeometric functions.** (English. Russian original) [Zbl 0920.11046](#)

*Math. Notes* 61, No. 2, 246-247 (1997); translation from *Mat. Zametki* 61, No. 2, 302-304 (1997).

The author computes explicit measures of transcendence for values of some generalized hypergeometric functions  $f$  and their derivatives by applying a general theorem from one of his previous papers [*V. V. Zudilin*, *Sb. Math.* 187, No. 12, 1791–18181 (1996); translation from *Mat. Sb.* 187, No. 12, 57–86 (1996; [Zbl 0878.11030](#))]. Let  $(E)$  be the linear differential equation of order  $m$  satisfied by  $f$ , and denote by  $\Psi_1, \dots, \Psi_m$  a fundamental system of solutions of  $(E)$ . The problem in applying the above general theorem consists in proving that the functions  $\Psi_j^{(n-1)}$ , with  $j, n = 1, \dots, m$ , are homogeneously algebraically independent over  $\mathbb{C}(z)$ .

In the present paper, the author solves it by using results on Galois groups of linear differential equations [*N. M. Katz*, *Differential Galois groups*, Princeton (1990)].

Reviewer: [D.Duverney \(Lille\)](#)

**MSC:**

- [11J82](#) Measures of irrationality and of transcendence
- [11J91](#) Transcendence theory of other special functions
- [12H05](#) Differential algebra

**Keywords:**

measures of linear independence; measures of transcendence; generalized hypergeometric functions; Galois groups of linear differential equations

**Full Text:** [DOI](#)

**References:**

- [1] V. V. Zudilin, *Mat. Sb.* [Russian Acad. Sci. Sb. Math.], 187, No. 12, 57–86 (1996).
- [2] N. M. Katz, *Differential Galois Groups*, Univ. Press, Princeton (1990).

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