UNRESTRICTED ALGORITHMS FOR ELEMENTARY AND SPECIAL FUNCTIONS

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Abstract

We describe some "unrestricted" algorithms which are useful for the computation of elementary and special functions when the precision required is not known in advance. Several general classes of algorithms are identified and illustrated by examples. Applications of such algorithms are mentioned.

Comments

Only the Abstract is given here. The full paper appeared as [3]. For related work see [1, 2].

Errata

Page 614, equation (10), replace "$(x/2$" by "$(x/2)$".
Page 617, equation (39), delete "$/j!$".

References

[1] R. P. Brent, "Multiple-precision zero-finding methods and the complexity of elementary function evaluation", in *Analytic Computational Complexity* (edited by J. F. Traub), Academic Press, New York, 1975, 151–176. MR 52#15938, 54#11843; Zbl 342.65031. rpb028.

[2] R. P. Brent "Fast multiple-precision evaluation of elementary functions", *J. ACM* 23 (1976), 242–251. MR 52#16111, Zbl 324.65018. rpb034.

[3] R. P. Brent, "Unrestricted algorithms for elementary and special functions", invited paper in *Information Processing 80* (edited by S. H. Lavington), North-Holland, Amsterdam, 1980, 613–619. CR 22#38728, MR 81i:68009. Also appeared as Report TR-CS-79-13, Department of Computer Science, ANU (November 1979), 20 pp. Retyped in LaTeX, Oxford, October 1999. rpb052.

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