

DLMF Tables: A New Source of Data for Mathematical Software Developers

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Abstract

A hallmark of early mathematical tables was to provide numerical values of elementary and special functions as an aid to computation. This purpose continued into the computer age when mathematical software began to become widely available. The early tables were painstakingly prepared and were largely free of error. Even today, the same cannot be said of software. Assessing software validity is a demanding task for which accurate tables would prove valuable as a standard of comparison. Existing tables are completely inadequate for this task. NIST is collaborating with academic colleagues to produce a system for generating provably correct comparison values on demand. This system will be incorporated into a future release of the Digital Library of Mathematical Functions.