

## HANDBOOK OF FUNCTIONS ERRATA

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### ABSTRACT

Formulas connecting toroidal functions and elliptical functions are useful in various areas of physics. In solving a problem in electrostatics we run across an error in the Handbook of mathematical functions of Abramowitz and Stegun. In this paper we report the details.

It is common, for solutions of mechanical and electric problems to involve elliptical functions. In the process of solving a problem in electrostatics in spherical coordinates, we needed a relationship between elliptical functions and toroidal functions. Upon looking it up in the Handbook of mathematical functions by Abramowitz and Stegun<sup>1</sup>, we found the following error:

Page	Formula
337	<b>8.13.3</b> The correct formula is $Q_{-\frac{1}{2}} = \sqrt{\frac{2}{z+1}} K\left(\frac{2}{z+1}\right)$ .
	In the handbook, the second $\frac{2}{z+1}$ also appears under a square root.

This error, was not a mistake on the part of the authors of the Handbook, but rather a typo, as evidenced for the numerical example they perform based on the numerical tables (not of practical use nowadays).

## REFERENCE

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<sup>1</sup> Handbook of mathematical functions with formulas, graphs, and mathematical tables, by M. Abramowitz and I. Stegun, U.S. Government Printing Office, 10<sup>th</sup> printing, 1972