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On the stability of septic and octic functional equations. (English) Zbl 1383.39031
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The study of stability problems for functional equations is related to a question of Ulam concerning the stability of group homomorphisms and affirmatively answered for Banach spaces by *D. H. Hyers* [Proc. Natl. Acad. Sci. USA 27, 222–224 (1941; JFM 67.0424.01)]. Hyers' theorem was generalized by *T. Aoki* [J. Math. Soc. Japan 2, 64–66 (1950; Zbl 0040.35501)] for additive mappings and by *T. M. Rassias* [Proc. Am. Math. Soc. 72, 297–300 (1978; Zbl 0398.47040)] for linear mappings by considering an unbounded Cauchy difference. In the present work, the authors establish the general solutions of the septic and octic functional equations on commutative groups, respectively. Moreover, the authors prove some stability results concerning these two types of functional equations in normed linear spaces.

Reviewer: [Ghadir Sadeghi \(Sabzevār\)](#)

MSC:

- [39B82](#) Stability, separation, extension, and related topics for functional equations
- [39B52](#) Functional equations for functions with more general domains and/or ranges

Keywords:

[Hyers-Ulam stability](#); [septic functional equation](#); [octic functional equation](#); [additive symmetric function](#)