SOLUTION AND STABILITY OF A RECIPROCAL FUNCTIONAL EQUATION IN THREE VARIABLES

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Abstract

In this paper, we obtain the general solution and investigate the generalized Hyers-Ulam stability of a reciprocal functional equation in three variables of the form

$$\frac{r(x_1 + x_2)r(x_1 + x_3)}{r(x_1 + x_2) + r(x_1 + x_3)} = \frac{r(x_1)r(x_2)r(x_3)}{r(x_1)r(x_2) + r(x_1)r(x_3) + 2r(x_2)r(x_3)}. \qquad (0.1)$$

We also illustrate counter-examples for singular cases.

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