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Stability of a Generalized Mixed Type Additive, Quadratic, Cubic and Quartic Functional Equation

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Abstract: In this paper, we obtain the general solution and the generalized Hyers-Ulam-Rassias stability of the generalized mixed type of functional equation

$$f(x+ay)+f(x-ay)=a^2[f(x+y)+f(x-y)]+2\left(1-a^2\right)f(x)+\frac{\left(a^4-a^2\right)}{12}[f(2y)+f(-2y)-4f(y)-4f(-y)].$$

for fixed integers a with $a\neq 0,\pm 1$.

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