

THE JENSEN FUNCTIONAL EQUATION IN NON-ARCHIMEDEAN NORMED SPACES

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ABSTRACT. We investigate the stability of the Jensen functional equation $f\left(\frac{x+y}{2}\right) = \frac{f(x)+f(y)}{2}$ in non-Archimedean normed spaces and study its asymptotic behavior in two directions: bounded and unbounded Jensen difference. In particular, we show that a mapping f between non-Archimedean spaces with $f(0) = 0$ is additive if and only if

$$\left\| f\left(\frac{x+y}{2}\right) - \frac{f(x)+f(y)}{2} \right\| \rightarrow 0$$

as $\max\{\|x\|, \|y\|\} \rightarrow \infty$.

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