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ON A FUNCTIONAL EQUATION CONTAINING FOUR WEIGHTED ARITHMETIC MEANS

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ABSTRACT. In this paper we solve the functional equation

$$f(\alpha x + (1 - \alpha)y) + f(\beta x + (1 - \beta)y) = f(\gamma x + (1 - \gamma)y) + f(\delta x + (1 - \delta)y)$$

which holds for all $x, y \in I$, where $I \subset \mathbb{R}$ is a non-void open interval, $f: I \rightarrow \mathbb{R}$ is an unknown function and $\alpha, \beta, \gamma, \delta \in (0, 1)$ are arbitrarily fixed.

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