

# FINITE SUM REPRESENTATIONS OF ELEMENTS IN $\mathbb{R}$ AND $\mathbb{R}^2$

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ABSTRACT. In February 2017, a number theoretic problem was posed in Mathematics Magazine by Souvik Dey, a master’s student in India. The problem asked whether it was possible to represent a real number by a finite sum of elements in an open subset of the real numbers that contained one positive and one negative number. This paper not only provides a solution to the original problem, but proves an analogous statement for elements of  $\mathbb{R}^2$ .

KEYWORDS: *Spanning sets*

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