Zbl 697.10047
Erdős, Paul; Freiman, Gregory
On two additive problems. (In English)
J. Number Theory 34, No.1, 1-12 (1990). [0022-314X]

Let $\mathcal{A}$ be a set of nonnegative integers. P. Erdős and R. Freud conjectured that if $\mathcal{A}$ satisfies $\mathcal{A} \subset \{1, 2, ..., 3n\}$ and $|\mathcal{A}| \geq n + 1$ then there is a power of 2 that can be written as a sum of distinct elements of $\mathcal{A}$. Very similarly if $\mathcal{A} \subset \{1, 2, ..., 4n\}$ and $|\mathcal{A}| \geq n+1$ then there is a square-free number that can be written as a sum of distinct elements of $\mathcal{A}$. Both problems are answered in the affirmative in this paper. The proof is based on the Hardy- Littlewood method and elementary considerations. In this way at least $c \log n$ summands from $\mathcal{A}$ are necessary. Recently, *M. B. Nathanson* and *A. Sárközy* [Acta Arith. 54, 147-154 (1989; Zbl 693.10040)] showed that a bounded number of summands for $\mathcal{A}$ is enough.

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