Zbl 015.15203
Erdős, Paul; Turán, Pál
On some sequences of integers. (In English)
J. London Math. Soc. 11, 261-264 (1936).

Let $a_1 < a_2 < \cdots < a_r \le n$ be a set of positive integers such that $a_i - a_j \ne a_j - a_k$ for $1 \le k < j < i \le r$. For given n let $r(n)$ be the maximum value of r for which such a set exists. The authors prove that (1) $r(2n) \le n$ for $n \ge 8$, (2) $\limsup r(n)/n \le \frac{4}{9}$. They conjecture that $r(n) = o(n)$, and *G. Szekeres* conjectures that $r(\frac{1}{2}(3^k + 1)) = 2^k$.

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Classification:
11B83 Special sequences of integers and polynomials