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## Six standard deviations suffice

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1. The problem under consideration is combinatorial and deals with arbitrary finite sets and coloring of their elements. It shows that there exists a twocoloring of ' $n$ ' elements, such that ' $n$ ' given sets on these elements have a maximum discrepancy of $\mathrm{Kn}^{1 / 2}$.
2. The main result formulated in the language of linear forms suddenly yields two corollaries relevant to set theory and classical Fourier analysis, respectively.
3. The proof of the main theorem is based on the probabilistic method, Paul Erdös being regarded as its inventor.
4. Another interesting application of the main theorem is to the János Komlós Conjecture. Although it strongly supports the conjecture, it falls short of being a complete and conclusive proof.
5. It is important to prove that the main theorem is "best possible" up to the constant factor, i.e. to show that the best asymptotic is obtained.
6. The main theorem is valid up to a moderate value of the constant K , with $\mathrm{K}=5.32$.

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