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On prime factors of subset sums. (In English)

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As usual, $\omega(n)$ denotes the number of distinct prime factors of n and $P(n)$ denotes the largest prime factor of n. Further, for any finite non-empty set A of positive integers $S(A) = \sum_{a\in A} \varepsilon_a a$, where $\varepsilon_a \in \{0,1\}$ and $s(A) = \prod_{n\in S(A)} n$. This paper is about the behaviour of $P(s(A))/|A|$ and $\omega(s(A))/\pi(|A|)$ as the cardinality $|A|$ of A increases without bound. The authors conjecture that

$$P(s(A)) > C_1|A|^2 \text{ and } \omega(s(A)) > C_2\pi(|A|^2),$$

for constants C_1 and C_2, and they obtain several results in which they prove these conjectures under certain explicit density restrictions imposed on A.

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11N25 Distribution of integers with specified multiplicative constraints
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