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An inequality for the distribution of numbers free of small prime factors. (English)

Integers 22, Paper A26, 12 p. (2022)

Summary: Let $1 < z \leq x$ be arbitrary real numbers, and denote by $\Phi(x, z)$ the number of positive integers up to $x$ whose prime divisors are all greater than $z$. In this note we prove the sharp inequality $\Phi(x, z) < x/\log z$ for all $1 < z \leq x$, improving upon the classical sieve bound $\Phi(x, z) \ll x/\log z$.

MSC: 11N25 Distribution of integers with specified multiplicative constraints

Full Text: Link

References:

[3] A. A. Buchstab, Asymptotic estimates of a general number-theoretic function (Russian, German summary), Mat. Sb. 44 (1957), 1239-1246.

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