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On cycles in the coprime graph of integers. (In English)

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In this paper we study cycles in the coprime graph of integers. We denote by $f(n,k)$ the number of positive integers $m \leq n$ with a prime factor among the first k primes. We show that there exists a constant c such that if $A \subset \{1,2,\ldots,n\}$ with $|A| > f(n,2)$ (if $6|n$ then $f(n,2) = \frac{2}{3}n$), then the coprime graph induced by A not only contains a triangle, but also a cycle of length $2l+1$ for every positive integer $l \leq cn$.

Classification:
11B75 Combinatorial number theory
05C38 Paths and cycles