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Problems and results in number theory and graph theory. (In English)

Numerical mathematics and computing, Proc. 9th Manitoba Conf., 1979, 3- 21 (1980).

[For the entire collection see Zbl 429.00013.]

This paper has three sections. The first is concerned with problems concerning the iteration of certain number theoretic functions with particular attention being paid to the sequence $\{\varphi_k(n)\}$ where $\varphi_1(n)$ is the Euler phi function and $\varphi_k(n) = \varphi(\varphi_{k-1}(n))$. A number of questions are raised and conjectures made, but very little is really known about this sequence or the others which are discussed in this section. The second section is devoted to some joint work of J. L. Selfridge and the author. Questions are discussed concerning the distinct prime factors of $\prod_{i=1}^{k}(n+i)$ and complete sequences in the interval (n,n+k]. The final section is devoted to a discussion of some joint work by the author and V. Newman-Lara concerning the dichromatic number of a directed graph.

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Classification:
11-02 Research monographs (number theory)
11A25 Arithmetic functions, etc.
11A41 Elemementary prime number theory
11B99 Sequences and sets
05C15 Chromatic theory of graphs and maps
05C20 Directed graphs (digraphs)
00A07 Problem books

Keywords:
iteration of number theoretic functions; Euler function; distinct prime factors; complete sequences; dichromatic number of directed graph; products of consecutive integers