

**Zbl 446.10033**

**Erdős, Paul; Nicolas, J.L.**

*Grandes valeurs d'une fonction liée au produit d'entiers consécutifs.*

*Large values on a function related to the product of consecutive integers.* (In French)

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Let  $f(n) = \max\{k; n \in P(m, k); 1 \leq m \leq n; 1 \leq k \leq n\}$  where  $n \in P(m, k)$  means that  $n$  divides  $A = (m + 1) \dots (m + k)$  but does not divide  $A/(m + i)$  for  $i = 1, \dots, k$ . The authors state without proofs several interesting results about the arithmetical functions  $f(n)$ , among which are 1)  $\sum_{n \leq x} f(n) = (1 + o(1))x \log \log x$ , 2) the maximal order of  $f(n)$  equals

$$\frac{e^{\gamma/2} \log n}{2(\log \log n)^{1/2}} + \frac{\gamma e^{\gamma} \log n}{4 \log \log n} (1 + o(1)),$$

where  $\gamma$  denotes Euler's constant.

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Classification:

11N37 Asymptotic results on arithmetic functions

11A25 Arithmetic functions, etc.

Keywords:

asymptotic order; Euler's constant; linear sieve; highly composite numbers; product of consecutive integers