

Prime factors of Mersenne numbers

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Resumo

Let $(M_n)_{n \geq 0}$ be the Mersenne sequence defined by $M_n = 2^n - 1$. Let $\omega(n)$ be the number of distinct prime divisors of n . In this short note, we present a description of the Mersenne numbers satisfying $\omega(M_n) \leq 3$. Moreover, we prove that the inequality, given $\epsilon > 0$, $\omega(M_n) > 2^{(1-\epsilon)\log \log n} - 3$ holds for almost all positive integer n . Besides, we present the integer solutions (m, n, a) of the equation $M_m + M_n = 2p^a$ with $m, n \geq 2$, p an odd prime number and a a positive integer.