It was found that

$$7^{N-1} \equiv 618,117,398,624,349,204,361,513,620,865,505,749 \pmod{N}.$$

Hence N is composite. This number furnishes another example of the scarcity of primes of this form. The next such number which has any chance of primality consists of 47 of the digits 1.

The second number tested is $(10^{41}+1)/11$ or

$$N = 9,090,909,090,909,090,909,090,909,090,909,090,909,091.$$

In this case it was found that

$$3^{N-1} \equiv 763,287,007,500,473,474,161,903,784,495,157,879,509 \pmod{N}.$$

It follows, then, that N is also composite. This result represents the sixth attempt and failure to discover a larger prime than $2^{127}-1$ found by Lucas in 1877.

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ON THE APPROXIMATE REPRESENTATION OF ANALYTIC FUNCTIONS*

BY DUNHAM JACKSON

The purpose of this paper is to discuss the convergence of approximating polynomials determined by a least-square criterion, together with certain auxiliary conditions. Let $f(x)$ be a given function over the interval $a \leqq x \leqq b$. For each positive integral value of n, let p_n be a positive integer $\leqq n$. A polynomial of the nth degree may be required, for example, to coincide in value with $f(x)$ at p_n specified points of the interval; and among the infinitely many polynomials of the

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