E. L. Roettger and H. C. Williams
Some Primality Tests Constructed from a Cubic Extension of the Lucas Functions,
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Abstract

The properties of a pair of integer valued sequences, similar to those of Lucas, are used to produce a sufficiency test for the primality of numbers N such that $N^2 + N + 1$ is divisible by a large power of a prime p. The test will run in $O((\log N)^3)$ time, provided that a small prime q ($\equiv 1 \pmod{p}$) is given such that N is a cubic nonresidue of q. It is also shown how this test can be converted to one that is necessary and sufficient. A short table of prime values of such N is also provided.