

On p. 67 is a table of the last 26 figures for each of 35 values of 9^n , $n = 89, 100, 200, \dots, 387420489$. Thus the last 26 figures of N are found to be

24 178799 359681 422627 177289.

These results check with those quoted above, except in the case of the first of the McIntyre figures. Weiss gives also two tables and formulae for finding last figures of 9^n .

J. W. MEARES in Br. Astron. Assoc., *J.*, v. 31, 1921, p. 277–278, comments on $9!^{(9!^{9!})}$ and finds that its value is greater than 10 to the power $10^{2000000}$ but less than 10 to the power $10^{2000001}$.

R. C. A.

¹ In accordance with British usage, Crommelin here means 1000×10^{24} ; in the United States this would be interpreted as 1000×10^{16} .

55. A NEW RESULT CONCERNING A MERSENNE NUMBER.—(Compare N. 23, 33, v. 1, p. 333, 404). On 9 February 1946 I finished testing the character of the Mersenne number $M_{229} = 2^{229} - 1 = 8627\ 18293\ 34882\ 04734\ 29344\ 48278\ 46281\ 81556\ 38862\ 15212\ 98319\ 39531\ 55279\ 74911$. Since the final residue, the 228th, was not zero the conclusion is that M_{229} is composite.

The Lucasian sequence used was 4, 14, 194, 37634, 1416317954, etc.

The 228th residue was found to be 1970 11660 94225 75309 56180 91126 86257 27776 96596 41856 06805 84362 68648 91891.

Thus, among these numbers M_p , up to and including $p = 257$, there are only three whose characters are unknown, namely: $p = 193, 199, 227$. There are, however, eleven M_p , known to be composite, but of which no factor is known.

I have begun a similar investigation of M_{199} .

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QUERIES

17. TABLES FOR CIRCLES.—In O. G. GREGORY, *Mathematics for Practical Men*, London, 1825, p. 406, after "A Table of Circles, from which knowing the diameters, the areas, circumferences, and sides of equal squares are found," by GOODWYN (see MTE 81), Gregory remarks that this table was "to supersede the necessity of consulting some erroneous tables of the areas, &c. of circles recently put into circulation." What author and publication are here indicated? The *English Catalogue* lists the following anonymous item issued in the following year: *Tables of Areas and Circumferences of Circles*, 3 parts, London, 1826.

R. C. A.

QUERIES—REPLIES

21. BRIGGS' ARITHMETICA LOGARITHMICA (Q7, v. 1, p. 170).—In my library is a copy of this volume with the extra 12 pages containing the