The result (d) was another example of the converse of Fermat’s theorem. It is easy to see that the 15 integers between the two primes

\[ p_1 = 2^{61} - 1 \quad \text{and} \quad p_2 = 2^{61} + 15 \]

are composite, being multiples of small primes \( \leq 13 \). Hence, \( p_1 \) and \( p_2 \) are consecutive primes, and constitute the largest pair of consecutive primes known.

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1 A. J. C. Cunningham & H. J. Woodall, *Factorization of \( 2^n \pm 1 \)*, London, 1925.

**QUERY**

34. Archimedes Cattle Problem.—Has any attempt been made to use one of the modern electronic computing devices to get a solution of the famous cattle problem\(^1\) of Archimedes?

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**QUERIES—REPLIES**

44. Tables of \( \sin nx / \sin x \) (Q16, v. 2, p. 61).—A table of this function “for large integral values of \( n \), say up to 100, and for values of \( x \) in radians” would be impossibly large if it were interpolable in \( x \). Millions of entries would be necessary to carry the table as far as \( x = 10 \) with 8D. Since isolated values of this function can be obtained with a little trouble from a good table of \( \sin x \) it is not surprising that there is no such table in print. For fixed \( x \), however, there are a number of small tables of what is essentially \( \sin nx / \sin x \). Two examples may be cited, though they do not correspond to real values of \( x \). For \( x = \arccos(-i/2) \) we have

\[ \sin nx / \sin x = i^{\frac{n}{2}} F_n, \]

where \( F_n \) is the \( n \)-th term of the Fibonacci series, which is tabulated as far as \( n = 128 \) [MTAC, v. 2, p. 343]. For \( x = \arccos (-3i/\sqrt{2}) \) we have

\[ \sin nx / \sin x = (i\sqrt{2})^{1-n}(2^n - 1) \]

the values of which can be found easily from a table of powers of 2.

As is well known, \( U_n = \sin nx / \sin x \) is a special kind of Lucas\(^1\) function and can be computed recurrently by the formula

\[ U_{n+1} = 2 \cos x U_n - U_{n-1}. \]

D. H. L.


**CORRIGENDA**

V. 3, p. 362, l. 1 — for RMT 593 read RMT 592.
V. 3, p. 554, l. 3, for 4–17, read 3–16.
V. 3, p. 559, l. 4, for 454 read 554.
V. 3, p. 562, l. 30, for NICHOLAS DE CUSA read NICHOLAS DE CUSA.
V. 3, p. 563, l. 6, for fifteenth read thirteenth.
Nos. 28, 29, cover 3, interchange lines J and I.