## TECHNICAL NOTES AND SHORT PAPERS

# Some Computations of Wilson and Fermat Remainders

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The Wilson remainders

$$W_p \equiv \frac{(p-1)!+1}{p} \pmod{p}$$

have been computed by Goldberg (J. Lond. Math. Soc. 28, 109, 1953, p. 252) for all primes $p < 10{,}000$. He found 563 to be the third Wilson prime, the two others being 5 and 13. These computations have been continued on SMIL, the electronic computer of Lund University, for $10{,}000 < p < 30{,}000$, but no zeros were found in this interval.

The Fermat remainders

$$F_p \equiv \frac{2^{p-1}-1}{p} \pmod{p}$$

have been computed for all $p < 50{,}000$. Previously it was known that $F_p = 0$ for $p = 1093$, and now it is found that $p = 3511$ is the second solution.

A table of $W_p$ and $F_p$ will be published elsewhere.

Note, added in proof:

Professor D. H. Lehmer has kindly informed me that the solution $p = 3511$ was obtained by N. J. W. H. Beeger about 1930.

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## REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

**126[C].**—Oliver L. I. Brown, "A short table for computing seven-place logarithms," Marchant Calculators, Inc., Oakland, California, Table No. 107, 1958, 2 p., $8\frac{1}{2}''$ x $11''$. May be obtained free of charge by writing to Marchant Calculators, 6701 San Pablo Avenue, Oakland, California.

A table of $h + \log x$, $x = 1(.01)1.49(.02)2.15(.03)2.84(.04)3.60(.05)4.35(.06)5.07(.07)5.77(.08)6.49(.09)7.21(.1)8.01(.11)8.67(.12)9.87$, 8D, where $0 < h \leqq 5 \times 10^{-8}$ this set of intervals and the chorus of $h$ permit calculation of logarithms to 7D by one multiplication, one division and one addition using the formula $\log x = \log a + 0.868589(x - a)/(x + a)$, where $a$ is the table argument nearest $x$. This formula is a truncated Taylor's series. Directions for use both direct and inverse are included.

The source of the logarithms is not noted. A few randomly chosen values were checked against [1] and no discrepancies noted.