One is thus led to the conclusion that

$$\lim_{a\to 0} 2\cdot 2^{1/2}\int_0^a (F(a) - F(x))^{-1/2}dx = 2\pi b^{-1/2}.$$

Hence we have the following theorem.

THEOREM 3. *The period of vibration T under restoring force $f(x)$, conditioned by hypotheses* (A), (B), *and* (C), *approaches the limit $2\pi b^{-1/2}$ as the amplitude approaches zero.*

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A NOTE ON FERMAT'S LAST THEOREM

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In 1925 H. S. Vandiver† proved the following theorem.

THEOREM 1. *If*

$$x^p + y^p + z^p = 0 \tag{1}$$

is satisfied by integers x, y, z, prime to the odd prime p, then the first factor of the class number of the field generated by $e^{2\pi i/p}$ is divisible by p^8.

In the seventh of a series of articles on Fermat's last theorem, T. Morishima‡ has given the following improvement upon Theorem 1.

THEOREM 2. *In Theorem* 1 *we may replace p^8 by p^{12} provided p does not divide* 75571 · 20579903.

It is the purpose of this note to show that the proviso of Theorem 2 is unnecessary by showing that (1) is not satisfied by the prime factors of 75571 · 20579903. This is done by applying Wieferich's|| criterion.

THEOREM 3. *If* (1) *is satisfied by integers x, y, z, prime to p, then* $2^{p-1}\equiv 1 \pmod{p^2}$.

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† Annals of Mathematics, (2), vol. 26, p. 232.

‡ Proceedings of the Imperial Academy of Japan, vol. 8 (1932), pp. 63–66.

|| Journal für Mathematik, vol. 136 (1909), p. 203.