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The last theorem of Fermat. The simplest proof. Edited text

In Memory of my MOTHER

All calculations are done with numbers in base n, a prime number greater than *2*.

The contradiction:

The Fermat equality does not hold over (k+1)-th digits, where k is the number of zeroes at the zeroes ending of the number $U=A+B-C=un^k$.

The notations that are used in the proofs:
A' / $A_{(k)}$ – the first / the k-th digit from the end of the number A;
$A_{[k]}$ is the k-digit ending of the number A (i.e. $A_{[k]}$ =A mod n^k);
$A_{[k+]}$ – the number remaining after removing the k-digit ending of number A.

So, let's assume that for natural numbers A, B, C and prime n>2:

1°) $A^n+B^n=C^n$, or $A^n+B^n-C^n=0$, where

2°) $U=A+B-C=un^k$, where n is not a cofactor of u. And, if the digit

3°) $u^*=\{U_{(k+1)}-[(A_{[k]+}B_{[k]}-C_{[k]})]_{(k+1)}\}'=0$,

then we multiply the equality of 1° by 2^n [for convenience, the notation of all numbers and numbers with new values will remain the same], after which

4°) $u^*=(A_{(k+1)}+B_{(k+1)}-C_{(k+1)})'\neq 0$ [because $A_{[k]}+B_{[k]}-C_{[k]}$ can have only two values: 0 or n^k].

5°) Lemma. $A' = A^{n}{}'$ [another form of Fermat's little theorem].

6°) From Newton binomial $(A_{(k+1)}n^k+A_{[k]})^n=Dn^{k+2}+A_{(k+1)}n^{k+1}+A_{[k]}{}^n$, it follows that (k+1)-th digit of the degree does not depend on (k+1)-th digit of the base.

Proof of the FLT

According to 5° and 2°, the digit $(A_{[k+]}^n+B_{[k+]}^n-C_{[k+]}^n)'=(A_{(k+1)}+B_{(k+1)}-C_{(k+1)})'=u^*\neq 0$ and, after recovery of discarded endings $A_{[k]}$, $B_{[k]}$, $C_{[k]}$ in numbers A, B, C, retains its value because $(A_{[k]}^n+B_{[k]}^n-C_{[k]}^n)_{[k+1]}=0$ (see 6° and 1°) and the digits $A_{(k+1)}$, $B_{(k+1)}$, $C_{(k+1)}$ of the bases are not involved in the formation of the digit $(A^n+B^n-C^n)_{(k+1)}$ (see 6°).

This confirms the truth of Fermat's Last Theorem.

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