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Fermat's theorem: The second case (A is multiple of n)

In Memory of my MOTHER

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

The notations:

A' / $A_{(t)}$ – the first / the t-th digit from the end of the number A;

$A_{[t]}$ – is the k-digit ending of the number A (i.e. $A_{[t]}$ =A mod n^t);

Let's assume that for co-prime natural numbers A [$=n^kA°$], B, C and a prime n>2

1°) $A^n+B^n-C^n=0$ and $C^n-B^n=(C-B)P$, where, as it is known [see viXra:1707.0410],

1.1°) $(C-B)_{[kn-1]}=0$, P=P°n, $A^n=n^{kn}A^{°n}$, $U=A+B-C=n^ku$ (u'≠0, k>1).

1.2°) $C-A=b^n$, B=bq; $A+B=c^n$, C=cr; $q^n=Q$, $r^n=R$, P°'=Q'=R'=1; the numbers A°, P°, n, b, q, c, r – are co-prime.

Proof of the FLT

2°) Consider the number $D=(A+B)^n-(C-B)^n-(C-A)^n$, where $(C-B)^n{}_{[k+2]}=0$, from here

2.1°) $D_{[k+2]}=[(A+B)^n-(C-B)^n-(C-A)^n+(A^n+B^n-C^n)]_{[k+2]}=\{[(A+B)^n-C^n]-[(C-A)^n-B^n]\}_{[k+2]}$, or

2.2°) $D_{[k+2]}=\{[c^n(c^{n-1}-r^n)V]-[b^n(b^{n-1}-q)W]\}$, where $(c^{n-1}-r)_{[k]}=(b^{n-1}-q)_{[k]}=0$, $V_{(2)}=W_{(2)}=10$, a'=b'

3°) and therefore, $D_{[k+2]}=0$.

However after removing parenthesis in Newton's binomials in 2° and grouping the summands having equal powers into pairs, we can notice that all pairs end by k+2 zeroes and only the pair in 4°) $n^{k+1}A°C^{n-1}+n^{k+1}A°B^{n-1}$ ends by k+1 zeroes, because (k+2)-th digit is equal to (2A°)' (since the numbers C^{n-1} and B^{n-1} end by the digit 1 – see SFT), which contradicts to 3°!

From what follows the truth of FLT.

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P.S. The Proof of the first case see viXra:1809.0571.