Proof of Fermat's last theorem.

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Introduction

In the 17th century Pierre de fermat proposed several mathematical theories for which he did not provide convincing proofs.
The so-called last fermat theorem holds that for n greater than 2 the following equation will never be satisfied for values of a b and c integers.

$a^n + b^n = c^n (1)$

This theorem was proved by the English mathematician Andrew Wyles in 1995.
However, his way of proving this theorem involved developing new mathematical tools that did not exist until then. Wyles himself stated that although fermat claimed to have a proof, it would have been impossible for him to arrive at them with the tools available in the seventeenth century.
However, without having to reformulate all the mathematics, there are simpler ways to prove that the Fermat-Wyles theorem holds.

Fermat's little theorem as an approximation.

Fermat's little theorem states that the following quotient will be integer whenever p is a prime number.

$$k_1 = \frac{\left(a^{(p-1)} - 1\right)}{p} (2)$$

Fermat did not prove this to be true, but several decades later Euler managed to show that it was true.
Thus k1 should be an integer for p prime regardless of the value of a.
If a is replaced by b, it must be satisfied that there exists a value k2 that satisfies Fermat's little theorem.
then we arrive at the following equation.

$$k_2 = \frac{\left(b^{(p-1)} - 1\right)}{p} (3)$$

The following equations are obtained by clearing the powers of a and b

$a^{(p-1)} = k_1 p + 1$
$b^{(p-1)} = k_2 p + 1 (4)$

then it can also be deduced that a power of c raised to p - 1 can be written as follows

$c^{(p-1)} = k_3 p + 1 (5)$

from this point on I will resort to a demonstration by the absurd, i.e. I will assume that fermat's last theorem is not fulfilled and therefore the following can be written

$a^{(p-1)} + b^{(p-1)} = c^{(p-1)}$
$k_1 p + 1 + k_2 p + 1 = k_3 p + 1$