Answer to Beal's Conjecture

Abstract

This paper, tends to solve the Beal's Conjecture, using all possible combinations, on the three variables (A,B,C). Since A^x , B^y and C^z in terms of getting the common prime are treated like A (without the exponent) , B and C. Since A^x can be treated as A*A*A, the same prime factors of A that apply to A*A*A , are the same. Having concluded that , we can use A instead of A^x. Then its just a matter of testing all hipothesys, to all A,B,C test if each is prime or nonprime. For example for A=2, then A^3 = 2*2*2, which has a prime factor of 2. There aren't different factors of the numbers, because its the same number that is elevated to exponent

Beal's conjecture

If A^x + B^y = C^z , where A, B, C, x, y and z are positive integers and x, y and z are all greater than 2, then A, B and C must have a common prime factor.

Solution

Since A^x will have the same primes factor as A, we only consider A

If A , B and C are equal its impossible, because A+B = C cant be equal to C

If there is a prime on the equation then

a) PrimeA + NonPrimeB = C

The only possible common prime factor in a) is PrimeA (since it only has one factor)

So C doesnt have PrimeA as possible common prime factor

b) PrimeA + PrimeB = C

two different primes , C cant be equal to either PrimeA or PrimeB (since its a sum), and hence can't share a prime common factor

c) Prime A + NonPrimeB = PrimeC
two different primes (because is PrimeA + something, so they are different)

d) NonPrimeA + NonePrimeB = PrimeC
PrimeC can't be decomposed in sum of two non primes

So, A,B,C must be NonPrimes (to have a common prime factor)

Hipothese

NonPrime1 + NonPrime2 = NonPrime3

1) If NonPrime1 e NonPrime2 have common prime factors then NonPrime3 also has common prime factors

If we did have a common factor, in this case 3, then that could be put in evidence as in:

2*3 + 3*7 = 27

3(2+7) = 27

and its assured that 3 divides 27,so 3 is a prime common number

2) If they don't have common prime factors, then they don't share a common prime

Therefore A^x + B^y = C^z , doesnt hold, for example if A is prime.

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Palavras Chave:
conjeture de beals,primos,divisores,multiple

Author
Andre Albergaria Coelho

fc26887@alunos.fc.ul.pt

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