Proof of Goldbach conjecture for the integer system

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December 11, 2018

1 Abstract

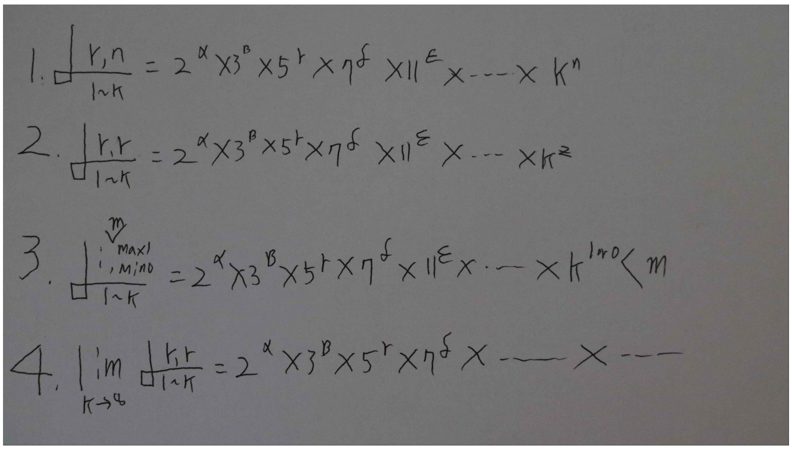
According to Goldbach's conjecture, every even number is the sum of two.Prime .This conjecture was proposed in 1742,
In fact, it remains unproven. I prove Goldbach's conjecture.. It is related to the integer system and when the number expands to infinity it is concluded that Goldbach speculation is proven.

2 Introduction

On June 7th, 1742, the German mathematician Christian Goldbach [1] wrote a letter to Leonhard Euler in which he proposed that every even integer greater than 2 can be expressed as the sum of two primes. From the time it was proposed until now, the conjecture was suspected to be true as Euler replied to Goldbach "That ... every even integer is the sum of two primes, I regard as a completely certain theorem, although I cannot prove it." [2]. However, the conjecture has remained unproven for over 250 years. In March 2000, Faber and Faber Co. offered a $1 million prize to anyone who can prove Goldbach's conjecture.
I prove this by solving this problem with Goldbach's conjecture for the integer system

3.New symbol definitions

(1) Concept of rims



This symbol is called rims. This symbol means multiplication in Prime number order, and 1, k means multiplication from 1st Prime to K Prime. The value of r above means that the exponent of Prime number is set to random.

Originally, each exponent must be represented exactly. For convenience, the first r means that exponent of Prime number before k is r, and the second r means k th.

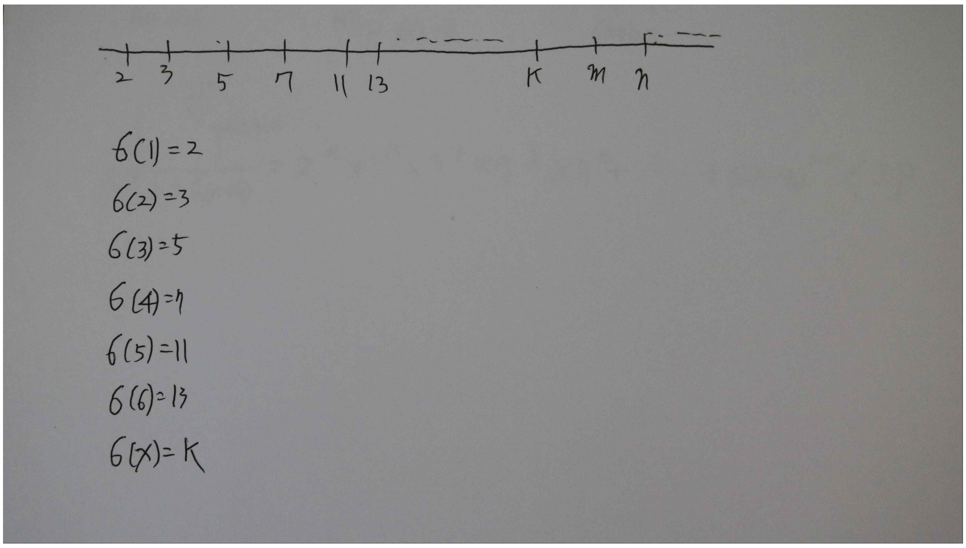
Therefore, when comparing the first and second equation, the difference is fixed at a fixed value in case of the first equation,, and in the case of the second equation, the index of K is random.

In the case of the third equation, it is possible to set the range, which means that the expression from 1 to K is smaller than the arbitrary m. I means that the exponent from Prime number of 2 to Prime number K is limited to expressing an arbitrary number less than m.

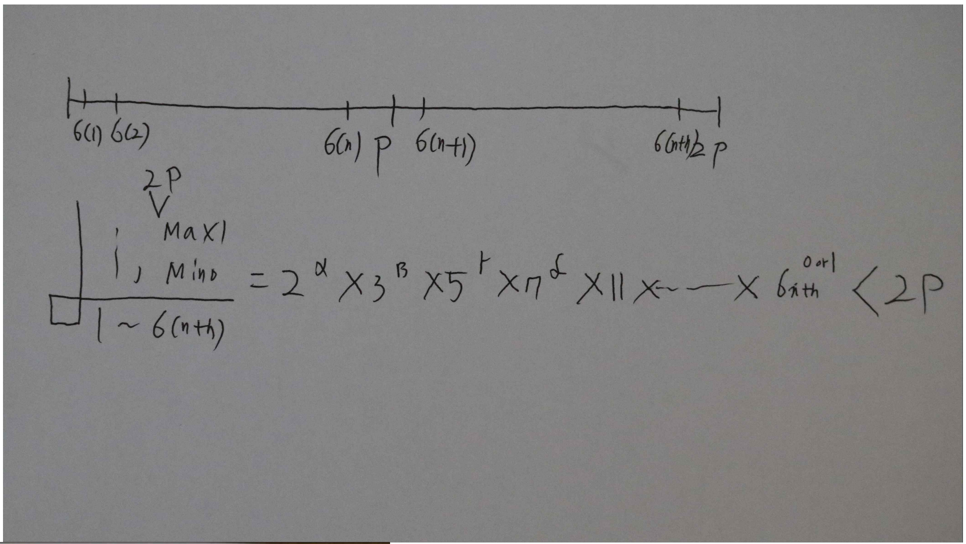
In the case of the fourth equation, the value of k becomes extreme, meaning that it can cover all the prime numbers, and it means that all the natural numbers except 1 can be expressed by putting exponent on each r.

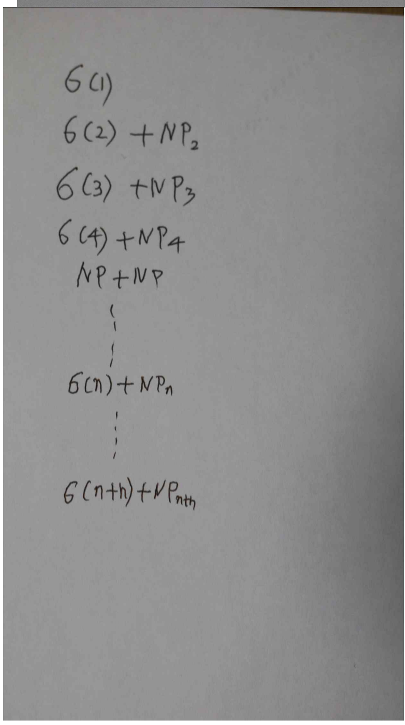
(2) Concept of iter

The following symbols denote the order of a Prime with the concept of iter. The first Prime number is 2, the second Prime number is 3, and the third Prime number is 5. In this way, the xth Prime number can be expressed as k.



4. Proof of Goldbach conjecture





(1). Assumption

2P=NP+NP or NP+prime.

The values from 0 to P in the above straight line cover the prime numbers from iter1 to iter n. And we assume that the prime numbers from P to 2P are from iter n + 1 to iter n + h. Let us exclude the premise that the premise is equal to P = iter n. If the two values are the same, then 2P is the sum of prime and prime numbers.

If you set rims to iter n + h and set the exponent of iter n + h to Max 1 and Min 0, you should be able to represent all numbers less than 2P. Once the number system under 2P is all present, it can be expressed in rims value.
Let's try to set an arbitrary value that does not contain Goldbach's speculation. Suppose that there are Primes up to iter n below P and let iter n + 1 ~iter n + h exist below 2P.

Any 2P value must be summed with iter and Synthetic number, respectively. Since iter is a prime number, all of it must be added to the sum of the synthetic numbers to avoid Goldbach's speculation. Therefore, the synthetic number will be expressed as Non-Prime and abbreviated as NP.

If you look at the above equation, if Goldbach's conjecture is not established, it consists of prime + NP or NP + NP.

So, as you saw above, since iter1 is 2, you can't add NP from iter1. NP is expressed by arbitrarily multiplying a number smaller than iter n.
iter N + 1 to iter Since N + h is a prime number greater than P, you must multiply it by a number smaller than iter n to represent the NP value.

Thus, 2P = prime + NP or NP + NP.

(2).Chen's theorem
Definition:

Chens's Theory 1[1]. An arbitrarily large even number can be written as the sum of two prime numbers or the sum of one prime and one semi-prime (product of two prime numbers).

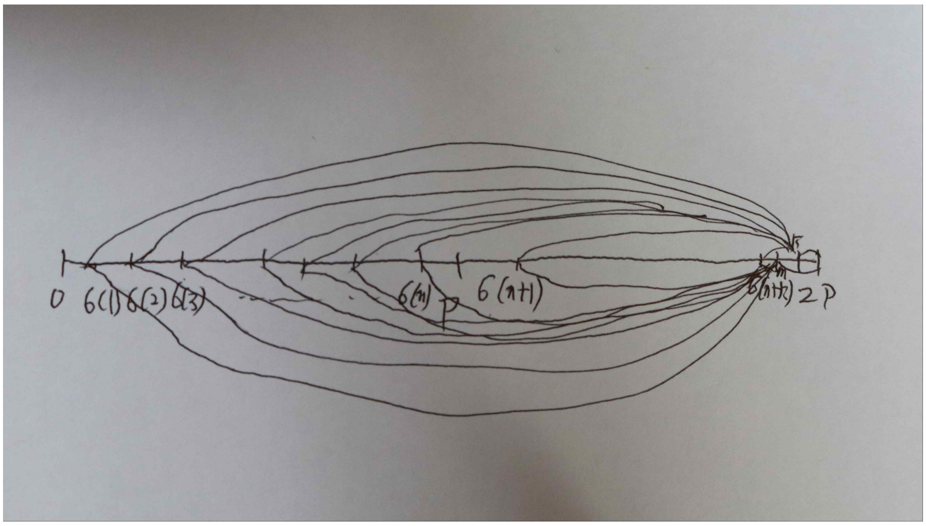
Chens's Theory 2[2].For an arbitrary positive even h, p + h is either a prime or semi-prime.

(3). Chen's Prime number of applications
1.Applying Chens's 1 Theory
Let's suppose that 2P is applied by Chen's theorem above. If so, the NP values

1) Chen, J.R. (1966). "On the representation of a large even integer as the sum of a prime and the product of at most two primes". Kexue Tongbao 17: 385-386.
2) Chen, J.R. (1973). "On the representation of a larger even integer as the sum of a prime and the product of at most two primes". Sci. Sinica 16: 157-176.

from iter 2 to iter n + h must be either prime or semi-prime or non-prime, and according to Chen's theorem must be prime or semi-prime. According to Chen's prime, there must be a prime number plus a prime number. However, if a prime number and a prime number is established, Since there is no Prime + Prime in this equation, at least two new prime numbers must be added. If it does. there will be more prime numbers than n + h. Therefore, there is a contradiction that the number of prime numbers should be greater, so The above Assumption is contradictory and therefore at least one prime + prime pair satisfying 2P must exist. Therefore, 2P = prime + prime is established and there must be at least one prime pair satisfying this expression.

2.Applying Chens's 2 Theory



Follow Chen's theorem 2. The arbitrary even-number h is supposed to be a semi-Prime or a Prime, when you add the prime p. Let's apply to the graph above. Let's try not to use 2P as a reference, but try to reduce the number by -2 and make a Prime in the left equation. By decrementing by -2, all expressions can be expressed as arbitrary even numbers and Prime. But if all can be represented in semi-Prime.If so, it violates the second order theorem. An arbitrary even number + prime distance is any 2P-NP certain prime distance, and a prime number + NP, that is the distance of each NP. If this can only be expressed in multiple numbers, Chen's second theorem is not established. However, since Chen's second theorem is established, the above equation can not be expressed only as a NP. Therefore, not all expressions can be established as NP + NP or NP + Prime.

(4). The relation between integer and Goldbach conjecture

This part is related to the essential aspect of the integer system

Suppose Goldbach's conjecture does not hold up, just like above Assumption. There are more prime numbers m and n (m.n is Prime) by Chen's prime number,

Assuming that there is no m, n (m,n is prime,2P=m+n) represented by the Chen Prime number without Goldbach's conjecture. And there is a situation in which the integer system is collapsed.
For example, m = 1 + m-1 = 2 + m-2 = 3 + m-3 ... Assuming that the number m exists but does not exist, all of the above expressions are denied. if all the expressions represented by m are denied, the entire natural number and the whole integer system are negated.
If the Goldbach conjecture is rejected, there is no natural number starting from 1, and there are no integers that multiply the natural number by minus.
Therefore, Assuming that no one of Goldbach's conjectures can be established like 2P = prime + prime, then the integer system will collapse and the integer system will not exist. Therefore, in order for an integer system to exist, a certain 2P should be unconditionally made of prime numbers and prime numbers, and there should be no exceptions.

Therefore, Goldbach's conjecture is established because the integer system exists and expands to infinity.

5. Conclusion

If Goldbach's conjecture is not established, then there is no integer system.
If the Contrapositive proposition is applied, Goldbach's conjecture is established because there is an integer system

6. References

References

[1] Chen, J.R. (1966). "On the representation of a large even integer as the sum of a prime and the product of at most two primes". Kexue Tongbao 17: 385-386.

[2] Chen, J.R. (1973). "On the representation of a larger even integer as the sum of a prime and the product of at most two primes". Sci. Sinica 16: 157-176.