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Representation of even number in the form of the sum of four simple.

Abstract:*it is known that a weak problem Goldbach is finally solved .*

$$p_1 + p_2 + p_3 = 2N + 1 \qquad [1]$$

where on the left is the sum of three odd primes

more than 7

In this article, the author gives a proof of Theorem 1 using

Goldbach's problem is that

$$p_1 + p_2 + p_3 + p_4 = 2N \qquad [2]$$

where on the right sum of four prime numbers, at the left any even number,

since 12, by method of mathematical induction.

Keywords: *and on this basis decides topical number theory problems.*

Theorem1. Any even number starting from 12 is representable as a sum

four odd prime numbers.

1. For the first even number 12 = 3+3+3+3.

We allow justice for the previous N> 5:

$$p_1 + p_2 + p_3 + p_4 = 2N \qquad [3]$$

We will add to both parts on 1

$$p_1 + p_2 + p_3 + p_4 + 1 = 2N + 1 \qquad [4]$$

where on the right the odd number also agrees [1]

$$p_1 + p_2 + p_3 + p_4 + 1 = p_5 + p_6 + p_7 \quad [5]$$

Having added to both parts still on 1

$$p_1 + p_2 + p_3 + p_4 + 2 = p_5 + p_6 + p_7 + 1 \quad [6]$$

We will unite $p_6 + p_7 + 1$

again we have some odd number,

which according to[1]we replace with the sum of three simple and as a result we receive:

$$p_1 + p_2 + p_3 + p_4 + 2 = p_5 + p_6 + p_7 + p_8 \quad [7]$$

at the left the following even number is relative [3], and on the right the sum four prime numbers.

$$p_1 + p_2 + p_3 + p_4 = 2N \quad [8]$$

Thus obvious performance of an inductive mathematical method.

As was to be shown.

Now, based on the above theorem, we prove the generalized

Theorem 2:

An even number 2N is represented by the sum of 2K simple odd numbers in this case $2N \geqslant 6K$ *, K> 1, where 2K is the number of primes.*

Decision.

If 2K is divisible by 4, then:

$$p_1 + p_2 + ... + p_{(2K-1)} + p_{2K} = 2N \quad [9]$$

combining the terms into groups of 4, we have the sum of any even numbers more and equal according $2N \geqslant 6K$ *to the proved Theorem 1.*

If 2K is not divisible by 4, combine into groups of 4 and leave at the end

6 primes, which are divided into two groups of 3 primes $2N \geqslant 6K$.

2. From the proved Theorem 2 it follows that the sum of six primes is equal to the sum

four simple.

$$p_1 + p_2 + p_3 + p_4 + p_5 + p_6 = p_7 + p_8 + p_9 + p_{10} \quad [10]$$

$$p_1 + p_2 + p_3 + p_4 + p_5 + p_6 = 2N \quad [11]$$

where $2N \geqslant 18, N \geqslant 9$

$$p_{11} + p_{12} + p_{13} + p_{14} = 2N_1 \quad [12]$$

where $2N_1 \geqslant 12, \quad N_1 \geqslant 6$

$$2N - 2N_1 = p_7 + p_8 \quad [13]$$

$$p_{11} + p_{12} + p_{13} + p_{14} = p_9 + p_{10} \quad [14]$$

From which the sum of four primes follows

equal to the sum of two odd primes and any even number,

starting at 12

Representation of even numbers from 6 to 18 (minimum of 6 odd

prime numbers)

show arithmetically the sum of two simple odd and

an even number that cannot be represented as the sum of 6 primes does not exist.

Any even number starting with six is represented as the sum of two

prime numbers. Goldbach-Euler hypothesis.

3.Thus we proved:

Any even number since 6 is representable in the form of a bag of two odd the simple.

$$p_1 + p_2 = 2N$$

Any even number is representable in the form of the sum of two simple. In total even numbers, without exception, since 6 are the sum of two prime numbers. Goldbakha-Euler's problem is true and proved!

Literature:

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