International Journal of Mathematical Archive-10(4), 2019, 19-20
Available online through www.ijma.info ISSN 2229 – 5046

MATHEMATICS, I UNDRESSED THE THEORY OF NUMBERS

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(Received On: 21-02-19; Revised & Accepted On: 27-03-19)

ABSTRACT

it is known that a weak problem Goldbach is finally solved .

$$p_1 + p_2 + p_3 = 2N + 1 \tag{1}$$

where on the left is the sum of three odd primes more than 7

The author provides the proof in this work, being guided by the decision weak problem of Goldbach that:

$$p_1 + p_2 + p_3 + p_4 = 2N \tag{2}$$

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.*

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

Theorem 1: *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:

$$p_1 + p_2 + p_3 + p_4 = 2N \tag{3}$$

We will add to both parts on 1

$$p_1 + p_2 + p_3 + p_4 = 2N + 1 \tag{4}$$

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

$$p_1 + p_2 + p_3 + p_4 + 1 = p_5 + p_6 + p_7 \tag{5}$$

Having added to both parts still on 1

$$p_1 + p_2 + p_3 + p_4 + 2 = p_5 + p_6 + p_7 + 1 \tag{6}$$

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:

$$p_1 + p_2 + p_3 + p_4 + 2 = p_5 + p_6 + p_7 + p_8 \tag{7}$$

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

$$p_1 + p_2 + p_3 + p_4 = 2N \tag{8}$$

Thus obvious performance of an inductive mathematical method.

As was to be shown.

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2. *Any even number starting with six is representable in the form of the sum of two prime numbers. Goldbach-Euler's hypothesi.*

Consider a sequence of even numbers starting from 6: 6, 8, 10 ... to infinity. The sum of two adjacent even numbers will be twice the previous number plus 2. Thus [8] has the appearance:

$$p_1 + p_2 + p_3 + p_4 = 2(p_1 + p_2) + 2 \tag{9}$$

where $p_1 + p_2 -$ *the previous even number,* $p_3 + p_4 -$ *the next.*

$$p_1 + p_2 + 2 = p_3 + p_4 \tag{10}$$

[10] **-** *shows the inevitability of the next number to be equal to the sum two prime numbers. And since the subsequent even number then becomes previous, then the entire sequence of even numbers can be represented as sums of two odd primes. In [10], instead of the previous set the first 6, already 8 should be the sum of two simple ones, further in [10] instead of*

We set the previous 8, we get 10 inevitably the sum of two simple, etc.

The process is continuous and endless. Case of an even number not equal to the sum of two odd primes categorically excluded since this completely contradicts [8] - [10].

3. *Thus we proved:*

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

$$p_1 + p_2 = 2N \tag{11}$$

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:

1. *Weisstein, Eric W. Landau's Problems (англ.) на сайте Wolfram MathWorld.*
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