Proof of the Goldbach's Conjecture.

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0- Abstract:

With the use of my own descriptions of the sets and subsets of numbers I could do a simple but effective proof of this conjecture.

1- Introduction:

First of all, we should define some concepts, we are going to name "A" to the subset of the composite numbers. In formula:

$$(1) \quad A = m \cdot n \qquad \forall (m, n) \in \mathbb{N} - 1$$

With this equivalence we can use the subset "A" as definition, in function of the natural numbers:

$$(2) \quad A = (\mathbb{N} - 1)(\mathbb{N} - 1) = (\mathbb{N} - 1)^2$$

Next we are going to express the subset of the Prime numbers in function of the Natural numbers and the subset "A":

$$(3) \quad P = \mathbb{N} - A - 1$$

We can substitute (2) in (3):

$$(4) \quad P = \mathbb{N} - (\mathbb{N} - 1)^2 - 1$$

2- Proof:

Goldbach's conjecture says that every whole number greater than 2 can be expressed as the sum of two prime numbers. In symbols:

$$(5) \quad 2n = p + p \qquad \forall n \in \mathbb{N} - 1 ; p \in P$$

To do this proof we should find that the both parts of the equal can be written as an even function.

We can start in the first part of the equal and check it:

$$(6) \quad 2n = 2(\mathbb{N} - 1)$$

Now we should look the second part of the equal, interpreting variables “p” as subsets “P” and following proposition (4):

$$(7)\quad P+P=\mathbb{N}-(\mathbb{N}-1)^2-1+\mathbb{N}-(\mathbb{N}-1)^2-1$$

We can now operate:

$$(8)\quad \mathbb{N}-(\mathbb{N}^2-2\mathbb{N}+1)-1+\mathbb{N}-(\mathbb{N}^2-2\mathbb{N}+1)-1$$

$$(9)\quad \mathbb{N}-\mathbb{N}^2+2\mathbb{N}-1-1+\mathbb{N}-\mathbb{N}^2+2\mathbb{N}-1-1$$

$$(10)\quad -2\mathbb{N}^2+4\mathbb{N}-4$$

Finally, we can take common factor:

$$(11)\quad 2(-\mathbb{N}^2+2\mathbb{N}-2)$$

3- Conclusion:

We can see in (11) that the sum of two Prime numbers has an even form in function of the Natural numbers, the same form of the first part of the conjecture’s definition. This proof the conjecture for any even number greater than 2.