The Symmetry of N-domain and Prime Number Conjectures

Yajun Liu

Abstract In this paper, we discuss the symmetry of N-domain and we find that using the symmetry characters of Natural Numbers we can give proofs of the Prime Conjectures: Goldbach Conjecture、Polignac's conjecture and Twins Prime Conjecture.

Keywords N domain Prime Conjectures

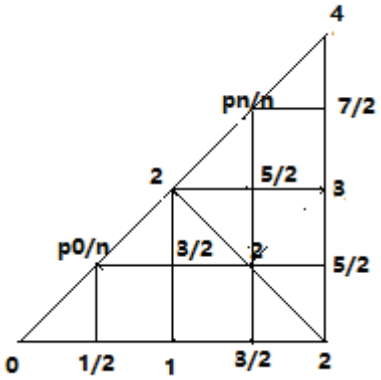

Fig.1. The Symmetry of N-domain [0 1 2]

We can get figure.1

(0 2 4) is an isosceles right triangle

Line 0-2 has five points: 0 1/2 1 3/2 2

Line 2-4 has five points: 2 5/2 3 7/2 4

line 0-4 also has 5 points: 0 $\boldsymbol{p0/n}$ 2 $\boldsymbol{pn/n}$ 4

$\boldsymbol{n}$~$(\mathbf{1},\mathbf{2},\mathbf{3},\mathbf{4},\mathbf{5},\mathbf{6}\ldots\ldots\ldots)$ all the natural numbers excepted 0

p0∈n pn∈n

line 1/2-p0/n vertical to line 0-2

line 3/2-pn/n vertical to line 0-2

line p0/n-5/2 vertical to line 2-4

line pn/n-7/2 vertical to line 2-4

When $n = 1$ $\boldsymbol{p0/n = p0}$

When $n = \boldsymbol{p0}$ $\boldsymbol{p0/n = 1}$

$p0$ **only can be exact division by 1 and p0. So p0∈P**

P~$\left(2\ ,\ 3\ ,\ 5\ ,\ 7\ ,\ \ldots\ldots\ldots\right)$ all the prime numbers

When $n = 1$ $\boldsymbol{pn/n = pn}$

When $n = \boldsymbol{pn}$ $\boldsymbol{pn/n = 1}$

pn **only can be exact division by 1 and pn. So pn∈P**

P~$\left(2\ ,\ 3\ ,\ 5\ ,\ 7\ ,\ \ldots\ldots\ldots\right)$ all the prime numbers

and

$$7/2 - pn/n = 2 - 3/2 = 1/2$$
$$5/2 - p0/n = 2 - 1/2 = 3/2$$

$$4n = \boldsymbol{p0} + \boldsymbol{pn} \qquad n \sim \left(1,\ 2\ ,\ 3\ ,\ 4\ ,\ \ldots\ldots\ldots\right)$$

This is the proof of Goldbach conjecture.

$$\boldsymbol{pn} - \boldsymbol{p0} = 2n \qquad n \sim \left(1\ ,\ 2\ ,\ 3\ ,\ 4\ ,\ \ldots\ldots\ldots\right)$$

This is the proof of Polignac's conjecture.
And when

$$n = 1$$
$$\boldsymbol{pn} - \boldsymbol{p0} = 2$$

This is the proof of Twin Primes Conjecture.