Twin Prime Conjecture

Toshiro Takami*
mmm82889@yahoo.co.jp

Abstract

I proved the Twin Prime Conjecture.

The probability that (6n-1) is prime and (6n+1) is also prime is $\frac{4}{3}$ times the simple square of the probability that a prime number appears. Investigated up to 70 million.

All Twin Primes are executed in hexadecimal notation. It does not change in a huge number (forever huge number).

In the hexagon, prime numbers are generated only at [6n -1] [6n+1]. (n is a positive integer)

If the number is very large, the probability of generating a prime number is low, but since the prime number exists forever, the probability of generating a twin prime number is very low, but a twin prime number is produced.

That is, twin primes exist forever.

key words

Hexagonal circulation, Twin Prime, 4/3 times the simple square of the probability

Introduction

In this paper, it is written in advance that 2 and 3 are omitted from prime numbers.

The prime number is represented as (6n -1) or (6n+1). And, n is positive integer.

All Twin Primes are combination of [6n -1] and [6n+1].
That is, all Twin Primes are a combination of 5th angle and 1th angle.

(n is positive integer)

1th angle is [6n+1].
5th angle is [6n -1].

(6n -2), (6n), (6n+2) in are even numbers.
(6n -1), (6n+1), (6n+3) are odd numbers.

*47-8 kuyamadai, Isahaya-shi, Nagasaki-prefecture, 854-0067 Japan

Prime numbers are (6n -1) or (6n+1). Except 2 and 3. (n is positive integer).
The following is a prime number.
There are no prime numbers that are not (6n -1) or (6n+1).
5 ——— 6n -1 (Twin prime)
7 ——— 6n+1
11 ——— 6n -1 (Twin prime)
13 ——— 6n+1
17 ——— 6n -1 (Twin prime)
19 ——— 6n+1
23 ——— 6n -1
29 ——— 6n -1 (Twin prime)
31 ——— 6n+1
37 ——— 6n+1
41 ——— 6n -1 (Twin prime)
43 ——— 6n+1
....
....

$\frac{4}{3}$ is necessary as a correction value. This is because if one of the hexagons is identified as a prime number, the probability that the remaining corner is a prime number increases by $\frac{4}{3}$ times the simple square.

Here is a brief explanation of why it is necessary to multiply $\frac{4}{3}$.

The number rotates right around the hexagon.

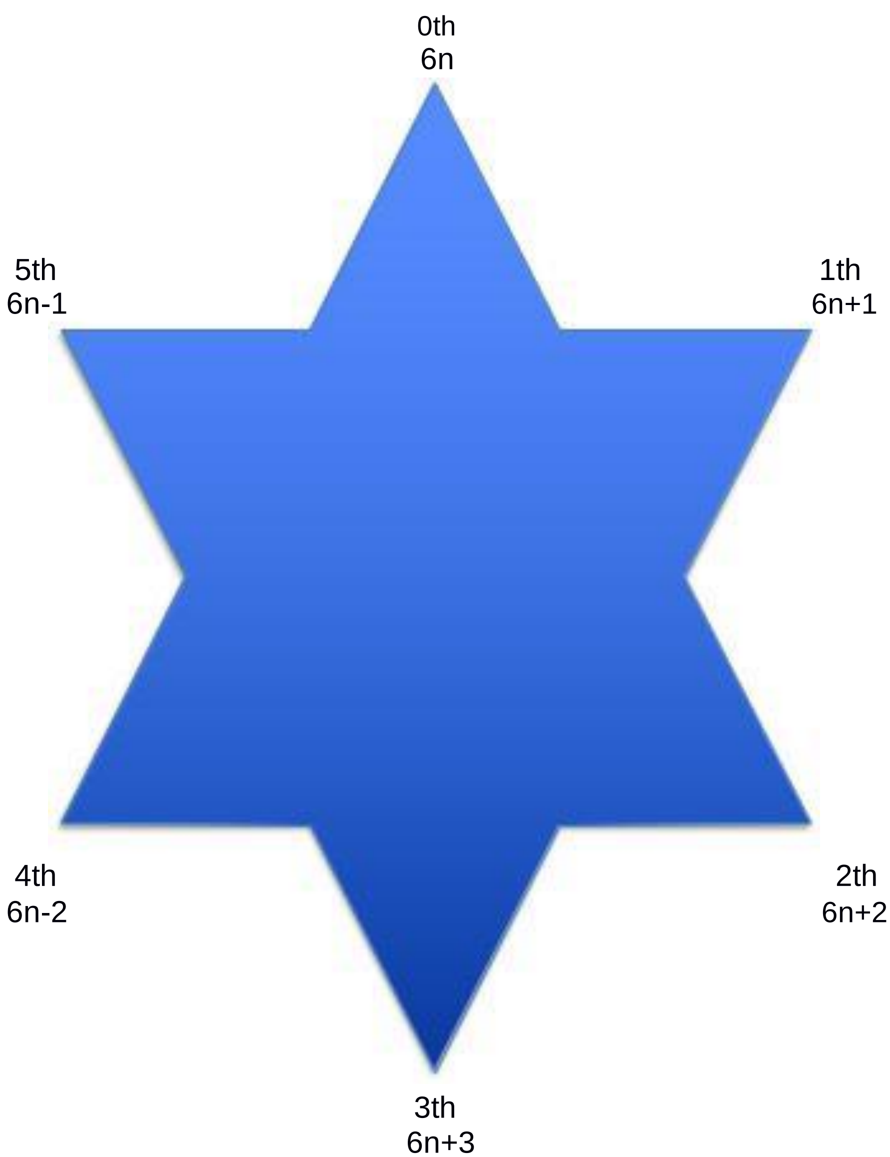
If (6n-1) is a prime number, the probability that (6n+1) is also a prime number is $\frac{4}{3}$ times a simple power.

Because of the six corners, two are prime numbers. The probability that the next (6n+1) is a prime number is $\frac{8}{6}$ times.

Prime numbers consist of different dimensions. It is beyond human knowledge, and even if it is incomprehensible, there is no help for it.
Therefore, the great mathematicians of the past have been fascinated by prime numbers.

This is difficult to explain in a word, but you can see it by looking at the hexagon. It is very difficult to explain because prime numbers have different dimensions.

However, if you look at the hexagon, you will gradually find out.


0th
6n
5th
6n-1
1th
6n+1
4th
6n-2
2th
6n+2
3th
6n+3

There are 2259 prime numbers from 5 to 20000.
Probability is $\frac{2259}{19996}$.
In this, there are 329 twin prime numbers. Probability is $\frac{329}{19996}$=0.01645329...
and $[\frac{2259}{19996}]^2 \times \frac{4}{3} = 0.01701707...$

There are 6933 prime numbers from 5 to 70000.
Probability is $\frac{6933}{69996}$.
In this, there are 857 twin prime numbers. Probability is $\frac{857}{69996}$ =0.0122435567...
and $[\frac{6933}{69996}]^2 \times \frac{4}{3}$=0.01308081...

There are 9590 prime numbers from 5 to 100000.
Probability is $\frac{9590}{99996}$.
In this, there are 1223 twin prime numbers. Probability is $\frac{1223}{99996}$=0.0122304892...
and $[\frac{9590}{99996}]^2 \times \frac{4}{3}$=0.01226339...

There are 17982 prime numbers from 5 to 200000.
Probability is $\frac{17982}{199996}$.
In this, there are 2107 twin prime numbers. Probability is $\frac{2107}{199996}$=0.0105352107042...
and $[\frac{17982}{199996}]^2 \times \frac{4}{3}$=0.010778841949366...

There are 25995 prime numbers from 5 to 300000.
Probability is $\frac{25995}{299996}$.
In this, there are 2992 twin prime numbers. Probability is $\frac{2993}{299996}$=0.00997679969...
and $[\frac{25995}{299996}]^2 \times \frac{4}{3}$=0.010011230......

There are 33858 prime numbers from 5 to 400000.
Probability is $\frac{33858}{399996}$.
In this, there are 3802 twin prime numbers. Probability is $\frac{3803}{399996}$=0.009505095...
and $[\frac{33858}{399996}]^2 \times \frac{4}{3}$=0.00955322576...

There are 41536 prime numbers from 5 to 500000.
Probability is $\frac{41536}{499996}$.
In this, there are 4564 twin prime numbers. Probability is $\frac{4564}{499996}$=0.009128073...
and $[\frac{41536}{499996}]^2 \times \frac{4}{3} = 0.0092014234675...$

There are 49096 prime numbers from 5 to 600000.

Probability is $\frac{49096}{599996}$.
In this, there are 4564 twin prime numbers. Probability is $\frac{5330}{599996}$=0.00888339255595...
and $[\frac{49096}{599996}]^2 \times \frac{4}{3}$=0.0089275902...

There are 56540 prime numbers from 5 to 700000.
Probability is $\frac{56540}{699996}$.
In this, there are 6060 twin prime numbers. Probability is $\frac{6060}{699996}$=0.008657192...
and $[\frac{56540}{699996}]^2 \times \frac{4}{3}$=0.00869879...

There are 63948 prime numbers from 5 to 800000.
Probability is $\frac{63948}{799996}$.
In this, there are 6765 twin prime numbers. Probability is $\frac{6765}{799996}$=0.00845629228...
and $[\frac{63948}{799996}]^2 \times \frac{4}{3}$=0.00851955749536...

There are 71272 prime numbers from 5 to 900000.
Probability is $\frac{71272}{899996}$.
In this, there are 7471 twin prime numbers. Probability is $\frac{7471}{899996}$=0.0083011480051...
and $[\frac{71272}{899996}]^2 \times \frac{4}{3}$ = 0.00836171709822549...

There are 78496 prime numbers from 5 to 1000000.
Probability is $\frac{78496}{999996}$.
In this, there are 8168 twin prime numbers. Probability is $\frac{8168}{999996}$=0.00816803267213...
and $[\frac{78496}{999996}]^2 \times \frac{4}{3}$=0.0082155617456958499122...

There are 148931 prime numbers from 5 to 2000000.
Probability is $\frac{148931}{1999996}$.
In this, there are 14870 twin prime numbers. Probability is $\frac{14870}{1999996}$=0.007435014870...
and $[\frac{148931}{1999996}]^2 \times \frac{4}{3}$=0.0073935104943457366743...

There are 216814 prime numbers from 5 to 3000000.
Probability is $\frac{216814}{2999996}$.
In this, there are 20931 twin prime numbers. Probability is $\frac{20931}{2999996}$=0.0069770093...
and $[\frac{216814}{2999996}]^2 \times \frac{4}{3}$=0.0069642127335919457292...

There are 283144 prime numbers from 5 to 4000000.
Probability is $\frac{216814}{3999996}$.
In this, there are 26859 twin prime numbers. Probability is $\frac{26859}{3999996}$=0.0067147567...
and $[\frac{283144}{3999996}]^2 \times \frac{4}{3}$=0.0066808904231...

There are 348511 prime numbers from 5 to 5000000.
Probability is $\frac{348511}{4999996}$.
In this, there are 32462 twin prime numbers. Probability is $\frac{32462}{4999996}$=0.006492405193924...
and $[\frac{348511}{4999996}]^2 \times \frac{4}{3}$=0.006477872611045365...

There are 412847 prime numbers from 5 to 6000000.
Probability is $\frac{412847}{5999996}$.
In this, there are 37915 twin prime numbers. Probability is $\frac{37915}{5999996}$=0.0063191708794...
and $[\frac{412847}{5999996}]^2 \times \frac{4}{3}$=0.0063126989876328815 7...

There are 476646 prime numbers from 5 to 7000000.
Probability is $\frac{476646}{6999996}$.
In this, there are 43258 twin prime numbers. Probability is $\frac{43258}{6999996}$=0.0061797178169816...
and $[\frac{476646}{6999996}]^2 \times \frac{4}{3}$=0.0061820862303006119...

There are 539775 prime numbers from 5 to 8000000.
Probability is $\frac{539775}{7999996}$.
In this, there are 48617 twin prime numbers. Probability is $\frac{48617}{7999996}$=0.006077128038564...
and $[\frac{539775}{7999996}]^2 \times \frac{4}{3}$=0.0060699446246306...

There are 602487 prime numbers from 5 to 9000000.
Probability is $\frac{602487}{8999996}$.
In this, there are 53866 twin prime numbers. Probability is $\frac{53866}{8999996}$=0.006077128038564...
and $[\frac{602487}{8999996}]^2 \times \frac{4}{3}$=0.00597515897658...

There are 664577 prime numbers from 5 to 10000000.
Probability is $\frac{664577}{9999996}$.
In this, there are 58979 twin prime numbers. Probability is $\frac{58979}{9999996}$=0.00589790235916...
and $[\frac{664577}{19999996}]^2 \times \frac{4}{3}$ = 0.005888839230123775...

There are 1270605 prime numbers from 5 to 20000000.
Probability is $\frac{1270605}{19999996}$.
In this, there are 107406 twin prime numbers. Probability is $\frac{107406}{19999996}$=0.00537030107406...
and $[\frac{1270605}{19999996}]^2 \times \frac{4}{3}$=0.0053814590393334...

There are 1857857 prime numbers from 5 to 30000000.
Probability is $\frac{1857857}{29999996}$.
In this, there are 152891 twin prime numbers. Probability is $\frac{152891}{29999996}$=0.0050963673461823...
and $[\frac{1857857}{29999996}]^2 \times \frac{4}{3}$=0.005113531189...

There are 2433652 prime numbers from 5 to 40000000.
Probability is $\frac{2433652}{39999996}$.
In this, there are 196752 twin prime numbers. Probability is $\frac{196752}{39999996}$=0.00491880049188...
and $[\frac{2433652}{39999996}]^2 \times \frac{4}{3}$=0.00493555270136...

There are 3001132 prime numbers from 5 to 50000000.
Probability is $\frac{3001132}{49999996}$.
In this, there are 239100 twin prime numbers. Probability is $\frac{239100}{49999996}$=0.00478200038256003...
and $[\frac{3001132}{49999996}]^2 \times \frac{4}{3}$=0.004803623852...

I want to search even larger numbers, but I think this is enough for the proof, and the numerical calculation ends here.

Calculation depends on WolframAlpha and Wolfram Cloud.

Discussion

First, say 6n -1 = 6n+5

$(6n-1) \times 5$ =6(5n -1)+1= 1th-angle.
$(6n+1) \times 5$ =6(5n)+5= 5th-angle.
and
$(6n-1) \times 7$ =6(7n -2)+5= 5th-angle.
$(6n+1) \times 7$ =6(7n+1)+1= 1th-angle.
and
$(6n-1) \times 11$ =6(11n -2)+1= 1th-angle.
$(6n+1) \times 11$ =6(11n+1)+5= 5th-angle.
and
$(6n-1) \times 13$ =6(13n -3)+5= 5th-angle.
$(6n+1) \times 13$ =6(13n+2)+1= 1th-angle.
and
$(6n-1) \times 17$ =6(17n -3)+1= 1th-angle.
$(6n+1) \times 17$ =6(17n+2)+1= 5th-angle.
and
$(6n-1) \times 19$ =6(19n -4)+5= 5th-angle.
$(6n+1) \times 19$ =6(19n+3)+1= 1th-angle.
and
$(6n-1) \times (6n-1)$ = 6($6n^2$ -2n)+1= 1th-angle.
$(6n-1) \times (6n+1)$ = 6($6n^2$ -1)+5= 5th-angle.
and

$(6n+1) \times (6n-1) = 6(6n^2$ -1)+5= 5th-angle.
$(6n+1) \times (6n+1) = 6(6n^2$+2n)+1= 1th-angle.

In this way, prime multiples of 5 or 7 or more of prime numbers fill 1th angle, 5th angle, and the location of prime numbers becomes narrower.

However, every time the hexagon is rotated once, the number of locations where the prime number exists increases by two.

But, the number of prime numbers increases as the number increases, the narrowing of the gorge is severe with large numbers.
The narrowing becomes very strong as the number grows.

The probability that (6n -1)(6n+1) combinations exist is $\frac{4}{3}$ times the square of the probability of obtaining one prime number by rotating the hexagon once.

The probability that (6n -1)(6n+1) combinations exist becomes very low when the number is huge.
It probability is very close to 0, but greater than 0.

The narrowing of the generation of prime numbers cannot fill all the locations of prime numbers, that is, (6n -1)(6n+1).
Because prime numbers exist forever.

The twin prime number is the same number of prime numbers (6n -1)(6n+1).
It is $\frac{4}{3}$ times the square of the probability that a prime number will occur.

The probability that a twin prime will occur is less likely to occur because it is $\frac{4}{3}$ times the square of the probability that a prime will occur in a huge number, where the probability that a prime will occur is low from the equation (1).
while a prime number is generated, it can be generated.

That is, twin primes exist forever.

Proof end.

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Postscript

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