

Twin Prime Conjecture

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Abstract

I proved the Twin Prime Conjecture.

The probability that $(6n - 1)$ is a prime and $(6n + 1)$ is also a prime approximately is $4/3$ times the square of the probability that a prime will appear in.

I investigated up to 1×10^{12} .

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

In the hexagon, primes are generated only at $(6n - 1)(6n + 1)$. [except 2 and 3, n is a positive integer]

When the number grows to the limit, the primes occur very rarely, but since Twin Primes are $4/3$ times the square of the distribution of primes, the frequency of occurrence of Twin Primes is very equal to 0.

However, it is not 0. Because, primes continue to be generated. Therefore, Twin Primes continue to be generated.

If the Twin Primes is finite, the primes is finite.

This is because $4/3$ times the square of the probability of primes is the probability of Twin Primes. This is contradiction. Because there are an infinite of primes.

That is, Twin Primes exist forever.

key words

Hexagonal circulation, Twin Primes, $4/3$ times the square of the probability of primes

Introduction

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

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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.

Primes are $(6n - 1)$ or $(6n+1)$.

The following is a prime number.

There are no primes 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 ——— $6n+1$

.....

.....

Part 1

There are 164 primes from 5 to 1000.

Probability is $\frac{164}{996}$.

In this, there are 34 Twin Primes. Probability is $\frac{34}{996} = 0.034136546...$

and $[\frac{164}{996}]^2 \times \frac{5}{4} = 0.0338905824...$

$[\frac{164}{996}]^2 \times \frac{4}{3} = 0.0361499546...$

There are 299 primes from 5 to 2000.

Probability is $\frac{299}{1996}$.

In this, there are 60 Twin Primes. Probability is $\frac{60}{1996} = 0.030060120...$

and $[\frac{299}{1996}]^2 \times \frac{4}{3} = 0.0299198932...$

There are 426 primes from 5 to 3000.

Probability is $\frac{426}{2996}$.

In this, there are 81 Twin Primes. Probability is $\frac{81}{2996} = 0.027036048\dots$
and $[\frac{426}{2996}]^2 \times \frac{4}{3} = 0.026957171\dots$

There are 665 primes from 5 to 5000.

Probability is $\frac{665}{9996}$.

In this, there are 125 Twin Primes. Probability is $\frac{125}{4996} = 0.025020016\dots$
and $[\frac{665}{4996}]^2 \times \frac{4}{3} = 0.023623115\dots$

There are 1227 primes from 5 to 10000.

Probability is $\frac{1227}{29996}$.

In this, there are 204 Twin Primes. Probability is $\frac{204}{9996} = 0.02040816326\dots$
and $[\frac{1227}{9996}]^2 \times \frac{4}{3} = 0.0200897886\dots$

There are 2258 primes from 5 to 20000.

Probability is $\frac{2258}{29996}$.

In this, there are 340 Twin Primes. Probability is $\frac{340}{19996} = 0.01700340068\dots$
and $[\frac{2258}{19996}]^2 \times \frac{4}{3} = 0.017002013\dots$

There are 3243 primes from 5 to 30000.

Probability is $\frac{3243}{29996}$.

In this, there are 465 Twin Primes. Probability is $\frac{465}{29996} = 0.01550206694\dots$
and $[\frac{3243}{29996}]^2 \times \frac{4}{3} = 0.015584969\dots$

There are 6053 primes from 5 to 60000.

Probability is $\frac{6053}{59996}$.

In this, there are 809 Twin Primes. Probability is $\frac{809}{59996} = 0.01348423228\dots$
and $[\frac{6053}{59996}]^2 \times \frac{4}{3} = 0.013571738\dots$

There are 6931 primes from 5 to 70000.

Probability is $\frac{6931}{69996}$.

In this, there are 904 Twin Primes. Probability is $\frac{904}{69996} = 0.012915023716\dots$
and $[\frac{6931}{69996}]^2 \times \frac{4}{3} = 0.0130732657\dots$

There are 6933 primes from 5 to 90000.

Probability is $\frac{6933}{89996}$.

In this, there are 903 Twin Primes. Probability is $\frac{903}{69996} = 0.012900737185\dots$
and $[\frac{6933}{69996}]^2 \times \frac{4}{3} = 0.01308081164\dots$

There are 9590 primes from 5 to 100000.

Probability is $\frac{9590}{99996}$.

In this, there are 1222 Twin Primes. Probability is $\frac{1222}{99996}=0.0122204888...$
and $\left[\frac{9590}{99996}\right]^2 \times \frac{4}{3}=0.0122633943...$

There are 17982 primes from 5 to 200000.

Probability is $\frac{17982}{199996}$.

In this, there are 2158 Twin Primes. Probability is $\frac{2158}{199996}=0.0107902...$

and $\left[\frac{17982}{199996}\right]^2 \times \frac{4}{3}=0.01077884...$

There are 25995 primes from 5 to 300000.

Probability is $\frac{25995}{299996}$.

In this, there are 2992 Twin Primes. Probability is $\frac{2992}{299996}=0.00997679969...$

and $\left[\frac{25995}{299996}\right]^2 \times \frac{4}{3}=0.01001123...$

There are 33858 primes from 5 to 400000.

Probability is $\frac{33858}{399996}$.

In this, there are 3802 Twin Primes. Probability is $\frac{3802}{399996}=0.009505095...$

and $\left[\frac{33858}{399996}\right]^2 \times \frac{4}{3}=0.00955322...$

There are 41536 primes from 5 to 500000.

Probability is $\frac{41536}{499996}$.

In this, there are 4564 Twin Primes. Probability is $\frac{4564}{499996}=0.009128073...$

and $\left[\frac{41536}{499996}\right]^2 \times \frac{4}{3}=0.009201423...$

There are 49096 primes from 5 to 600000.

Probability is $\frac{49096}{599996}$.

In this, there are 4564 Twin Primes. Probability is $\frac{5330}{599996}=0.00888339255595...$

and $\left[\frac{49096}{599996}\right]^2 \times \frac{4}{3}=0.0089275902...$

There are 56540 primes from 5 to 700000.

Probability is $\frac{56540}{699996}$.

In this, there are 6060 Twin Primes. Probability is $\frac{6060}{699996}=0.008657192...$

and $\left[\frac{56540}{699996}\right]^2 \times \frac{4}{3}=0.00869879...$

There are 63948 primes from 5 to 800000.

Probability is $\frac{63948}{799996}$.

In this, there are 6765 Twin Primes. Probability is $\frac{6765}{799996}=0.00845629228...$

and $\left[\frac{63948}{799996}\right]^2 \times \frac{4}{3}=0.0085195574...$

There are 71272 primes from 5 to 900000.

Probability is $\frac{71272}{899996}$.

In this, there are 7471 Twin Primes. Probability is $\frac{7471}{899996}=0.0083011480051\dots$

and $[\frac{71272}{899996}]^2 \times \frac{4}{3} = 0.00836171709\dots$

There are 78496 primes from 5 to $1000000=1 \times 10^6$.

Probability is $\frac{78496}{999996}$.

In this, there are 8168 Twin Primes. Probability is $\frac{8168}{999996}=0.008168032672\dots$

and $[\frac{78496}{999996}]^2 \times \frac{4}{3} = 0.0082155617\dots$

There are 148931 primes from 5 to $2000000=2 \times 10^6$.

Probability is $\frac{148931}{1999996}$.

In this, there are 14870 Twin Primes. Probability is $\frac{14870}{1999996}=0.0074350148\dots$

and $[\frac{148931}{1999996}]^2 \times \frac{4}{3} = 0.00739351\dots$

There are 216814 primes from 5 to $3000000=3 \times 10^6$.

Probability is $\frac{216814}{2999996}$.

In this, there are 20931 Twin Primes. Probability is $\frac{20931}{2999996}=0.0069770093\dots$

and $[\frac{216814}{2999996}]^2 \times \frac{4}{3} = 0.006964212\dots$

There are 283144 primes from 5 to $4000000=4 \times 10^6$.

Probability is $\frac{216814}{3999996}$.

In this, there are 26859 Twin Primes. Probability is $\frac{26859}{3999996}=0.0067147567\dots$

and $[\frac{283144}{3999996}]^2 \times \frac{4}{3} = 0.006680890\dots$

There are 348511 primes from 5 to $5000000=5 \times 10^6$.

Probability is $\frac{348511}{4999996}$.

In this, there are 32462 Twin Primes. Probability is $\frac{32462}{4999996}=0.00649240519\dots$

and $[\frac{348511}{4999996}]^2 \times \frac{4}{3} = 0.006477872\dots$

There are 412847 primes from 5 to $6000000=6 \times 10^6$.

Probability is $\frac{412847}{5999996}$.

In this, there are 37915 Twin Primes. Probability is $\frac{37915}{5999996}=0.00631917087\dots$

and $[\frac{412847}{5999996}]^2 \times \frac{4}{3} = 0.0063126989\dots$

There are 476646 primes from 5 to $7000000=7 \times 10^6$.

Probability is $\frac{476646}{6999996}$.

In this, there are 43258 Twin Primes. Probability is $\frac{43258}{6999996}=0.006179717816\dots$

and $[\frac{476646}{6999996}]^2 \times \frac{4}{3} = 0.0061820862\dots$

There are 539775 primes from 5 to $8000000=8\times 10^6$.

Probability is $\frac{539775}{7999996}$.

In this, there are 48617 Twin Primes. Probability is $\frac{48617}{7999996}=0.006077128038\dots$

and $[\frac{539775}{7999996}]^2 \times \frac{4}{3}=0.0060699446\dots$

There are 602487 primes from 5 to $9000000=9\times 10^6$.

Probability is $\frac{602487}{8999996}$.

In this, there are 53866 Twin Primes. Probability is $\frac{53866}{8999996}=0.00598511377\dots$

and $[\frac{602487}{8999996}]^2 \times \frac{4}{3}=0.005975158\dots$

There are 664577 primes from 5 to $10000000=1\times 10^7$.

Probability is $\frac{664577}{9999996}$.

In this, there are 58979 Twin Primes. Probability is $\frac{58979}{9999996}=0.0058979023\dots$

and $[\frac{664577}{9999996}]^2 \times \frac{4}{3}=0.005888839\dots$

There are 1270605 primes from 5 to $20000000=2\times 10^7$.

Probability is $\frac{1270605}{19999996}$.

In this, there are 107406 Twin Primes. Probability is $\frac{107406}{19999996}=0.005370301\dots$

and $[\frac{1270605}{19999996}]^2 \times \frac{4}{3}=0.005381459\dots$

There are 2433652 primes from 5 to $40000000=4\times 10^7$.

Probability is $\frac{2433652}{39999996}$.

In this, there are 196752 Twin Primes. Probability is $\frac{196752}{39999996}=0.00491880049\dots$

and $[\frac{2433652}{39999996}]^2 \times \frac{4}{3}=0.0049355527\dots$

There are 3562112 primes from 5 to $60000000=6\times 10^7$.

Probability is $\frac{3562112}{59999996}$.

In this, there are 280557 Twin Primes. Probability is $\frac{280557}{59999996}=0.00478200038\dots$

and $[\frac{3562112}{59999996}]^2 \times \frac{4}{3}=0.00469949762\dots$

There are 4669380 primes from 5 to $80000000=8\times 10^7$.

Probability is $\frac{4669380}{79999996}$.

In this, there are 361449 Twin Primes. Probability is $\frac{361449}{79999996}=0.00451811272\dots$

and $[\frac{4669380}{79999996}]^2 \times \frac{4}{3}=0.00454231495\dots$

There are 5761453 primes from 5 to $100000000=1\times 10^8$.

Probability is $\frac{5761453}{99999996}$.

In this, there are 440311 Twin Primes. Probability is $\frac{440311}{99999996}=0.004403110176\dots$

and $[\frac{5761453}{99999996}]^2 \times \frac{4}{3}=0.0044259124\dots$

There are 11078935 primes from 5 to $20000000=2 \times 10^8$.

Probability is $\frac{11078935}{199999996}$.

In this, there are 813370 Twin Primes. Probability is $\frac{813370}{199999996}=0.004066850081\dots$

and $[\frac{11078935}{199999996}]^2 \times \frac{4}{3}=0.0040914268\dots$

There are 16252323 primes from 5 to $30000000=3 \times 10^8$.

Probability is $\frac{16252323}{299999996}$.

In this, there are 1166479 Twin Primes. Probability is $\frac{1166479}{299999996}=0.00388826338\dots$

and $[\frac{16252323}{299999996}]^2 \times \frac{4}{3}=0.00391315570\dots$

There are 50847530 primes from 5 to $100000000=1 \times 10^9$.

Probability is $\frac{50847530}{999999996}$.

In this, there are 3424505 Twin Primes. Probability is $\frac{3424505}{999999996}=0.00342450501\dots$

and $[\frac{50847530}{999999996}]^2 \times \frac{4}{3}=0.00344729510371\dots$

There are 455052507 primes from 5 to $1000000000=1 \times 10^{10}$.

Probability is $\frac{455052507}{9999999996}$.

In this, there are 27412678 Twin Primes. Probability is $\frac{27412678}{9999999996}=0.0027412678\dots$

and $[\frac{455052507}{9999999996}]^2 \times \frac{4}{3}=0.0027609704572\dots$

There are 4118054809 primes from 5 to $10000000000=1 \times 10^{11}$.

Probability is $\frac{4118054811}{99999999996}$.

In this, there are 224376047 Twin Primes. Probability is $\frac{224376047}{99999999996}=0.002243760\dots$

and $[\frac{4118054811}{99999999996}]^2 \times \frac{4}{3}=0.0022611167237\dots$

There are 37607912014 primes from 5 to 1×10^{12} .

Probability is $\frac{37607912014}{99999999996}$.

In this, there are 1870585218 Twin Primes. Probability is $\frac{1870585218}{99999999996}=0.001870585218007\dots$

and $[\frac{37607912014}{99999999996}]^2 \times \frac{4}{3}=0.00188580672808544\dots$

There are 177291661645 primes from 5 to $500000000000=5 \times 10^{12}$.

Probability is $\frac{177291661645}{499999999996}$.

In this, there are 8312493001 Twin Primes. Probability is

$\frac{8312493001}{499999999996}=0.00166249860020133\dots$

and

$[\frac{177291661645}{499999999996}]^2 \times \frac{4}{3}=0.00167639110874109\dots$

Part 2

There are $455052507-50847530=404204977$ primes from 1×10^9 to $1 \times 10^{10} = 9 \times 10^9$.

Probability is $\frac{404204977}{9000000000}=0.04491166411\dots$

In this, there are $27412678-3424505=23988173$ Twin Primes. Probability is

$\frac{23988173}{9000000000}=0.00266535255\dots$

$$\left[\frac{404204977}{9000000000}\right]^2 \times \frac{4}{3}=0.00268941009764\dots$$

There are $4118054809-455052507=3663002302$ primes from 1×10^{10} to $1 \times 10^{11}=9 \times 10^{10}$.

Probability is $\frac{3663002302}{90000000000}=0.0407000255777\dots$

In this, there are $224376047-27412678=196963369$ Twin Primes. Probability is

$\frac{196963369}{90000000000}=0.0021884818777\dots$

$$\left[\frac{3663002302}{90000000000}\right]^2 \times \frac{4}{3}=0.00220865610937\dots$$

There are $37607912016-4118054809=33489857207$ primes from 1×10^{11} to $1 \times 10^{12}=9 \times 10^{11}$.

Probability is $\frac{33489857207}{900000000000}=0.0372109524522\dots$

In this, there are $1870585219-224376047=1646209172$ Twin Primes. Probability is

$\frac{1646209172}{900000000000}=0.0182912130222\dots$

$$\left[\frac{33489857207}{900000000000}\right]^2 \times \frac{4}{3}=0.0018462066432020\dots$$

There are $17729166164-3760791201=13968374963$ primes from 1×10^{12} to $5 \times 10^{12}=4 \times 10^{12}$.

Probability is $\frac{13968374963}{400000000000}=0.0349209374075$

In this, there are $8312493001-1870585219=6441907782$ Twin Primes. Probability is

$\frac{6441907782}{400000000000}=0.0016104769455$

$$\left[\frac{13968374963}{400000000000}\right]^2 \times \frac{4}{3}=0.001625962492558043761408333\dots$$

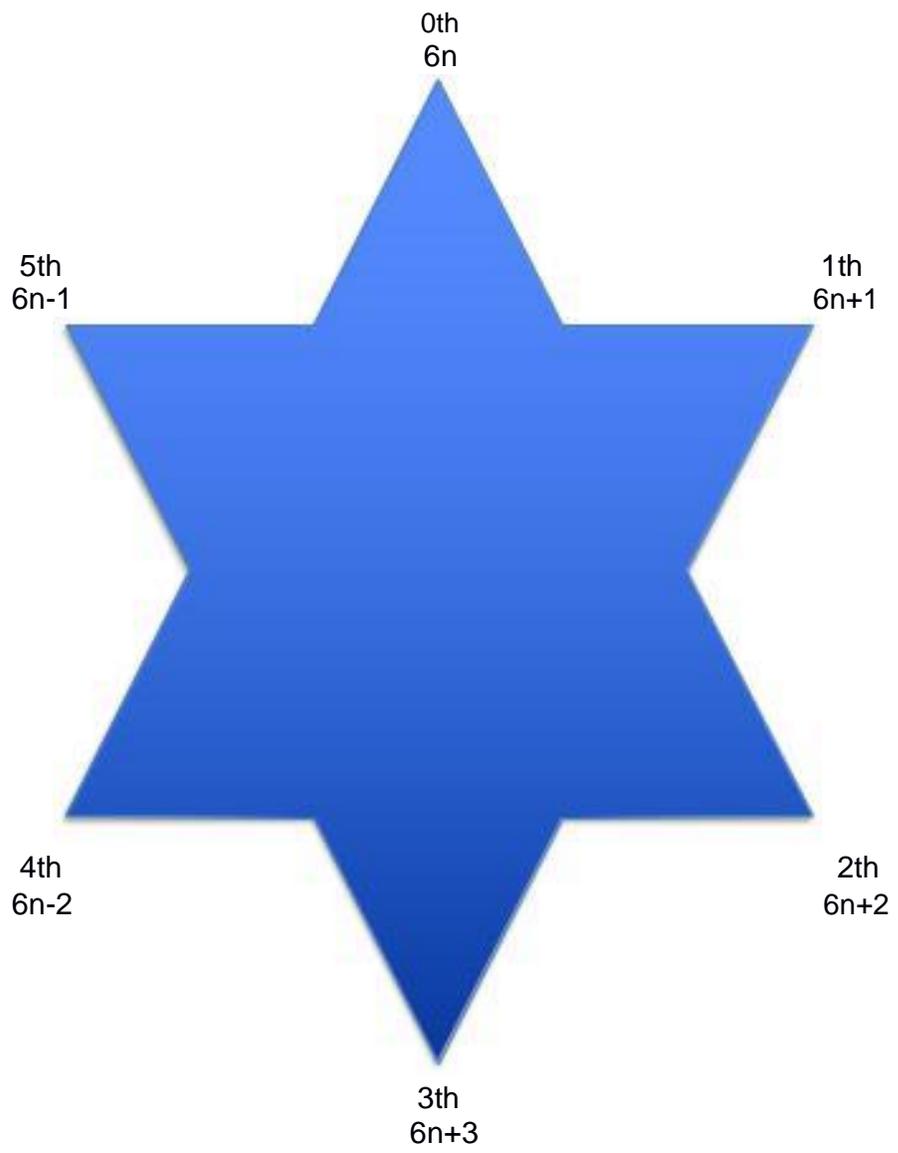
At first, the correction value was set to $5/4$.

And the correction value is $4/3$.

(It was done by hand calculation up to 200,000, but at this time it was $[6/5]$ at first, gradually moved to $[5/4]$, and then moved to $[4/3]$.)

At that time, I didn't know that WolframAlpha and Wolfram Cloud could calculate primes and Twin Primes.)

Calculation depends on WolframAlpha and Wolfram Cloud.



Discussion

There are four possible primes combination: $(6n - 1)(6n - 1)$, $(6n - 1)(6n + 1)$, $(6n + 1)(6n - 1)$, $(6n + 1)(6n + 1)$, Each with the same probability.

At this time, the twin prime is only $(6n - 1)(6n + 1)$.

The probability of $(6n - 1)(6n + 1)$ is $[1/4]$.

That is, when a prime number comes out, the probability that it is a twin prime number is $1/[1-(1/4)]=3/4]$.

This is the reason for the constant $[4/3]$.

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

$$(6n - 1) \times 5 = 6(5n - 1) + 1 = 1\text{th-angle.}$$

$$(6n + 1) \times 5 = 6(5n) + 5 = 5\text{th-angle.}$$

and

$$(6n - 1) \times 7 = 6(7n - 2) + 5 = 5\text{th-angle.}$$

$$(6n + 1) \times 7 = 6(7n + 1) + 1 = 1\text{th-angle.}$$

and

$$(6n - 1) \times 11 = 6(11n - 2) + 1 = 1\text{th-angle.}$$

$$(6n + 1) \times 11 = 6(11n + 1) + 5 = 5\text{th-angle.}$$

and

$$(6n - 1) \times 13 = 6(13n - 3) + 5 = 5\text{th-angle.}$$

$$(6n + 1) \times 13 = 6(13n + 2) + 1 = 1\text{th-angle.}$$

and

$$(6n - 1) \times 17 = 6(17n - 3) + 1 = 1\text{th-angle.}$$

$$(6n + 1) \times 17 = 6(17n + 2) + 1 = 5\text{th-angle.}$$

and

$$(6n - 1) \times 19 = 6(19n - 4) + 5 = 5\text{th-angle.}$$

$$(6n + 1) \times 19 = 6(19n + 3) + 1 = 1\text{th-angle.}$$

and

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

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

and

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

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

In this way, prime multiples of $(6n - 1)$ or $(6n + 1)$ of primes fill 5th-angle, 1th-angle, and the location of primes becomes little by little narrower.

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

The probability of a twin prime[(6n -1)(6n+1) combinations] is obtained by multiplying 6/5 times the square of the probability of a prime will occur.

The probability that a twin prime will occur 6/5 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, Twin Primes be generated.

And, as can be seen from the equation below, even if the number becomes large, the degree of occurrence of primes only decreases little by little.

$$\pi(x) \sim \frac{x}{\log x} \quad (x \rightarrow \infty) \quad (1)$$

$\log(10^{20}) = 20 \log(10) \approx 46.0517018$
 $\log(10^{200}) = 200 \log(10) \approx 460.517018$
 $\log(10^{2000}) = 2000 \log(10) \approx 4605.17018$
 $\log(10^{20000}) = 20000 \log(10) \approx 46051.7018$
 $\log(10^{200000}) = 200000 \log(10) \approx 460517.018$
 $\log(10^{2000000}) = 2000000 \log(10) \approx 4605170.18$
 $\log(10^{20000000}) = 20000000 \log(10) \approx 46051701.8$
 $\log(10^{200000000}) = 200000000 \log(10) \approx 460517018$

(Expected to be larger than $\log(10^{200000})$)

As x in $\log(x)$ grows to the limit, the denominator of the equation also grows extremely large. Even if primes are generated, the frequency of occurrence is extremely low. The generation of Twin Primes is approximately the square of the generation frequency of primes, and the generation frequency is extremely low.

However, as long as primes are generated, Twin Primes are generated with a very low frequency.

When the number grows to the limit, the denominator of the expression becomes very large, and primes occur very rarely, but since twins are the square of the distribution of primes, the frequency of occurrence of twins is very equal to 0.

However, it is not 0. Therefore, Twin Primes continue to be generated.

However, when the number grows to the limit, the probability the twin prime appearing is almost 0 because it is of 4/3 times the square of the probability of the appearance of the primes.

It is a subtle place to say that almost 0 appears.

Use a contradiction method.

If the Twin Primes is finite, the primes is finite.

This is because $4/3$ times the square of the probability of primes is the probability of Twin Primes.

This is contradiction. Because there are an infinite of primes.

That is, Twin Primes exist forever.

Proof end.

Appendix

Twin primes are expressed $6m \pm 1$. (m is positive integer)

As you can see from the bottom, primes that satisfy this, that is, certain primes, end with 3 or 7.

For example, 2, 3, 5, 7, 17, 23, 103, 107, 137, 283, 313, 347, 373, 397, 443, 467, 577, 593, 653, 773, 787, 907, 1033, 1117, 1423, 1433, 1613, 1823, 2027, 2063, 2137, 2153, 2203, 2287, 2293, 2333, 2347, 2677 etc.

If write 3 or 7 separately, except 2 and 5, it looks like below.

3, 23, 103, 283, 313, 373, 443, 593, 653, 1033, 1423, 1433, 1613, 1823, 2063, 2153, 2203, 2293, 2333.....

7, 17, 107, 137, 247, 397, 467, 577, 787, 907, 1117, 2027, 2137, 2287, 2347, 2677.....

Primes are forever. Therefore, Twin Primes are forever.

$$12=6 \times 2$$

$$18=6 \times 3$$

$$30=6 \times 5$$

$$42=6 \times 7$$

$$60=6 \times 10 = 6 \times 5 \times 2$$

$$72=6 \times 12 = 6 \times 3 \times 2^2$$

$$102=6 \times 17$$

$$108=6 \times 18 = 6 \times 3^2 \times 2$$

$$138=6 \times 23$$

$$150=6 \times 5 \times 5$$

$$180=6 \times 5 \times 3 \times 2$$

$$192=6 \times 2^5$$

$$228=6 \times 19 \times 2$$

$$240=6 \times 5 \times 2^3$$

$$270=6 \times 5 \times 3^2$$

$$312=6 \times 13 \times 2^2$$

$$348=6 \times 29 \times 2$$

420=6×7×5×2
462=6×11×7
522=6×29×2
570=6×19×5
600=6×5²×2²
618=6×103
642=6×107
660=6×11×5×2
810=6×5×3³
822=6×137
828=6×23×3×2
858=6×13×11
882=6×7²×3
1020=6×17×5×2
1032=6×43×2²
1050=6×7×5²
1062=6×59×3
1092=6×13×7×2
1152=6×2⁶×3
1230=6×5×41
1278=6×3×71
1290=6×5×43
1302=6×7×31
1320=6×2²×5×11
1428=6×2×7×17
1452=6×2×11²
1482=6×13×19
1488=6×2³×31
1608=6×2²×67
1620=6×2×3³×5
1668=6×2×139
1698=6×283
1722=6×7×41
1788=6×2×149
1872=6×2³×3×13
1878=6×313
1932=6×2×3×6×23
1950=6×5²×13
1998=6×3²×37
2028=6×2×13²
2082=6×347
2088=6×2²×3×29
2112=6×2⁵×11
2130=6×5×71
2142=6×3×7×17
2238=6×373
2268=6×2×3³×7

2310=6×5 × 7 × 11
2340=6×2 × 3 × 5 × 13
2382=6×397
2550=6×5² × 17
2592=6×2⁴ × 3³
2658=6×443
2688=6×2⁶ × 7
2712=6×2² × 113
2730=6×5 × 7 × 13
2790=6×3 × 5 × 31
2802=6×467
2970=6×3² × 5 × 11
3120=6×2³ × 5 × 13
3168=6×2⁴ × 3 × 11
3252=6×2 × 271
3258=6×3 × 181
3300=6×2 × 5² × 11
3330=6×3 × 5 × 37
3360=6×2⁴ × 5 × 7
3372=6×2 × 281
3390=6×5 × 131
3462=6×577
3468=6×2 × 17²
3528=6×2² × 3 × 7²
3540=6×2 × 5 × 59
3558=6×593
3582=6×3 × 199
3672=6×2² × 3³ × 17
3768=6×2² × 157
3822=6×7² × 13
3852=6×2 × 3 × 107
3918=6×653
3930=6×5 × 131
4002=6×23 × 29
4020=6×2 × 5 × 67
4050=6×3³ × 5²
4092=6×2 × 11 × 13
4128=6×2⁴ × 43
4158=6×3² × 7 × 11
4218=6×19 × 37
4230=6×3 × 5 × 47
4242=6×7 × 101
4260=6×2 × 5 × 71
4272=6×2³ × 89
4338=6×3 × 241
4422=6×11 × 67
4482=6×3² × 83

4518=6×6 × 251
4548=6×2 × 379
4638=6×773
4650=6×5² × 31
4722=6×787
4788=6×2 × 2 × 7 × 19
4800=6×2⁵ × 5²
4932=6×2 × 3 × 137
4968=6×2² × 3² × 23
5010=6×5 × 167
5022=6×3³ × 31
5100=6×2 × 5² × 17
5232=6×2³ × 109
5280=6×2⁴ × 5 × 11
5418=6×3 × 7 × 43
5442=6×907
5478=6×11 × 83
5502=6×7 × 131
5520=6×2³ × 5 × 23
5640=6×2² × 5 × 47
5652=6×2 × 3 × 157
5658=6×23 × 41
5742=6×3 × 11 × 29
5850=6×3 × 5² × 13
5868=6×2 × 3 × 163
5880=6×2² × 5 × 7²
6090=6×5 × 7 × 29
6132=6×2 × 7 × 73
6198=6×1033
6270=6×5 × 11 × 19
6300=6×2 × 3 × 5 × 7
6360=6×2² × 5 × 23
6450=6×5² × 436552 = 6 × 2² × 3 × 7 × 13
6570=6×3 × 5 × 73
6660=6×2 × 3 × 5 × 37
6690=6×5 × 223
6702=6×1117
6762=6×7² × 23
6780=6×2 × 5 × 113
6792=6×2² × 283
6828=6×2 × 569
6870=6×5 × 229
6948=6×2 × 3 × 193
6960=6×2³ × 5 × 29
7128=6×2² × 3³ × 117212 = 6 × 2 × 601
7308=6×2 × 3 × 7 × 29
7332=6×2 × 13 × 47

7350= $6 \times 5^2 \times 7^2$
7458= $6 \times 11 \times 13$
7488= $6 \times 2^5 \times 3 \times 13$
7548= $6 \times 2 \times 17 \times 37$
7560= $6 \times 2^2 \times 3^2 \times 5 \times 7$
7590= $6 \times 5 \times 11 \times 23$
7758= $6 \times 3 \times 431$
7878= $6 \times 13 \times 101$
7950= $6 \times 5^2 \times 53$
8010= $6 \times 3 \times 5 \times 89$
8088= $6 \times 2^2 \times 337$
8220= $6 \times 2 \times 5 \times 137$
8232= $6 \times 2^2 \times 7^3$
8292= $6 \times 2 \times 691$
8388= $6 \times 2 \times 3 \times 233$
8430= $6 \times 5 \times 281$
8538= 6×1423
8598= 6×1433
8628= $6 \times 2 \times 719$
8820= $6 \times 2 \times 3 \times 5 \times 7^2$
8838= $6 \times 3 \times 491$
8862= $6 \times 7 \times 211$
8970= $6 \times 5 \times 13 \times 23$
9000= $6 \times 2^2 \times 3 \times 5^3$ 9012 = $6 \times 2 \times 751$
9042= $6 \times 11 \times 137$
9240= $6 \times 2^2 \times 5 \times 7 \times 11$
9282= $6 \times 7 \times 13 \times 17$
9342= $6 \times 3^2 \times 173$
9420= $6 \times 2 \times 5 \times 157$
9432= $6 \times 2^2 \times 3 \times 131$
9438= $6 \times 11^2 \times 13$
9462= $6 \times 19 \times 83$
9630= $6 \times 3 \times 5 \times 107$
9678= 6×1613
9720= $6 \times 2^2 \times 3^4 \times 5$
9768= $6 \times 2^2 \times 11 \times 37$
9858= $6 \times 31 \times 53$
9930= $6 \times 5 \times 331$
10008= $6 \times 2^2 \times 3 \times 139$
10038= $6 \times 7 \times 239$
10068= $6 \times 2 \times 839$
10092= $6 \times 2 \times 29^2$
10140= $6 \times 2 \times 5 \times 13^2$
10272= $6 \times 2^4 \times 107$
10302= $6 \times 17 \times 101$
10332= $6 \times 2 \times 3 \times 7 \times 41$
10428= $6 \times 2 \times 11 \times 79$

10458=6×3 × 7 × 83
10500=6×2 × 5³ × 7
10530=6×3³ × 5 × 13
10710=6×3 × 5 × 7 × 17
10860=6×2 × 5 × 181
10890=6×3 × 5 × 11²
10938=6×1823
11058=6×19 × 97
11070=6×3² × 5 × 41
11118=6×17 × 109
11160=6×2² × 3 × 5 × 31
11172=6×2 × 7² × 19
11352=6×2² × 11 × 43
11490=6×5 × 383
11550=6×5² × 7 × 11
11700=6×2 × 3 × 5² × 13
11718=6×3² × 7 × 31
11778=6×13 × 151
11832=6×2² × 17 × 29
11940=6×2 × 5 × 199
11970=6×3 × 5 × 7 × 19
12042=6×3² × 223
12072=6×2² × 503
12108=6×2 × 1009
12162=6×2027
12240=6×2³ × 3 × 5 × 17
12252=6×2 × 1021
12378=6×2063
12540=6×2 × 5 × 11 × 19
12612=6×2 × 1051
12822=6×2137
12918=6×2153
13002=6×11 × 197
13008=6×2³ × 271
13218=6×2203
13338=6×3² × 13 × 19
13398=6×7 × 11 × 29
13680=6×2³ × 3 × 5 × 19
13692=6×2 × 7 × 163
13710=6×5 × 457
13722=6×2287
13758=6×2293
13830=6×5 × 461
13878=6×3² × 257
13902=6×7 × 331
13932=6×2 × 3³ × 43
13998=6×2333

$14010=6 \times 5 \times 467$
 $14082=6 \times 2347$
 $14250=6 \times 5^3 \times 19$
 $14322=6 \times 7 \times 11 \times 31$
 $14388=6 \times 2 \times 11 \times 109$
 $14448=6 \times 2^3 \times 7 \times 43$
 $14550=6 \times 5^2 \times 97$
 $14562=6 \times 3 \times 809$
 $14592=6 \times 2^7 \times 19$
 $14628=6 \times 2 \times 23 \times 53$
 $14868=6^2 \times 7 \times 59$
 $15138=6 \times 3 \times 29^2$
 $15270=6 \times 5 \times 509$
 $15288=6 \times 2^2 \times 7^2 \times 13$
 $15330=6 \times 5 \times 7 \times 73$
 $15360=6 \times 2^9 \times 5$
 $15582=6 \times 7^2 \times 53$
 $15642=6 \times 3 \times 11 \times 79$
 $15648=6 \times 2^4 \times 163$
 $15732=6^2 \times 19 \times 23$
 $15738=6 \times 43 \times 61$
 $15888=6 \times 2^3 \times 331$
 $15972=6 \times 2 \times 11^3$
 $16062=6 \times 2677$
 $16068=6 \times 2 \times 13 \times 103$
 $16140=6 \times 2 \times 5 \times 269$
 $16188=6 \times 2 \times 19 \times 71$
 $16230=6 \times 5 \times 541$
 $16362=6 \times 3^3 \times 101$
 $16452=6^2 \times 457$
 $16632=6^3 \times 7 \times 11$
 $16650=6 \times 3 \times 5^2 \times 37$
 $16692=6 \times 2 \times 13 \times 107$
 $16830=6 \times 3 \times 5 \times 11 \times 17$
 $16902=6 \times 3^2 \times 313$
 $16980=6 \times 2 \times 5 \times 283$

.....

The second proof ends.

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Postscript

I thank Prof. S. Saito for his many advices.

And fried-turnip's Yahoo Answers, for a Wolfram Cloud program that you have me tell you, the last of the stuffing was able at once.

Thanks to fried-turnip, it was decided whether $4/3$ would be a constant.

added

Professor Saito, I think Toshiro Takami is crazy.
I know Next Infinity is Zero but not Division Zero Culclus.
I am going to bet my life on fishing. I quit math.

There are four possible primes, $(6n - 1)(6n - 1)$, $(6n - 1)(6n + 1)$, $(6n + 1)(6n - 1)$, $(6n + 1)(6n + 1)$, each with the same probability.

At this time, the twin prime is only $(6n - 1)(6n + 1)$.

The probability of $(6n - 1)(6n + 1)$ is $1/4$.

That is, when a prime number comes out, the probability that it is a twin prime number is the inverse $4/3$ of $[1 - (1/4) = 3/4]$.

This is the reason for the constant $4/3$.

I had noticed that $[6/5]$ changed to $[5/4]$ and then $[4/3]$ since counting up to 400,000 by hand. And I thought that $[4/3] = 1.33333 \dots$ would increase further, but tens of millions of Twin Primes in Wolfram cloud that find up to 300 million, $[4/3] = 1.33333 \dots$ knew that it will not increase.

It was fried-turnip of Yahoo! Wisdom Bag that made me realize that it will stop in $[4/3]$.

I never knew that Wolfram Cloud could easily find tens of millions of Twin Primes.

I printed a prime number table up to 400,000, and calculated the number of primes and the number of Twin Primes by hand.

The number of primes can be easily obtained with WolframAlpha, I knew it after calculated on paper by hand the number of primes of 200,000.

It was very difficult just to calculate the number of twin prime on paper.