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 \(1\times10^{12}\).

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.
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. 

\[ \text{[n is positive integer]} \]

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 \(\left(\frac{164}{996}\right)^{2} \times \frac{5}{4} =0.0338905824...\)
\(\left(\frac{164}{996}\right)^{2} \times \frac{4}{3} =0.0361499546...\)

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 \(\left(\frac{299}{1996}\right)^{2} \times \frac{4}{3} =0.0299198932...\)

There are 426 primes from 5 to 3000.
Probability is \(\frac{426}{2996}\).
In this, there are 81 Twin Primes. Probability is \( \frac{81}{2996} \approx 0.027036048... \) and \( \left( \frac{426}{2996} \right)^2 \times \frac{4}{3} \approx 0.026957171... \)

There are 665 primes from 5 to 5000.
Probability is \( \frac{665}{4996} \).
In this, there are 125 Twin Primes. Probability is \( \frac{125}{4996} \approx 0.025020016... \) and \( \left( \frac{665}{4996} \right)^2 \times \frac{4}{3} \approx 0.023623115... \)

There are 1227 primes from 5 to 10000.
Probability is \( \frac{1227}{9996} \).
In this, there are 204 Twin Primes. Probability is \( \frac{204}{9996} \approx 0.02040816326... \) and \( \left( \frac{1227}{9996} \right)^2 \times \frac{4}{3} \approx 0.0200897886... \)

There are 2258 primes from 5 to 20000.
Probability is \( \frac{2258}{59996} \).
In this, there are 340 Twin Primes. Probability is \( \frac{340}{59996} \approx 0.01700340068... \) and \( \left( \frac{2258}{59996} \right)^2 \times \frac{4}{3} \approx 0.017002013... \)

There are 3243 primes from 5 to 30000.
Probability is \( \frac{3243}{29996} \).
In this, there are 465 Twin Primes. Probability is \( \frac{465}{29996} \approx 0.01550206694... \) and \( \left( \frac{3243}{29996} \right)^2 \times \frac{4}{3} \approx 0.015584969... \)

There are 6053 primes from 5 to 60000.
Probability is \( \frac{6053}{59996} \).
In this, there are 809 Twin Primes. Probability is \( \frac{809}{59996} \approx 0.01348423228... \) and \( \left( \frac{6053}{59996} \right)^2 \times \frac{4}{3} \approx 0.013571738... \)

There are 6931 primes from 5 to 70000.
Probability is \( \frac{6931}{69996} \).
In this, there are 904 Twin Primes. Probability is \( \frac{904}{69996} \approx 0.012915023716... \) and \( \left( \frac{6931}{69996} \right)^2 \times \frac{4}{3} \approx 0.0130732657... \)

There are 6933 primes from 5 to 90000.
Probability is \( \frac{6933}{69996} \).
In this, there are 903 Twin Primes. Probability is \( \frac{903}{69996} \approx 0.012900737185... \) and \( \left( \frac{6933}{69996} \right)^2 \times \frac{4}{3} \approx 0.01308081164... \)

There are 9590 primes from 5 to 100000.
Probability is \( \frac{9590}{99996} \).
In this, there are 1222 Twin Primes. Probability is \( \frac{1222}{99996} \approx 0.0122204888... \)
and \( \left( \frac{99996}{99996} \right)^2 \times \frac{4}{3} = 0.0122633943... \)

There are 17982 primes from 5 to 200000.
Probability is \( \frac{17982}{99996} \).
In this, there are 2158 Twin Primes. Probability is \( \frac{2158}{99996} \approx 0.0107902... \)
and \( \left( \frac{17982}{99996} \right)^2 \times \frac{4}{3} = 0.01077884... \)

There are 25995 primes from 5 to 300000.
Probability is \( \frac{25995}{299996} \).
In this, there are 2992 Twin Primes. Probability is \( \frac{2993}{299996} \approx 0.00997679969... \)
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 \( \frac{3803}{399996} \approx 0.009505095... \)
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 \( \frac{4564}{499996} \approx 0.009128073... \)
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 \( \frac{4564}{599996} \approx 0.00888339255595... \)
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 \( \frac{6060}{699996} \approx 0.008567192... \)
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 \( \frac{6765}{799996} \approx 0.00845629228... \)
and \( \left( \frac{63948}{799996} \right)^2 \times \frac{4}{3} = 0.0085195574... \)

There are 71272 primes from 5 to 900000.
Probability is \( \frac{71272}{999996} \).
In this, there are 7471 Twin Primes. Probability is \( \frac{7471}{999996} = 0.00783011480051... \) and \( \left( \frac{71272}{999996} \right)^2 \times \frac{4}{3} = 0.00836171709... \)

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 \( \frac{8168}{999996} = 0.008168032672... \) and \( \left( \frac{78496}{999996} \right)^2 \times \frac{4}{3} = 0.0082155617... \)

There are 148931 primes from 5 to 2000000 = \( 2 \times 10^6 \).
Probability is \( \frac{148931}{999996} \).
In this, there are 14870 Twin Primes. Probability is \( \frac{14870}{999996} = 0.0074350148... \) and \( \left( \frac{148931}{999996} \right)^2 \times \frac{4}{3} = 0.00739351... \)

There are 216814 primes from 5 to 3000000 = \( 3 \times 10^6 \).
Probability is \( \frac{216814}{999996} \).
In this, there are 20931 Twin Primes. Probability is \( \frac{20931}{999996} = 0.0069770093... \) and \( \left( \frac{216814}{999996} \right)^2 \times \frac{4}{3} = 0.006964212... \)

There are 283144 primes from 5 to 4000000 = \( 4 \times 10^6 \).
Probability is \( \frac{283144}{999996} \).
In this, there are 26859 Twin Primes. Probability is \( \frac{26859}{999996} = 0.0067147567... \) and \( \left( \frac{283144}{999996} \right)^2 \times \frac{4}{3} = 0.006680890... \)

There are 348511 primes from 5 to 5000000 = \( 5 \times 10^6 \).
Probability is \( \frac{348511}{999996} \).
In this, there are 32462 Twin Primes. Probability is \( \frac{32462}{999996} = 0.00649240519... \) and \( \left( \frac{348511}{999996} \right)^2 \times \frac{4}{3} = 0.006477872... \)

There are 412847 primes from 5 to 6000000 = \( 6 \times 10^6 \).
Probability is \( \frac{412847}{999996} \).
In this, there are 37915 Twin Primes. Probability is \( \frac{37915}{999996} = 0.00631917087... \) and \( \left( \frac{412847}{999996} \right)^2 \times \frac{4}{3} = 0.0063126989... \)

There are 476646 primes from 5 to 7000000 = \( 7 \times 10^6 \).
Probability is \( \frac{476646}{999996} \).
In this, there are 43258 Twin Primes. Probability is \( \frac{43258}{999996} = 0.006179717816... \) and \( \left( \frac{476646}{999996} \right)^2 \times \frac{4}{3} = 0.0061820862... \)
There are 539775 primes from 5 to 800000=8×10^6.
Probability is \( \frac{539775}{9999996} \).
In this, there are 48617 Twin Primes. Probability is \( \frac{48617}{9999996} \)
and \( \left( \frac{539775}{9999996} \right)^2 \times \frac{4}{3} = 0.0060699446... \).

There are 602487 primes from 5 to 9000000=9×10^6.
Probability is \( \frac{602487}{9999996} \).
In this, there are 53866 Twin Primes. Probability is \( \frac{53866}{9999996} \)
and \( \left( \frac{602487}{9999996} \right)^2 \times \frac{4}{3} = 0.005975158... \).

There are 664577 primes from 5 to 10000000=1×10^7.
Probability is \( \frac{664577}{9999996} \).
In this, there are 58979 Twin Primes. Probability is \( \frac{58979}{9999996} \)
and \( \left( \frac{664577}{9999996} \right)^2 \times \frac{4}{3} = 0.005888839... \).

There are 1270605 primes from 5 to 20000000=2×10^7.
Probability is \( \frac{1270605}{9999996} \).
In this, there are 107406 Twin Primes. Probability is \( \frac{107406}{9999996} \)
and \( \left( \frac{1270605}{9999996} \right)^2 \times \frac{4}{3} = 0.0049355527... \).

There are 5761453 primes from 5 to 10000000=1×10^8.
Probability is \( \frac{5761453}{9999996} \).
In this, there are 440311 Twin Primes. Probability is \( \frac{440311}{9999996} \)
and \( \left( \frac{5761453}{9999996} \right)^2 \times \frac{4}{3} = 0.0044259124... \).
There are 11078935 primes from 5 to 20000000=2×10^8.
Probability is \(\frac{11078935}{199999996}\).
In this, there are 813370 Twin Primes. Probability is \(\frac{813370}{199999996}\)=0.004066850081...
and \(\left[\frac{11078935}{199999996}\right]^2 \times \frac{4}{3}=0.0040914268\ldots\)

There are 16252323 primes from 5 to 30000000=3×10^8.
Probability is \(\frac{16252323}{299999996}\).
In this, there are 1166479 Twin Primes. Probability is \(\frac{1166479}{299999996}\)=0.00388826338...
and \(\left[\frac{16252323}{299999996}\right]^2 \times \frac{4}{3}=0.00391315570\ldots\)

There are 50847530 primes from 5 to 100000000=1×10^9.
Probability is \(\frac{50847530}{999999996}\).
In this, there are 3424505 Twin Primes. Probability is \(\frac{3424505}{999999996}\)=0.00342450501...
and \(\left[\frac{50847530}{999999996}\right]^2 \times \frac{4}{3}=0.00344729510371\ldots\)

There are 455052507 primes from 5 to 10000000000=1×10^{10}.
Probability is \(\frac{455052507}{9999999996}\).
In this, there are 27412678 Twin Primes. Probability is \(\frac{27412678}{9999999996}\)=0.0027412678...
and \(\left[\frac{455052507}{9999999996}\right]^2 \times \frac{4}{3}=0.0027609704572\ldots\)

There are 4118054809 primes from 5 to 100000000000=1×10^{11}.
Probability is \(\frac{4118054809}{99999999996}\).
In this, there are 224376047 Twin Primes. Probability is \(\frac{224376047}{99999999996}\)=0.002243760...
and \(\left[\frac{4118054809}{99999999996}\right]^2 \times \frac{4}{3}=0.0022611167237\ldots\)

There are 37607912014 primes from 5 to 1×10^{12}.
Probability is \(\frac{37607912014}{999999999996}\).
In this, there are 1870585218 Twin Primes. Probability is \(\frac{1870585218}{999999999996}\)=0.001870585218007...
and \(\left[\frac{37607912014}{999999999996}\right]^2 \times \frac{4}{3}=0.00188580672808544\ldots\)

There are 177291661645 primes from 5 to 500000000000=5×10^{12}.
Probability is \(\frac{177291661645}{4999999999996}\).
In this, there are 8312493001 Twin Primes. Probability is \(\frac{8312493001}{4999999999996}\)=0.00166249860020133...
and \(\left[\frac{177291661645}{4999999999996}\right]^2 \times \frac{4}{3}=0.00167639110874109\ldots\)

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There are 455052507-50847530=404204977 primes from $1 \times 10^9$ to $1 \times 10^{10} = 9 \times 10^9$. 
Probability is $\frac{404204977}{9000000000} = 0.04491166411...$
In this, there are 27412678-3424505=23988173 Twin Primes. Probability is $\frac{23988173}{9000000000} = 0.00266535255...$

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

There are 4118054809-455052507=3663002302 primes from $1 \times 10^{10}$ to $1 \times 10^{11}=9 \times 10^{10}$. 
Probability is $\frac{3663002302}{90000000000} = 0.0372109524522...$
In this, there are 224376047-27412678=196963369 Twin Primes. Probability is $\frac{196963369}{90000000000} = 0.0021884818777...$

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

There are 37607912016-4118054809=33489857207 primes from $1 \times 10^{11}$ to $1 \times 10^{12}=9 \times 10^{11}$. 
Probability is $\frac{33489857207}{900000000000} = 0.0182912130222...$
In this, there are 1870585219-224376047=1646209172 Twin Primes. Probability is $\frac{1646209172}{900000000000} = 0.0018462066432020...$

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

There are 17729166164-3760791201=13968374963 primes from $1 \times 10^{12}$ 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 $\frac{6441907782}{400000000000} = 0.0016104769455$

$\left[\frac{13968374963}{400000000000}\right]^2 \times \frac{4}{3} = 0.00162596249255804376140833...$

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

\[
\pi(x) \sim \frac{x}{\log x} \quad (x \to \infty)
\]  

(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 \( \frac{4}{3} \times \text{square of the probability of primes} = \text{probability of Twin Primes} \). 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, 2137, 2153, 2203, 2287, 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.

\[
\begin{align*}
12 &= 6 \times 2 \\
18 &= 6 \times 3 \\
30 &= 6 \times 5 \\
42 &= 6 \times 7 \\
60 &= 6 \times 10 = 6 \times 5 \times 2 \\
72 &= 6 \times 12 = 6 \times 3 \times 2^2 \\
102 &= 6 \times 17 \\
108 &= 6 \times 18 = 6 \times 3^2 \times 2 \\
138 &= 6 \times 23 \\
150 &= 6 \times 5 \times 5 \\
180 &= 6 \times 5 \times 3 \times 2 \\
192 &= 6 \times 2^5 \\
228 &= 6 \times 19 \times 2 \\
240 &= 6 \times 5 \times 2^3 \\
270 &= 6 \times 5 \times 3^2 \\
312 &= 6 \times 13 \times 2^2 \\
348 &= 6 \times 29 \times 2
\end{align*}
\]
420=6 \times 7 \times 5 \times 2 \\
462=6 \times 11 \times 7 \\
522=6 \times 29 \times 2 \\
570=6 \times 19 \times 5 \\
600=6 \times 5^2 \times 2^2 \\
618=6 \times 103 \\
642=6 \times 107 \\
660=6 \times 11 \times 5 \times 2 \\
810=6 \times 5 \times 3 \times 3 \\
822=6 \times 137 \\
828=6 \times 23 \times 3 \times 2 \\
858=6 \times 13 \times 11 \\
882=6 \times 7^2 \times 3 \\
1020=6 \times 17 \times 5 \times 2 \\
1032=6 \times 43 \times 2^2 \\
1050=6 \times 7 \times 5^2 \\
1062=6 \times 59 \times 3 \\
1092=6 \times 13 \times 7 \times 2 \\
1152=6 \times 2^6 \times 3 \\
1230=6 \times 5 \times 41 \\
1278=6 \times 3 \times 71 \\
1290=6 \times 5 \times 43 \\
1302=6 \times 7 \times 31 \\
1320=6 \times 2^2 \times 5 \times 11 \\
1428=6 \times 2 \times 7 \times 17 \\
1452=6 \times 2 \times 11^2 \\
1482=6 \times 13 \times 19 \\
1488=6 \times 2^3 \times 31 \\
1608=6 \times 2^2 \times 67 \\
1620=6 \times 2 \times 3^3 \times 5 \\
1668=6 \times 2 \times 139 \\
1698=6 \times 283 \\
1722=6 \times 7 \times 41 \\
1788=6 \times 2 \times 149 \\
1872=6 \times 2^3 \times 3 \times 13 \\
1878=6 \times 313 \\
1932=6 \times 2 \times 3 \times 6 \times 23 \\
1950=6 \times 5^2 \times 13 \\
1998=6 \times 3^2 \times 37 \\
2028=6 \times 2 \times 13^2 \\
2082=6 \times 347 \\
2088=6 \times 2^2 \times 3 \times 29 \\
2112=6 \times 2^5 \times 11 \\
2130=6 \times 5 \times 71 \\
2142=6 \times 3 \times 7 \times 17 \\
2238=6 \times 373 \\
2268=6 \times 2 \times 3^3 \times 7
2310=6 \times 5 \times 7 \times 11
2340=6 \times 2 \times 3 \times 5 \times 13
2382=6 \times 397
2658=6 \times 443
2712=6 \times 2 \times 113
2730=6 \times 5 \times 7 \times 11
2790=6 \times 3 \times 5 \times 31
2802=6 \times 467
2970=6 \times 3 \times 5 \times 11
3120=6 \times 2 \times 5 \times 13
3168=6 \times 2^2 \times 3 \times 11
3252=6 \times 2 \times 271
3258=6 \times 3 \times 181
3300=6 \times 2 \times 5^2 \times 11
3330=6 \times 3 \times 5 \times 37
3360=6 \times 2^4 \times 5 \times 7
3372=6 \times 2 \times 281
3390=6 \times 5 \times 131
3462=6 \times 577
3468=6 \times 2 \times 17^2
3528=6 \times 2^2 \times 3 \times 7^2
3540=6 \times 2 \times 5 \times 59
3558=6 \times 593
3582=6 \times 3 \times 199
3672=6 \times 2^2 \times 3^3 \times 17
3768=6 \times 2^2 \times 157
3822=6 \times 7^2 \times 13
3852=6 \times 2 \times 3 \times 107
3918=6 \times 653
3930=6 \times 5 \times 131
4002=6 \times 23 \times 29
4020=6 \times 2 \times 5 \times 67
4050=6 \times 3^3 \times 5^2
4092=6 \times 2 \times 11 \times 13
4128=6 \times 2^4 \times 43
4158=6 \times 3^2 \times 7 \times 11
4218=6 \times 19 \times 37
4230=6 \times 3 \times 5 \times 47
4242=6 \times 7 \times 101
4260=6 \times 2 \times 5 \times 71
4272=6 \times 2^3 \times 89
4338=6 \times 3 \times 241
4422=6 \times 11 \times 67
4482=6 \times 3^2 \times 83
4518 = 6 \times 6 \times 251
4548 = 6 \times 2 \times 379
4638 = 6 \times 773
4650 = 6 \times 5^2 \times 31
4722 = 6 \times 787
4788 = 6 \times 2 \times 379
4800 = 6 \times 2 \times 5 \times 31
4932 = 6 \times 2 \times 3 \times 137
4968 = 6 \times 2^2 \times 3^2 \times 23
5010 = 6 \times 5 \times 167
5022 = 6 \times 3^3 \times 31
5100 = 6 \times 2 \times 5 \times 167
5232 = 6 \times 2^3 \times 109
5280 = 6 \times 2^4 \times 5 \times 11
5418 = 6 \times 2 \times 7 \times 19
5442 = 6 \times 907
5478 = 6 \times 3 \times 7 \times 43
5502 = 6 \times 2 \times 3 \times 157
5640 = 6 \times 2 \times 5 \times 47
5652 = 6 \times 2 \times 3 \times 157
5658 = 6 \times 23 \times 41
5742 = 6 \times 3 \times 11 \times 29
5850 = 6 \times 3 \times 5^2 \times 13
5868 = 6 \times 2 \times 3 \times 163
5980 = 6 \times 2^2 \times 5 \times 7^2
6090 = 6 \times 5 \times 7 \times 29
6132 = 6 \times 2 \times 7 \times 73
6198 = 6 \times 1033
6270 = 6 \times 5 \times 11 \times 19
6300 = 6 \times 2 \times 3 \times 5 \times 7
6360 = 6 \times 2^2 \times 5 \times 23
6450 = 6 \times 5^2 \times 436552 = 6 \times 2^2 \times 3 \times 7 \times 13
6570 = 6 \times 3 \times 5 \times 73
6660 = 6 \times 2 \times 3 \times 5 \times 37
6690 = 6 \times 5 \times 223
6702 = 6 \times 1117
6762 = 6 \times 7^2 \times 23
6780 = 6 \times 2 \times 5 \times 113
6792 = 6 \times 2^2 \times 283
6828 = 6 \times 2 \times 569
6870 = 6 \times 5 \times 229
6948 = 6 \times 2 \times 3 \times 193
6960 = 6 \times 2^3 \times 5 \times 29
7128 = 6 \times 2^3 \times 3^3 \times 117212 = 6 \times 2 \times 601
7308 = 6 \times 2 \times 3 \times 7 \times 29
7332 = 6 \times 2 \times 13 \times 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 \times 1423
8598 = 6 \times 1433
8628 = 6 \times 2 \times 719
8820 = 6 \times 2^2 \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 \times 1613
9720 = 6 \times 2^2 \times 3^2 \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 \times 3 \times 7 \times 83
10500 = 6 \times 2 \times 5^3 \times 7
10530 = 6 \times 3^3 \times 5 \times 13
10710 = 6 \times 3 \times 5 \times 7 \times 17
10860 = 6 \times 2 \times 5 \times 181
10890 = 6 \times 3 \times 5 \times 11^2
10938 = 6 \times 1823
11058 = 6 \times 19 \times 97
11070 = 6 \times 3^2 \times 5 \times 41
11118 = 6 \times 17 \times 109
11160 = 6 \times 2^2 \times 3 \times 5 \times 31
11172 = 6 \times 2 \times 7^2 \times 19
11352 = 6 \times 2^2 \times 11 \times 43
11490 = 6 \times 5 \times 383
11550 = 6 \times 5^2 \times 7 \times 11
11700 = 6 \times 2 \times 3 \times 5^2 \times 13
11718 = 6 \times 3^2 \times 7 \times 31
11778 = 6 \times 13 \times 151
11832 = 6 \times 2^2 \times 17 \times 29
11940 = 6 \times 2 \times 5 \times 199
11970 = 6 \times 3 \times 5 \times 7 \times 19
12042 = 6 \times 3^2 \times 223
12072 = 6 \times 2^2 \times 503
12108 = 6 \times 2 \times 1009
12162 = 6 \times 2027
12240 = 6 \times 2^3 \times 3 \times 5 \times 17
12252 = 6 \times 2 \times 1021
12378 = 6 \times 2063
12540 = 6 \times 2 \times 5 \times 11 \times 19
12612 = 6 \times 2 \times 1051
12822 = 6 \times 2137
12918 = 6 \times 2153
13002 = 6 \times 11 \times 197
13008 = 6 \times 2^3 \times 271
13218 = 6 \times 2203
13338 = 6 \times 3^2 \times 13 \times 19
13398 = 6 \times 7 \times 11 \times 29
13680 = 6 \times 2^3 \times 3 \times 5 \times 19
13692 = 6 \times 2 \times 7 \times 163
13710 = 6 \times 5 \times 457
13722 = 6 \times 2287
13758 = 6 \times 2293
13830 = 6 \times 5 \times 461
13878 = 6 \times 3^2 \times 257
13902 = 6 \times 7 \times 331
13932 = 6 \times 2 \times 3^3 \times 43
13998 = 6 \times 2333
14010=6×5 × 467
14082=6×2347
14250=6×5³ × 19
14322=6×7 × 11 × 31
14388=6×2 × 11 × 109
14448=6×2³ × 7 × 43
14550=6×5² × 97
14562=6×3 × 809
14592=6×2² × 19
14628=6×2 × 23 × 53
14868=6² × 7 × 59
15138=6×3 × 29²
15270=6×5 × 509
15288=6×2² × 7² × 13
15330=6×5 × 7 × 73
15360=6×2⁹ × 5
15582=6×7² × 53
15642=6×3 × 11 × 79
15648=6×2⁴ × 163
15732=6² × 19 × 23
15738=6×43 × 61
15888=6×2³ × 331
15972=6×2 × 11³
16062=6×2677
16068=6×2 × 13 × 103
16140=6×2 × 5 × 269
16188=6×2 × 19 × 71
16230=6×5 × 541
16362=6×3³ × 101
16452=6² × 457
16632=6³ × 7 × 11
16650=6×3 × 5² × 37
16692=6×2 × 13 × 107
16830=6×3 × 5 × 11 × 17
16902=6×3² × 313
16980=6×2 × 5 × 283

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The second proof ends.

References


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.
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 ....... would increase further, but tens of millions of Twin Primes in Wolfram cloud that find up to 300 million, [4/3] = 1.33333 ... 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.