Prime Sextuplet Conjecture

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Abstract

Prime Sextuplet and Twin Primes have exactly the same dynamics.

All Prime Sextuplet are executed in hexagonal circulation. It does not change in a huge number (forever huge number).
In the hexagon, Prime Sextuplet are generated only at (6n -1)(6n+5). [n is a positive integer]

When the number grows to the limit, the denominator of the expression becomes very large, and primes occur very rarely, but since Prime Sextuplet are 48/3 times of the sixth power distribution of primes, the frequency of occurrence of Prime Quintuplet is very equal to 0.

However, it is not 0. Therefore, Prime Sextuplet continue to be generated.

If Prime Sextuplet is finite, the Primes is finite.
The probability of Prime Sextuplet 48/3 times of the sixth power probability of appearance of the Prime. This is contradictory. Because there are an infinite of Primes.

That is, Prime Sextuplet exist forever.

key words
Hexagonal circulation, Prime Sextuplet,
48/3 times of the sixth power probability of the Primes

Introduction

Prime Sextuplet is represented as (6n -1) or (6n+1). And, n is positive integer.

All Prime Sextuplet are combination of (6n -1) and (6n+1).
That is, all Prime Sextuplet are a combination of 5th-angle and 1th-angle.

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5th-angle is (6n -1).
1th-angle is (6n+1).

(6n -2), (6n), (6n+2) are even numbers.

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

The Prime Sextuplet are (6n -1) and (6n+1).
There are no prime numbers that are not (6n -1) or (6n+1).
The following is a Prime Sextuplet.
7 ——— 6n+1
11 ——— 6n -1
13 ——— 6n+1
17 ——— 6n -1
19 ——— 6n+1
23 ——— 6n -1
....
....

The Prime Sextuplet are bellow.

(7, 11, 13, 17, 19, 23),
(97, 101, 103, 107, 109, 113),
(16057, 16061, 16063, 16067, 16069, 16073),
(19417, 19421, 19423, 19427, 19429, 19433),
(43777, 43781, 43783, 43787, 43789, 43793),
(1091257, 1091261, 1091263, 1091267, 1091269, 1091273),
(1615837, 1615841, 1615843, 1615847, 1615849, 1615853),
(1954357, 1954361, 1954363, 1954367, 1954369, 1954373),
(2822707, 2822711, 2822713, 2822717, 2822719, 2822723),
........sum is 9.
......etc.......

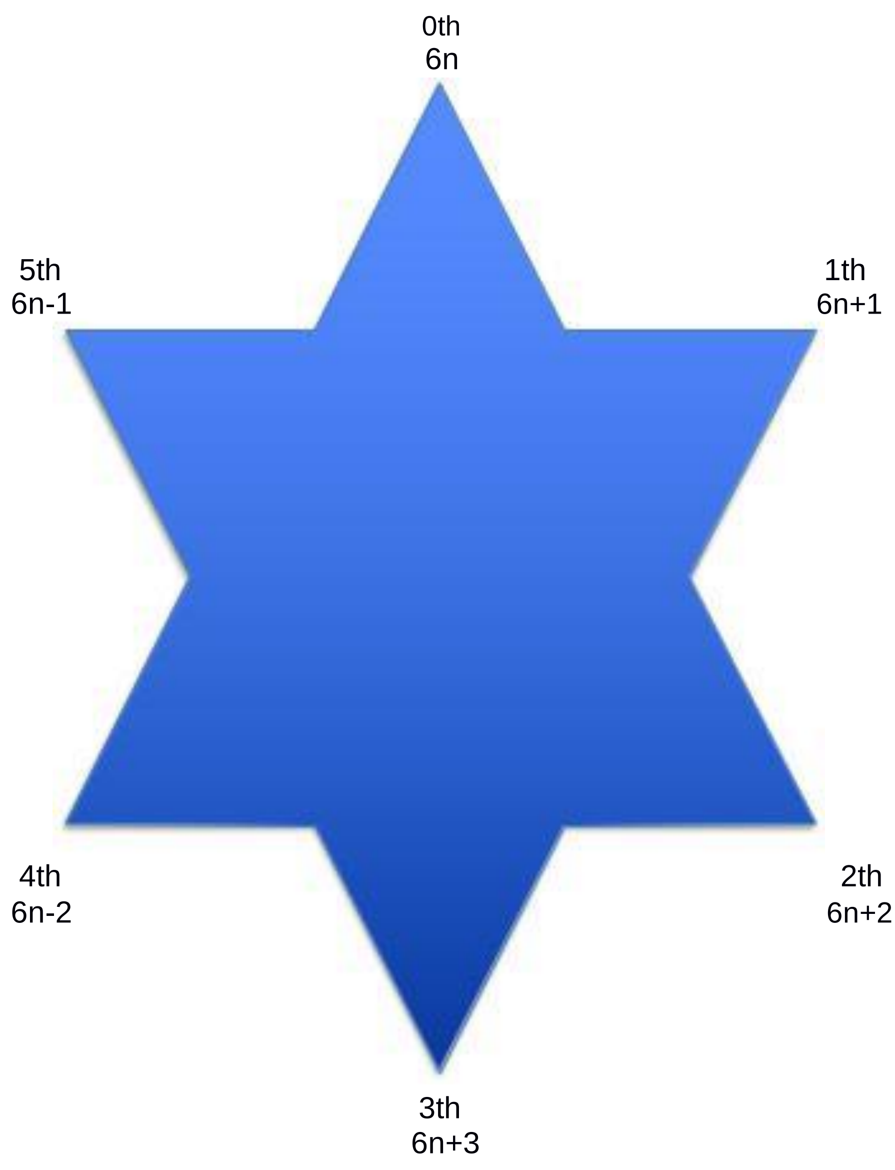
$\frac{4^3}{3} = \frac{48}{3}$

There are 1229 Primes frpm 1 to 1×10^4=10000.
Probability is $\frac{1229}{10000}$.
In this, there are 2 Prime Sextuplet. Probability is $\frac{2}{10000}$=0.002
and $[\frac{1229}{10000}]^6 \times \frac{48}{3}$=0.0036...

There are 216816-1229=215587 Primes from 1×10^4 to 3×10^6
Probability is $\frac{215587}{2990000}$.
In this, there are 7 Prime Sextuplet. Probability is $\frac{7}{2990000}$=2.3411371237458... $\times 10^{-6}$
and $[\frac{215587}{2990000}]^6 \times \frac{48}{3} = 2.2481654411050... \times 10^{-6}$

and There are 216816 Primes from 1 to 3×10^6
Probability is $\frac{216816}{3000000}$.
In this, there are 9 Prime Sextuplet. Probability is $\frac{9}{3000000} = 3 \times 10^{-6}$
and
$[\frac{216816}{3000000}]^6 \times \frac{48}{3} = 2.280029268133... \times 10^{-6}$

The number of Prime Sextuplet is small and we can't confirm.


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

Discussion

Although not found in the literature, Prime Sextuplet and twin primes have exactly the same dynamics.
This means that if twin primes are infinite, Prime Sextuplet are infinite.

The probability that Prime Sextuplet will occur 48/3 times of the sixth power 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 Primes is generated, Prime Sextuplet 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.

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

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

(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 Prime Sextuplet is 48/3 times of the sixth power of the generation frequency of primes, and the generation frequency is extremely low.

However, as long as Primes are generated, Prime Sextuplet 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 Prime Sextuplet are 48/3 times of the sixth power of the distribution of Primes, the frequency of occurrence of Prime Sextuplet is very equal to 0.

However, it is not 0. Therefore, Prime Sextuplet continue to be generated.

However, when the number grows to the limit, the probability of the Prime Sextuplet appearing is almost 0 because it is 48/3 times of the sixth power of probability of the appearance of the Prime.
It is a subtle place to say that almost 0 appears.

Use a contradiction method.
If Prime Sextuplet is finite, the Primes is finite.
The probability of Prime Sextuplet 48/3 times of the sixth power of the probability of the appearance of the Prime.
This is contradictory. Because there are an infinite of Primes.

That is, Prime Sextuplet exist forever.

Proof end.

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