Consideration of Twin Prime Conjecture
Average difference is 2.296

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Abstract

In the process of pursuing Twin Prime Problem, I found that the Reciprocal of distribution of primes always increased at a rate of about 2.296.

When $1 \times 10^{3 \times 10^{12}}$ is reached, only 1 of 6889379491 is a prime number.
This assumes that 2.296 continues all the time.

This seems to continue forever.
In other words, it was considered that in the ultimate, the existence of primes is very close to zero.

It is 4/3 times the square of the probability of primes is the probability of Twin Primes, and it is very questionable whether it can be said that Twin Primes are produced at such times.

key words
Distribution of primes, Average difference is 2.296, Forever

Introduction

From[5], 1×10^{24} is 18435599767349200867866, but this is a number assuming that the Riemann hypothesis is true.

And, the following, the value of from 1×10^4 to 1×10^{13} depends on [4].

$(1 \times 10^{24})/(1.843559976734 \times 10^{22})$=54.24287859...
Average difference is (54.24287859-28.9862524)/11=2.296056926...

Discussion

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

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However, it is the basis for supporting the above results.

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

$\frac{x}{\log x} = (10^{10})/\log(10^{10}) \approx 4.343 \times 10^{8}$
$\frac{x}{\log x} = (10^{11})/\log(10^{11}) \approx 3.948 \times 10^{9}$
$\frac{x}{\log x} = (10^{12})/\log(10^{12}) \approx 3.619 \times 10^{10}$
$\frac{x}{\log x} = (10^{13})/\log(10^{13}) \approx 3.341 \times 10^{11}$
$\frac{x}{\log x} = (10^{14})/\log(10^{14}) \approx 3.102 \times 10^{12}$
$\frac{x}{\log x} = (10^{15})/\log(10^{15}) \approx 2.895 \times 10^{13}$
$\frac{x}{\log x} = (10^{16})/\log(10^{16}) \approx 2.714 \times 10^{14}$
$\frac{x}{\log x} = (10^{17})/\log(10^{17}) \approx 2.555 \times 10^{15}$
$\frac{x}{\log x} = (10^{18})/\log(10^{18}) \approx 2.413 \times 10^{16}$
$\frac{x}{\log x} = (10^{24})/\log(10^{24}) \approx 1.809 \times 10^{22}$
$\frac{x}{\log x} = (10^{100})/\log(10^{100}) \approx 4.343 \times 10^{97}$
$\frac{x}{\log x} = (10^{800})/\log(10^{800}) \approx 5.429 \times 10^{796}$

On Gauss formulae,

$$\pi(x) \sim \frac{1 \times 10^{24}}{\log(1 \times 10^{24})} = 1.80956 \times 10^{22} \tag{2}$$

From[5] is $1.843559976734 \times 10^{22}$.

It almost agrees with the result of Gauss's formula.

$[1 \times 10^{24}]/[\frac{1\times10^{24}}{log(1\times10^{24})}] = 55.262042....$
Approximately 1 out of 55 integers is a prime number.

However, when $1 \times 10^{3\times10^{12}}$ is reached, only 1 of 6889379491 is a prime number.
This assumes that 2.296 continues all the time, but will give the same result, although it will be slightly different than 2.296.

It is 4/3 times the square of the probability of primes is the probability of Twin Primes, and it is very questionable whether it can be said that Twin Primes are produced at such times.

number	number of primes	distribution(bk/ak)	average(ak/bk)	average difference
10000	1229	12.29	8.13669650122	2.28865796083121
100000	9592	9.592	10.4253544621	2.31382360617933
1000000	78498	7.8498	12.7391780682	2.30794198822576
10000000	664579	6.64579	15.0471200565	2.30960667316272
100000000	5761455	57.61455	17.3567267296	2.30991039775819
1000000000	50847534	50.847534	19.6666371274	2.30884868639028
10000000000	455052511	45.5052511	21.9754858138	2.30782379258232
100000000000	4118054813	41.18054813	24.2833096064	2.29977133449257
1000000000000	37617912018	37.617912018	26.5830809408	2.31317149075089
10000000000000	346065636839	34.6065636839	28.8962524316	2.296
1*10^14			31.1902524316	2.296
1*10^15			33.4842524316	2.296
1*10^16			35.7782524316	2.296
1*10^17			38.0722524316	2.296
1*10^18			40.3662524316	2.296
1*10^19			42.6602524316	2.296
1*10^20			44.9542524316	2.296
1*10^21			47.2482524316	2.296
1*10^22			49.5422524316	2.296
1*10^23			51.8362524316	2.296
1*10^24	1.8435599767E+22	18.43559976734	54.24287859	2.296
1*10^124			283.84287859	100*2.296
1*10^224			513.44287859	100*2.296
1*10^324			743.04287859	100*2.296
1*10^424			972.64287859	100*2.296
1*10^524			1202.24287859	100*2.296
1*10^624			1431.84287859	100*2.296
1*10^724			1661.44287859	100*2.296
1*10^824			1891.04287859	100*2.296
1*10^1000824			231491.042879	100000*2.296
1*10^2000824			461091.042879	100000*2.296
1*10^3000824			690691.042879	100000*2.296
1*10^4000824			920291.042879	100000*2.296
1*10^5000824			1149891.04288	100000*2.296
1*10^6000824			1379491.04288	100000*2.296
1*10^100006000824			2297379491	1000000000*2.296
1*10^200006000824			4593379491	1000000000*2.296
1*10^300006000824			6889379491	1000000000*2.296

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