

# ***Original article***

## ***Proof of Riemann hypothesis***

Toshiro Takami

[mmm82889@yahoo.co.jp](mailto:mmm82889@yahoo.co.jp)

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### ***Abstract***

Let  $a$  be real number of  $0 < a < 1$ .

$$(1) = \cos[x \cdot \ln 1]/1^a - \cos[x \cdot \ln 2]/2^a + \cos[x \cdot \ln 3]/3^a - \cos[x \cdot \ln 4]/4^a + \cos[x \cdot \ln 5]/5^a \dots \dots \dots$$

$$(2) = \sin[x \cdot \ln 1]/1^a - \sin[x \cdot \ln 2]/2^a + \sin[x \cdot \ln 3]/3^a - \sin[x \cdot \ln 4]/4^a + \sin[x \cdot \ln 5]/5^a \dots \dots \dots$$

Then, at this time,

The imaginary solution of the equation  $(1)^2 + (2)^2 = 0$  exists only when  $a = 0.5$ .

$x$  is an infinite non-trivial zero. At the same time satisfying (1) and (2) is  $x$ , that is, an infinitely present non-trivial zero.

(1) is

$$\sum_{n=1}^{\infty} [\cos(x \cdot \ln(2n-1))/(2n-1)^{0.5} - \cos(x \cdot \ln(2n))/(2n)^{0.5}] = 0$$

(2) is

$$\sum_{n=1}^{\infty} [\sin(x \cdot \ln(2n-1))/(2n-1)^{0.5} - \sin(x \cdot \ln(2n))/(2n)^{0.5}] = 0$$

### ***Introduction***

$$(1) = [1 - \cos(x \cdot \ln 2)/\sqrt{2} + \cos(x \cdot \ln 3)/\sqrt{3} - \cos(x \cdot \ln 4)/\sqrt{4} + \cos(x \cdot \ln 5)/\sqrt{5} - \dots] = 0$$

$$(2) = [\sin(x \cdot \ln 2)/\sqrt{2} - \sin(x \cdot \ln 3)/\sqrt{3} + \sin(x \cdot \ln 4)/\sqrt{4} - \sin(x \cdot \ln 5)/\sqrt{5} + \dots] = 0$$

The condition satisfying (1) and (2) at the same time is  $x$  of  $\zeta(s) = 0.5 + x i$ .

The real solution of the equation  $(1)^2 + (2)^2 = 0$  exists only when  $a = 0.5$ .

There are infinite number of common solutions.

That is,  $x$  has infinite number.

Here  $i14.1347$  is an imaginary number, but only  $14.1347$  excluding  $i$  is called a real number.

$x$  in the equation below is a real number with the same number removed from  $ix$ ,  $i14.1347$ .

## ***Discussion***

“Let  $a$  be real number of  $0 < a < 1$ .

A real solution that satisfies the equation for  $x$  will exist only when  $a = 0.5$ .”

$$(1)^2 + (2)^2 = 0$$

Equal “Let  $a$  be a real number of  $0 < a < 1$ .

If  $a \neq 0.5$ , the equation  $(1)^2 + (2)^2 = 0$  will have no real solution.

And

If  $a \neq 0.5$ , it will always be  $(1)^2 + (2)^2 > 0$  for any real number  $x$ .”

The following equation is derived.

$$\begin{aligned} & 1 - [1/2^a - 1/3^a + 1/4^a - \dots] \\ & + [(\ln 2)^{2/2^a} - (\ln 3)^{2/3^a} + (\ln 4)^{2/4^a} - (\ln 5)^{2/5^a} \dots] x^{2/2!} \\ & - [(\ln 2)^{4/2^a} - (\ln 3)^{4/3^a} + (\ln 4)^{4/4^a} - (\ln 5)^{4/5^a} \dots] x^{4/4!} \\ & + [(\ln 2)^{6/2^a} - (\ln 3)^{6/3^a} + (\ln 4)^{6/4^a} - (\ln 5)^{6/5^a} \dots] x^{6/6!} \\ & - [(\ln 2)^{8/2^a} - (\ln 3)^{8/3^a} + (\ln 4)^{8/4^a} - (\ln 5)^{8/5^a} \dots] x^{8/8!} \\ & \dots = 0 \dots (1) \end{aligned}$$

$$\begin{aligned}
& [ (\ln 2)^{1/2^c} - (\ln 3)^{1/3^c} + (\ln 4)^{1/4^c} - (\ln 5)^{1/5^c} + \dots ] x^{1/1!} \\
& - [ (\ln 2)^{3/2^c} - (\ln 3)^{3/3^c} + (\ln 4)^{3/4^c} - (\ln 5)^{3/5^c} + \dots ] x^{3/3!} \\
& + [ (\ln 2)^{5/2^c} - (\ln 3)^{5/3^c} + (\ln 4)^{5/4^c} - (\ln 5)^{5/5^c} + \dots ] x^{5/5!} \\
& - [ (\ln 2)^{7/2^c} - (\ln 3)^{7/3^c} + (\ln 4)^{7/4^c} - (\ln 5)^{7/5^c} + \dots ] x^{7/7!} \\
& \dots = 0 \dots (2)
\end{aligned}$$

This is transformed as follows.

$$(1) = \cos[x \ln 1]/1^a - \cos[x \ln 2]/2^a + \cos[x \ln 3]/3^a - \cos[x \ln 4]/4^a + \dots = 0$$

$$(2) = \sin[x \ln 1]/1^a - \sin[x \ln 2]/2^a + \sin[x \ln 3]/3^a - \sin[x \ln 4]/4^a + \dots = 0$$

equal

$$(1) = 1 - 2^{(-a)} \cos[x \ln 2] + 3^{(-a)} \cos[x \ln 3] - 4^{(-a)} \cos[x \ln 4] + \dots = 0$$

$$(2) = -2^{(-a)} \sin[x \ln 2] + 3^{(-a)} \sin[x \ln 3] - 4^{(-a)} \sin[x \ln 4] + \dots = 0$$

(1) is

$$\sum_{n=1}^{\infty} [\cos(x \ln(2n-1))/(2n-1)^{0.5} - \cos(x \ln(2n))/(2n)^{0.5}] = 0$$

(2) is

$$\sum_{n=1}^{\infty} [\sin(x \ln(2n-1))/(2n-1)^{0.5} - \sin(x \ln(2n))/(2n)^{0.5}] = 0$$

Functions of  $y=(1)^2+(2)^2$  may have contacts on the x axis only when  $a=0.5$ .

“Let a be a real number of  $0 < a < 1$ .

Many real solution that satisfies the equation[  $y=(1)^2+(2)^2=0$  ] for x will exist only when a is 0.5.”

Equal

“Let a be a real number of  $0 < a < 1$ . If a is not 0.5, the equation[  $y=(1)^2+(2)^2=0$  ] for x will not have imaginary solutions.”

Here  $i 14.1347$  is an imaginary number, but only  $14.1347$  excluding  $i$  is called a real number.

Given the graphs (x-y coordinates) of  $y=(1)$  and  $y=(2)$ ,

The intersection of these function curves exists on the x axis only when  $a=0.5$ , It is the same as saying.

Both curves are curves that cross infinitely with the x axis.

For example

$$\sum_{n=1}^{\infty} [\cos(x \ln(2n-1))/(2n-1)^{0.5} - \cos(x \ln(2n))/(2n)^{0.5}] = 0$$

no result

$$\sum_{n=1}^{\infty} [\sin(x \ln(2n-1))/(2n-1)^{0.5} - \sin(x \ln(2n))/(2n)^{0.5}] = 0$$

no result

$$\sum_{n=1}^8 [\cos(x \ln(2n-1)) / (2n-1)^{0.5} - \cos(x \ln(2n)) / (2n)^{0.5}] = 0$$

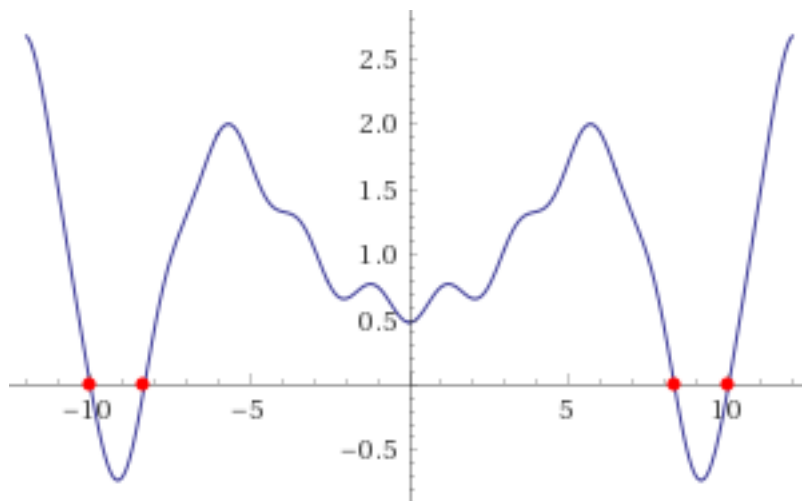
$$\sum_{n=1}^8 \left( \frac{\cos(x \log(2n-1))}{\sqrt{2n-1}} - \frac{\cos(x \log(2n))}{\sqrt{2n}} \right) = 0$$

$$x \approx \pm 18.6961496024576\dots$$

$$x \approx \pm 17.3341501182218\dots$$

$$x \approx \pm 9.98038397155809\dots$$

$$x \approx \pm 8.28586365084251\dots$$



$$\sum_{n=1}^8 [\sin(x \ln(2n-1))/(2n-1)^{0.5} - \sin(x \ln(2n))/(2n)^{0.5}] = 0$$

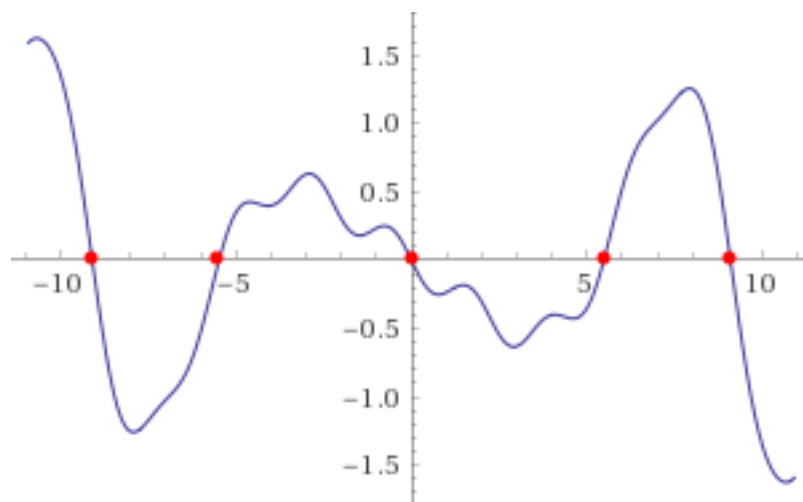
$$x \approx \pm 12.0779815837682\dots$$

$$x \approx \pm 9.08416384757203\dots$$

$$x \approx \pm 5.47537855079587\dots$$

$$x = 0$$

$$x \approx 14.0639449316784\dots$$



It can only calculate up to 8, but if you calculate this up to infinity you will get the correct value. And it proves whether Riemann hypothesis is correct or wrong.

## ***conclusion***

$$\sum_{n=1}^{\infty} [\cos(x \cdot \ln(2n-1))/(2n-1)^{0.5} - \cos(x \cdot \ln(2n))/(2n)^{0.5}] = 0 \dots(1)$$

$$\sum_{n=1}^{\infty} [\sin(x \cdot \ln(2n-1))/(2n-1)^{0.5} - \sin(x \cdot \ln(2n))/(2n)^{0.5}] = 0 \dots(2)$$

There is nothing I can do about not asking for this value on supercomputers.

## ***Postscript***

About half a year ago, I had succeeded to some extent the formula to find non-trivial zeros. I think that it is placed on viXra.

On the net, I learned that there are expressions and papers for completely and accurately obtaining non-trivial zeros, and since then I have stopped developing expressions for non-trivial zeros.

It was impossible with  $\ln$  alone and it was impossible without using  $\sin$  or  $\cos$ .

Also, I thought that this research result was useless for proof of Riemann hypothesis.

However, in my dreams, I was taught that this research result is greatly useful for Riemann hypothesis proof.

Therefore now I use it to write a proof of Riemann hypothesis.

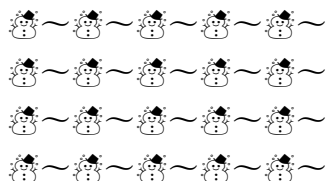
### ***References***

- 1. Riemann, Bernhard (1859). "Ueber die Anzahl der Primzahlen unter einer gegebenen Grösse".
- 2. John Derbyshire, Prime Obsession: Bernhard Riemann and The Greatest Unsolved Problem in Mathematics, Joseph Henry Press,2003, ISBN 9780309085496.
- 3) [https://en.wikipedia.org/wiki/Riemann\\_hypothesis](https://en.wikipedia.org/wiki/Riemann_hypothesis)

### ***postscript***

Although I could find only this, I found that this is an intermediate course, ln, sin, and cos can represent non-trivial zeros, but I have found that there is a large error, a completely error free paper (Site?) And found it abandoned.

But it may have been an event in a dream.



⌘~⌘~⌘~⌘~⌘~⌘~⌘~⌘~⌘~⌘~I am a psychiatrist now and also a doctor of brain surgery before.



mmm82889@yahoo.co.jp I would like to receive an email. I will not answer the phone.

Currently 57 years old Born on November 26, 1961

(I am very poor of English. Almost all document are google-translation.  
 )When converted to English by Google translation, it becomes cryptic to me.  
 But, I read letter by google translation. In my case, if you translate it into  
 English by google translation, I do not know what is written in my paper. For  
 me, foreign languages such as English (actually not good at Japanese) is a  
 demon. As soon as it is translated into English, it turns into a cipher for me.  
 (Postscript)

The cold when I found the first one is still continuing now and this may be  
 my last post. I may have discovered another by surging my energy and it  
 may not be counter example. It may be written as a will.

I am writing this at the limit of power. I write this with spitting blood. I will  
 post it in a hurry, as long as I have not done it before I die.

(Postscript)

Until now, I have failed many times and it seems useless this time, but this  
 time I have absolute confidence. Perhaps I will die today or tomorrow. I will  
 write it as my will.

Also, for children's tuition, write as a will.

Although I could do mathematics, but I could not do anything afterwards,  
 continued to be deceived by people, who did not understand the heart of  
 men, only failed in life, as a will of repentance of a man who sent a life of  
 anguish leave.

The prize money of 100 million yen is given to my two children.

(postscript)

The following items were attached to the title, but it disappeared now.

ζ Star man, appearing in my dream and say it. " $\sin[x*\ln1] / 1^a -$   
 $\sin[x*\ln2].....$  "

Infinite next is 0 Therefore, .....

There are many ways to prove Riemann hypothesis

(postscript)

I will put out before my life goes down. I did the last inspection. Please give  
 all the prize money to my child.

(postscript)

Please compile properly. I am very poor of English. Thanking you in  
 advance. postscript I do not understand English translated into English by  
 google translation, I translate again into Japanese by google translation  
 again, and I can not understand the translation.



