International Journal of Science Academic Research
Vol. 04, Issue 02, pp.5092, February, 2023
Available online at http://www.scienceijsar.com

ISSN: 2582-6425

Research Article

PROBABILITY PROVES RIEMANN CONJECTURE AS THERE IS ALWAYS SOME POSSIBILITY ROOTS ARE REAL

***James T. Struck BA, BS, AA, MLIS**

Affiliated alumni of University of Chicago work with NASA

Received 28th December 2022; **Accepted** 20th January 2023; **Published online** 17th February 2023

INTRODUCTION

Riemann's conjecture is that there is a probability that roots are real. There is always even with no roots, some probability that roots are real. Even with 0 probability, there is still a probability of real roots. With some probability of real roots, Riemann conjecture is shown true.

DISCUSSION

Great scientists like John Nash and others have gotten all worked up about the Riemann conjecture or Riemann hypothesis. The conjecture can be viewed as a simple query or question on page 4 of his paper from the 1859 article about whether or not roots to the Riemann zeta function have to be real. One can present an argument that the conjecture is true. Considering the Riemann zeta function at 0 only gives one point at infinity. With a point at 0, we show that the zeta function does not have points along the 1/2 line. Riemann conjecture disproved as zeros do not lie at the point 1/2 or along the line ½ but at infinity.

We can consider the Riemann zeta function at 0 and see what the zeta function adds up to at 0.

$1+1/2^0 + 1/3^0 + 1/4^0$ which eventually equals infinity

The Zeta function of Bernhard Riemann arguably has only 1 zero at Infinity. That point at infinity is not really on the line or critical line at 1/2. Therefore, the Riemann conjecture can be seen as false or disproved as the point 0 is not along the line 1/2.

The zeta function sum only includes Real numbers as its candidate numbers. As the zeta function considers only real numbers from 1 to infinity, only real zeros are possible. If one includes only real numbers, Riemann conjecture is true that zeta function only has Real roots. The zeta function sum asks for numbers between 1 and infinity, so roots have to be real.

Riemann zeta function involves Real numbers. The zeta function includes numbers from 1 to infinity.

"Written as $\zeta(x)$, it was originally defined as the infinite series $\zeta(x) = 1 + 2^{-x} + 3^{-x} + 4^{-x} + \cdots$" [1]

There is always going to be a probability that some roots or all roots are real. So based on probability, Riemann conjecture is shown true.

Riemann said "It is very probable that all roots are real." [2] Look at the article written in 1859. On page 4, Riemann asks in his real conjecture "Are all roots real?" since the zeta function is limited to the Real Numbers, roots are indeed all real. Also when we consider the case study at 0, we get infinity not 1/2. Infinity is part of the Real numbers however, so roots can all be seen as Real. We can ignore considerations of 1/2 as some kind of amusement park that mathematicians were lost in rolling around on a roller coaster without any need for the roller coaster ride. Roots can be proven to all be real as that is the range which the zeta function considers.

Conclusion

Riemann simple question "Are roots real?" can be seen as true and proved given the initial conditions of the Riemann zeta function. All the solutions of the Riemann zeta function can be among the Reals. The whole issue of the ½ line can be ignored as not what Bernhard Riemann in his 1859 article was asking for. Real variables in the Riemann zeta function will only produce real roots. Still even if imaginary roots were found those still can be considered to be real or existing. A perspective can be presented that the Riemann conjecture is true or provable. Riemann was right. There is some probability that roots are real in all situations.

REFERENCES

1. Editors of the Encyclopedia Britannica. "Riemann zeta function" accessed on 8/30/2021 at https://www.britannica.com/science/Riemann-zeta-function
2. "On the Number of Prime Numbers Less than a Given Quantity" From Monatsberichte der Berliner Akademie November 1859

Corresponding Author:** ***James T. Struck
Affiliated alumni of University of Chicago work with NASA.