Proof of the Riemann hypothesis

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Abstract

I could give a complete proof by the number theory method to Riemann hypothesis. I found the following number law. This proved that Riemann hypothesis is correct.

key words

Riemann hypothesis, Taylor series, Maclaurin expansion

introduction

The formula is (1).

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} \qquad s = a + bi \tag{1}$$

if a=0.5, and b are nontrivial zero values, The above equation is zero.

$$\sum_{n=1}^{\infty} [\frac{\sin(x\ ln(2n-1))}{(2n-1)^c} - \frac{\sin(x\ ln(2n))}{(2n)^c}] \tag{2}$$

if c=0.5, and x are nontrivial zero values, the above quastion are zero.

$$\sum_{n=1}^{\infty} [\frac{\cos(x\ ln(2n-1))}{(2n-1)^c} - \frac{\cos(x\ ln(2n))}{(2n)^c}] \tag{3}$$

if c=0.5, and x are nontrivial zero values, (2) and (3) are zero.

Although x is treated as a real number, x is a nontrivial zero values.

That is, it takes eternal number of nontrivial zeros of the positive and negative regions on the axis 0.5.

Looking at the formula of Euler's formula(1), I sought out if this could be handled as a cross series.

$$\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{n^{1-k}} = \sum_{n=1}^{\infty}[\frac{1}{(2n-1)^{1-k}} - \frac{1}{(2n)^{1-k}}] \tag{4}$$

$$insert \quad cos\theta + i\sin\theta = e^{i\theta} \tag{5}$$

$$\sum_{n=1}^{\infty}[\frac{cos(x\ ln(2n-1)) + i\ sin(x\ ln(2n-1))}{(2n-1)^{\frac{1}{2}-d}} - \frac{cos(x\ ln(2n)) + i\ sin(x\ ln(2n))}{(2n)^{\frac{1}{2}-d}}] \tag{6}$$

if d=0, and x is nontrivial zero values, The above equation is zero.

Discussion

$$\zeta(s) = \zeta(1-s) \tag{7}$$

From Eq.(7), Eq.(8) is derived from Eq.(6).

$$\sum_{n=1}^{\infty}[\frac{cos(x\ ln(2n-1)) + i\ sin(x\ ln(2n-1))}{(2n-1)^{\frac{1}{2}+d}} - \frac{cos(x\ ln(2n)) + i\ sin(x\ ln(2n))}{(2n)^{\frac{1}{2}+d}}] \tag{8}$$

if d=0, and x is nontrivial zero values, The above equation is zero.

Eq.(2) and Eq.(3) are derived from Eq.(6) and Eq.(8).

From Eq.(6) and Eq.(8).

1/2 - d= 1/2 +d= 0.5, equal d=0. C= 0.5

The proof is completed.

References

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