The Riemann Hypothesis is false

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Abstract: in this page I talk about convergence of zeta function.

The Riemann Hypothesis said that the zeta-function have all no trivial zeros on critical line that is the complex line 1/2+iy for all real y. But we proved the following theorem:

Theorem. Let the function ζ(s) defined by $\zeta(s) = \sum_{n=1}^{+\infty} \frac{1}{n^s}$, it converges for all s positive real number.

Proof. Let $x^{\frac{l}{m}}$: R^+-> R^+ with 0<l<m fixated, we prove:

Lemma. $\lim_{x\to+\infty} x^{\frac{l}{m}}$ =a with 0<l<m fixated and a real numbers

Proof. We suppose $\lim_{x\to+\infty} x^{\frac{l}{m}} = +\infty$ that is

for all M>0 exist S >0 such that for x>S ⇒ $x^{\frac{l}{m}} > M$

for x>S>0 we have $x^{\frac{l}{m}} > 0$ we obtain $x^{\frac{l}{m}} > M \Rightarrow \frac{M}{x^{\frac{l}{m}}} < 1$ so

for M->0 and x>S>0 $\frac{M}{x^{\frac{l}{m}}}$ -> 0 < 1 ok

for M->+∞ and x>S>0 real $\frac{M}{x^{\frac{l}{m}}}$->+∞<1 & for M->+∞ x->+∞ $\frac{M}{x^{\frac{l}{m}}}$ (for $M = \frac{1}{M_1}$ $x = \frac{1}{x_1}$)

for M_1->0^+ x_1->0^+ $\frac{x_1^{\frac{l}{m}}}{M_1} = (M_1 = dx_1 \; with \; d > 0\,) = \frac{x_1^{\frac{l}{m}}}{dx_1}$->+∞ absurd Q.E.D.

we have proved that $\lim_{x\to+\infty} x^{\frac{l}{m}} = a$ with 0<l<m and a real numbers

we have $\frac{m}{l}a = \frac{m}{l}\lim_{x\to+\infty} x^{\frac{l}{m}}$(for Fundamental theorem of calculus) ≥ $\frac{m}{l}\lim_{x\to+\infty}\int_0^x \frac{1}{x^{\frac{m-l}{m}}}dt$

For definition of Riemann integral $\int_0^x \frac{1}{t^{\frac{m-l}{m}}}\,dt \;\geq\; \sum_{t=0}^{x-1} min \frac{1}{t^{\frac{m-l}{m}}}$

but $\frac{1}{t^{\frac{m-l}{m}}}$ is a decreasing function so

$\sum_{t=0}^{x-1} min \frac{1}{t^{\frac{m-l}{m}}} = \sum_{t=1}^{x} \frac{1}{t^{\frac{m-l}{m}}}$

So we have proved that for an d real $d \geq \sum_{n=1}^{+\infty} \frac{1}{n^{\frac{m-l}{m}}}$ with 0<l<m fixated Q.E.D.

We have proved that ζ-function converges into complex half-plane of positive real numbers so it hasn't zeros.