THE NUMERICAL PHENOMENA REGARDING RH

Artem Afanasiev

To support the channel:

PayPal: @afster321

THE MAIN IDEA

- The idea is to use the Residue theorem to discover the location of singularities for $\frac{1}{\eta(s)}$, where $\eta(s) = (1 - 2^{1-s})\zeta(s) = \sum_{k=1}^{\infty} \frac{(-1)^{k+1}}{k^s}$
- This series is convergent on the critical strip!

ISOMORPHISM

- $\varphi(s) = \frac{\ln(s)}{i666\pi} + 0.75$
- Logarithm maps the unit disk to the strip $\{Re(s) < 0, Im(s) \in (-\pi,\ \pi)\}$
- We scale this strip by $\frac{1}{666\pi}$ and rotate it 90 degrees clockwise by multiplying by $-i$
- We move this thin vertical strip to the point 0.75

IF THE RIEMANN HYPOTHESIS IS TRUE

- Then $\eta\big(\varphi(s)\big)$ has got no zeroes on the unit disc except, possibly, 0, which is mapped to infinity
- $\frac{1}{\eta\left(\varphi(s)\right)}$ has got no singularities on the unit disc except, possibly, 0, which is mapped to infinity
- Then by the Residue theorem:
- $\int_{|z|=1} \frac{1}{\eta\left(\varphi(z)\right)} dz = \int_{|z|=r} \frac{1}{\eta\left(\varphi(z)\right)} dz \,, 0 < r < 1$

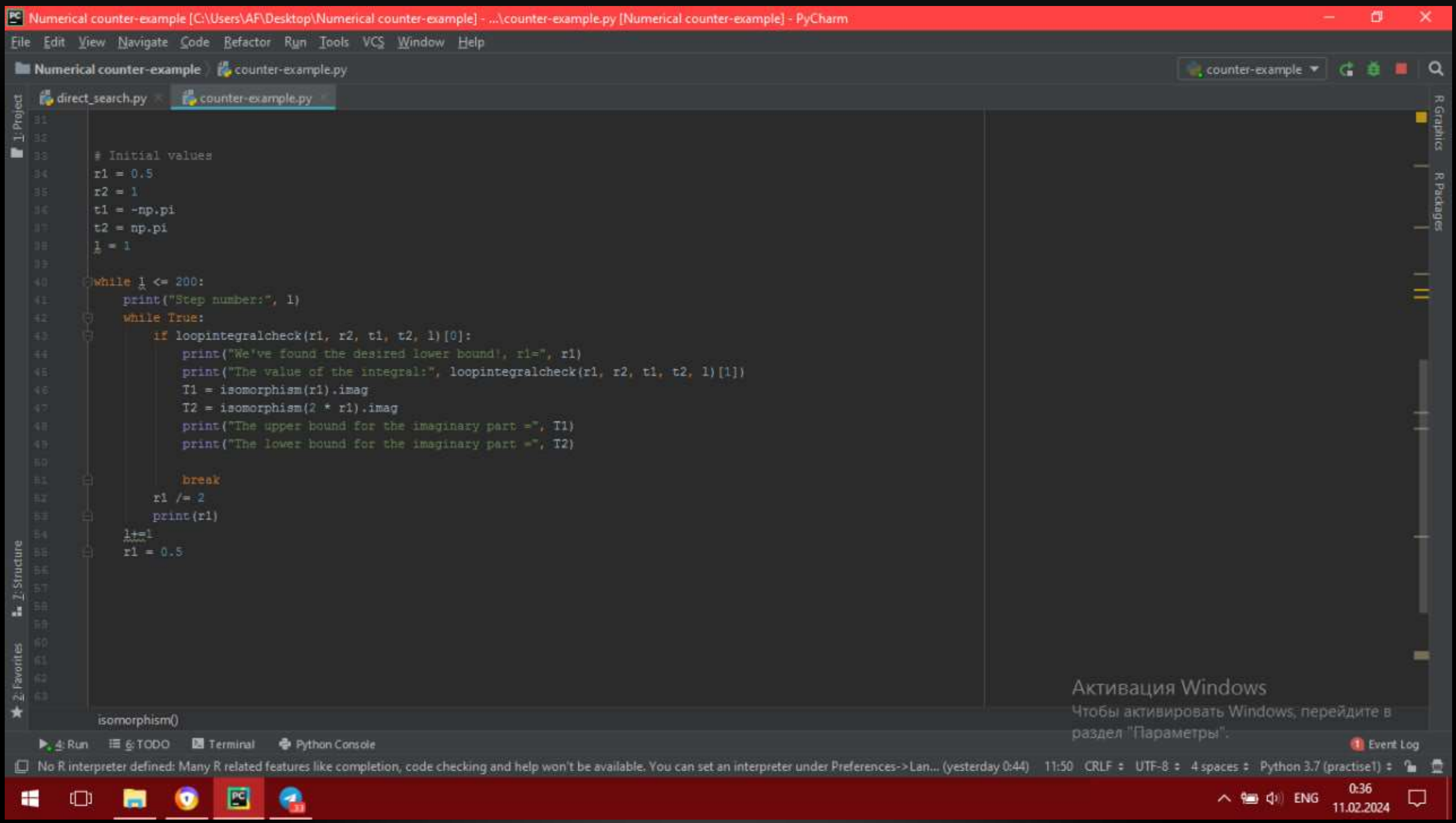
PARAMETERIZATION OF INTEGRALS

- $\int_{|z|=r} \frac{1}{\eta(\varphi(z))} dz = \left| z = re^{it} \right| = \int_{-\pi}^{\pi} \frac{ire^{it}dt}{\eta\left(\varphi\left(re^{it}\right)\right)}$
- We expect: $\int_{-\pi}^{\pi} \frac{ie^{it}dt}{\eta\left(\varphi\left(e^{it}\right)\right)} - \int_{-\pi}^{\pi} \frac{ire^{it}dt}{\eta\left(\varphi\left(re^{it}\right)\right)} = 0$
- Let us check it numerically!

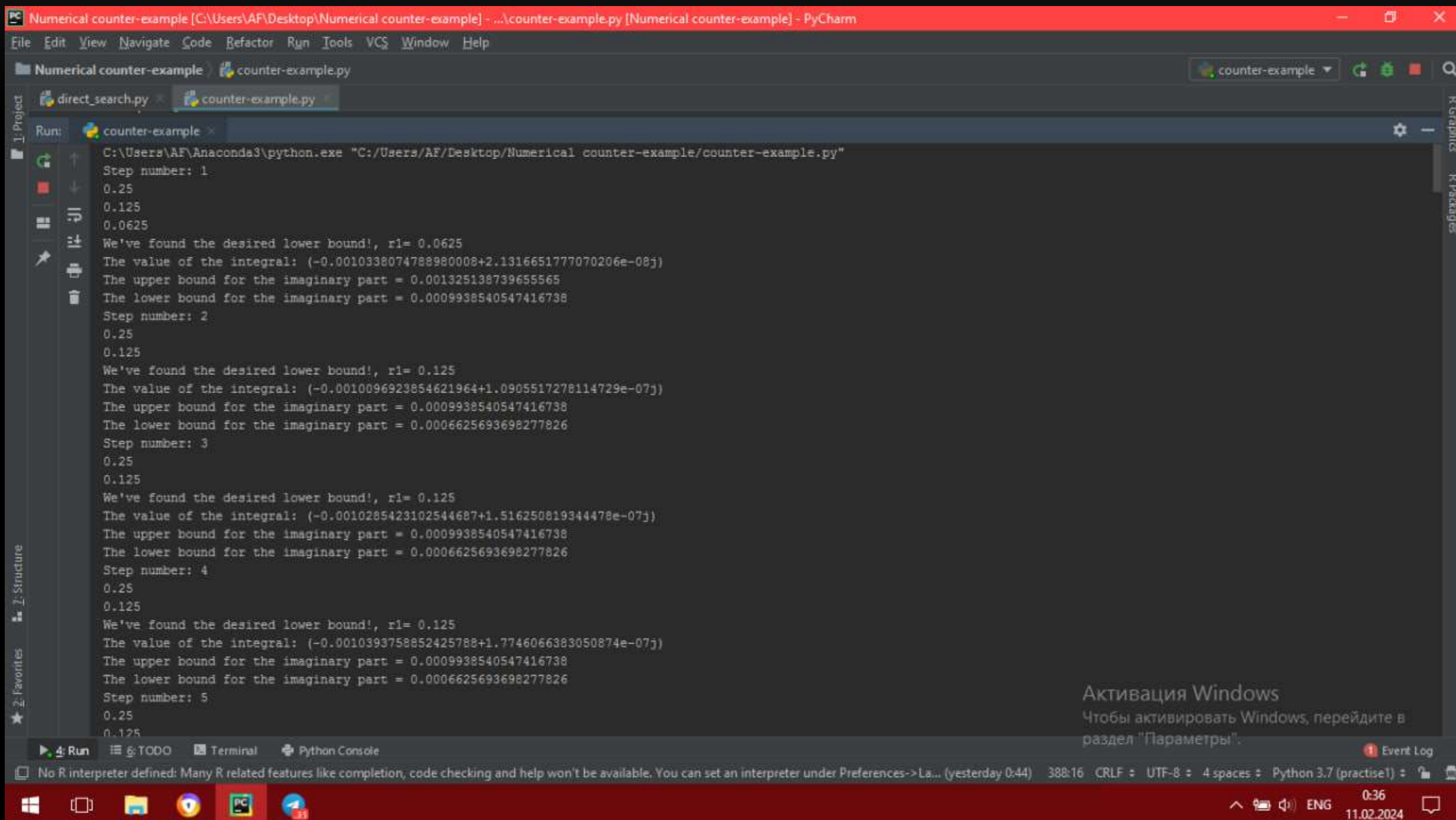
THE CODE REALIZATION 1

```python
import numpy as np
from scipy.integrate import quad


def eta(s, l):
    return sum((-1) ** k / k ** s for k in range(1, l*1000))


def isomorphism(s):
    return -1j * np.log(s) / (666 * np.pi) + 0.75


def integrand1(t1, t2, r, t, l):
    s = r * np.exp(1j * (t * (t2 - t1) + t1))
    eta_phi = 1 / eta(isomorphism(s), l)
    return eta_phi * s * (t2 - t1) * 1j


def loopintegralcheck(r1, r2, t1, t2, l):
    try:
        s1, er1 = quad(lambda t: (integrand1(t1, t2, r2, t, l).real - integrand1(t1, t2, r1, t, l).real), 0, 1)
        s2, er2 = quad(lambda t: (integrand1(t1, t2, r2, t, l).imag - integrand1(t1, t2, r1, t, l).imag), 0, 1)

        if abs(s1 + 1j * s2) >= 0.001:
            return True, s1 + 1j * s2
        else:
            return False, s1 + 1j * s2
    except ZeroDivisionError:
        return True, 1


# Initial values
```

THE CODE REALIZATION 2

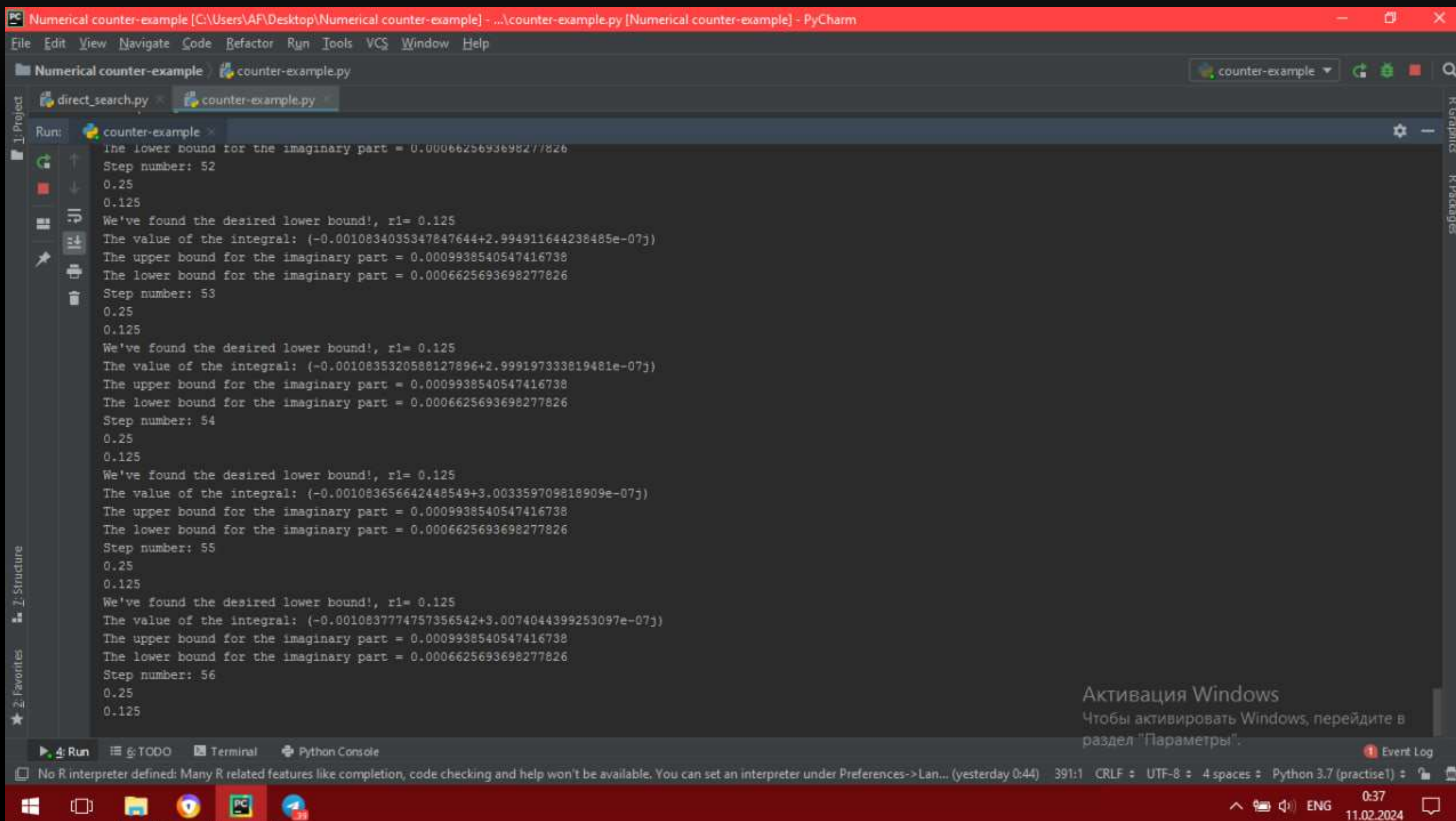


HOW IT GOES 1



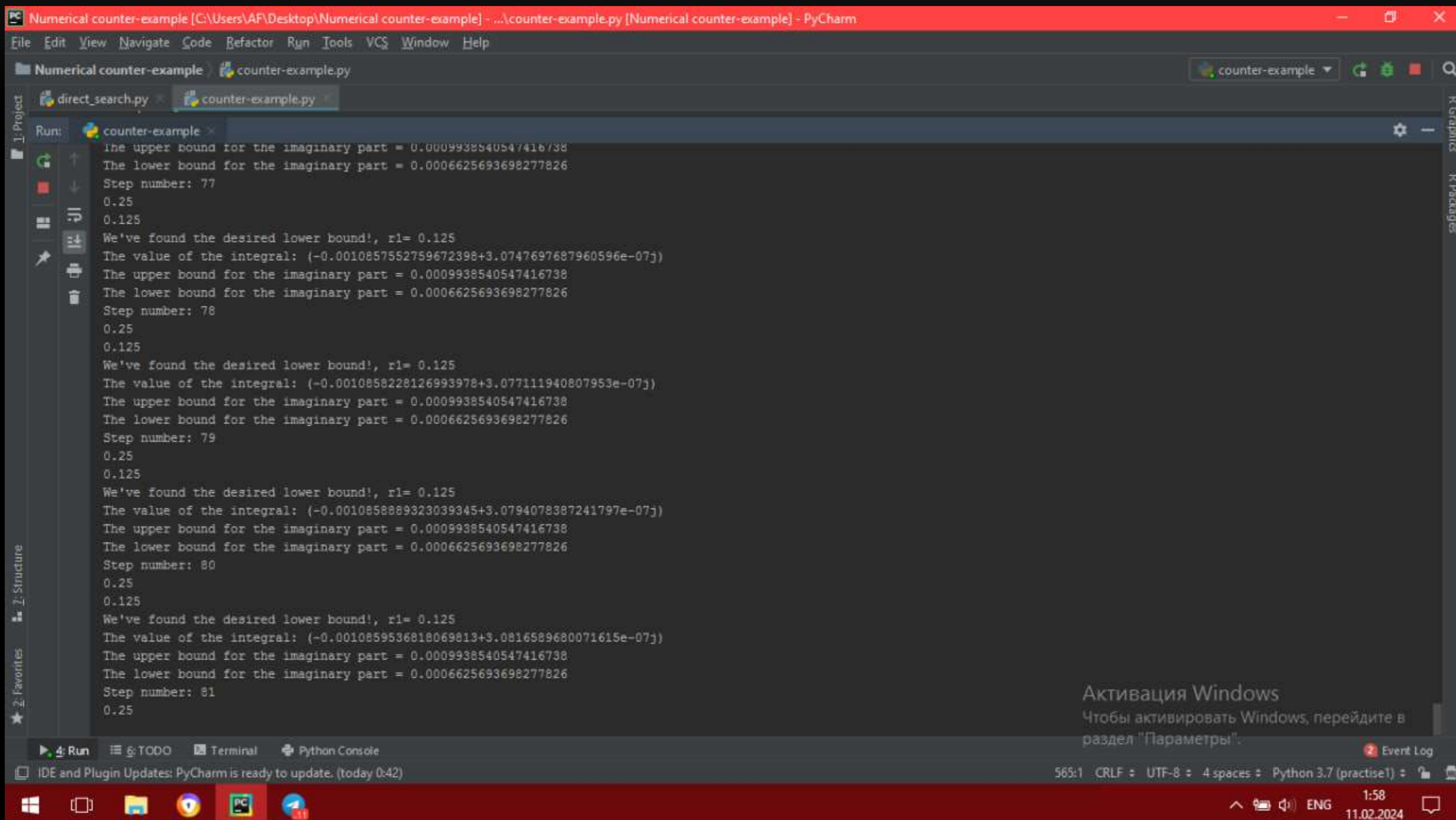
Numerical counter-example [C:\Users\AF\Desktop\Numerical counter-example] - ...\counter-example.py [Numerical counter-example] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
Numerical counter-example
counter-example.py
direct_search.py
Run: counter-example
C:\Users\AF\Anaconda3\python.exe "C:/Users/AF/Desktop/Numerical counter-example/counter-example.py"
Step number: 1
0.25
0.125
0.0625
We've found the desired lower bound!, r1= 0.0625
The value of the integral: (-0.0010338074788980008+2.1316651777070206e-08j)
The upper bound for the imaginary part = 0.001325138739655565
The lower bound for the imaginary part = 0.0009938540547416738
Step number: 2
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010096923854621964+1.0905517278114729e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 3
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010285423102544687+1.516250819344478e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 4
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010393758852425788+1.7746066383050874e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 5
0.25
0.125
4: Run
6: TODO
Terminal
Python Console
Event Log
No R interpreter defined: Many R related features like completion, code checking and help won't be available. You can set an interpreter under Preferences->La... (yesterday 0:44)
388:16 CRLF UTF-8 4 spaces Python 3.7 (practise1)
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
ENG
0:36
11.02.2024

HOW IT GOES 2



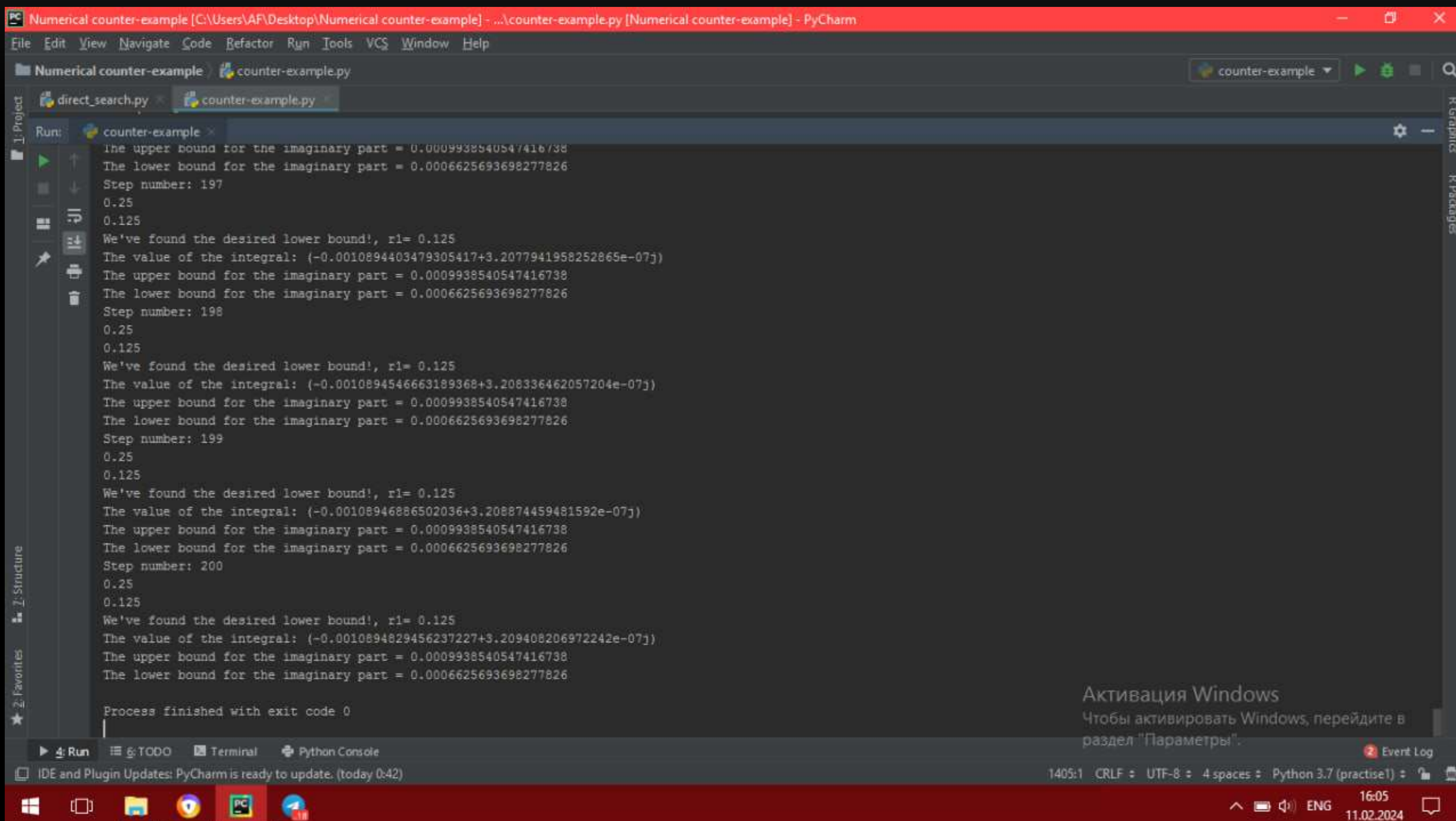
Numerical counter-example [C:\Users\AF\Desktop\Numerical counter-example] - ...\counter-example.py [Numerical counter-example] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
Numerical counter-example
counter-example.py
direct_search.py
Run: counter-example
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 52
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010834035347847644+2.994911644238485e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 53
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010835320588127896+2.999197333819481e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 54
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.001083656642448549+3.003359709818909e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 55
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010837774757356542+3.0074044399253097e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 56
0.25
0.125
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
4: Run
6: TODO
Terminal
Python Console
Event Log
No R interpreter defined: Many R related features like completion, code checking and help won't be available. You can set an interpreter under Preferences->Lan... (yesterday 0:44)
391:1 CRLF UTF-8 4 spaces Python 3.7 (practise1)
ENG
0:37
11.02.2024

HOW IT GOES 3



Numerical counter-example [C:\Users\AF\Desktop\Numerical counter-example] - ...\counter-example.py [Numerical counter-example] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
Numerical counter-example
counter-example.py
counter-example
direct_search.py
counter-example.py
Run:
counter-example
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 77
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010857552759672398+3.0747697687960596e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 78
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010858228126993978+3.077111940807953e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 79
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010858889323039345+3.0794078387241797e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 80
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010859536818069813+3.081658968007161 5e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 81
0.25
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
4: Run
6: TODO
Terminal
Python Console
Event Log
IDE and Plugin Updates: PyCharm is ready to update. (today 0:42)
565:1 CRLF UTF-8 4 spaces Python 3.7 (practise1)
ENG
1:58
11.02.2024

HOW IT GOES 4



Numerical counter-example [C:\Users\AF\Desktop\Numerical counter-example] - ...\counter-example.py [Numerical counter-example] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
Numerical counter-example
counter-example.py
direct_search.py
Run: counter-example
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 197
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010894403479305417+3.2077941958252865e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 198
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010894546663189368+3.208336462057204e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 199
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010894688650203б+3.208744594815 92e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Step number: 200
0.25
0.125
We've found the desired lower bound!, r1= 0.125
The value of the integral: (-0.0010894829456237227+3.209408206972242e-07j)
The upper bound for the imaginary part = 0.0009938540547416738
The lower bound for the imaginary part = 0.0006625693698277826
Process finished with exit code 0
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
4: Run
6: TODO
Terminal
Python Console
Event Log
IDE and Plugin Updates: PyCharm is ready to update. (today 0:42)
1405:1 CRLF UTF-8 4 spaces Python 3.7 (practise1)
ENG
16:05
11.02.2024

THE ATTEMPTS TO PROVE RH. JEFF N. COOK 1

Lemma 1

Given the Riemann oscillator

$$\zeta_s(t) = \frac{d^2 c_s}{dt^2} + 2\upsilon(s)\omega_s \frac{dc_s}{dt} + \omega_s^2 c_s, \quad s \neq 1,$$

where $c_s(t)$, ω_s, and $\upsilon(s)$ are defined as follows:

$$c_s(t) = \frac{e^{(s-1)t}}{(s-1)^3}, \quad s \neq 1,$$

$$\omega_s = i\overline{s},$$

$$\upsilon(s) = \frac{i(2\overline{s}^2 + (s-1)^3)}{4(s-1)\overline{s}} - \frac{(s-1)^2}{2\overline{s}} \int_0^\infty \frac{(1-it)^s - (1+it)^s}{(t^2+1)^s(e^{2\pi t}-1)} dt, \quad s \neq 1$$

THE ATTEMPTS TO PROVE RH. JEFF N. COOK 2

$$\zeta_s(t) := \frac{d^2 c_s}{dt^2} + 2\upsilon(s)\omega_s \frac{dc_s}{dt} + \omega_s^2 c_s, \quad s \neq 1. \tag{17}$$

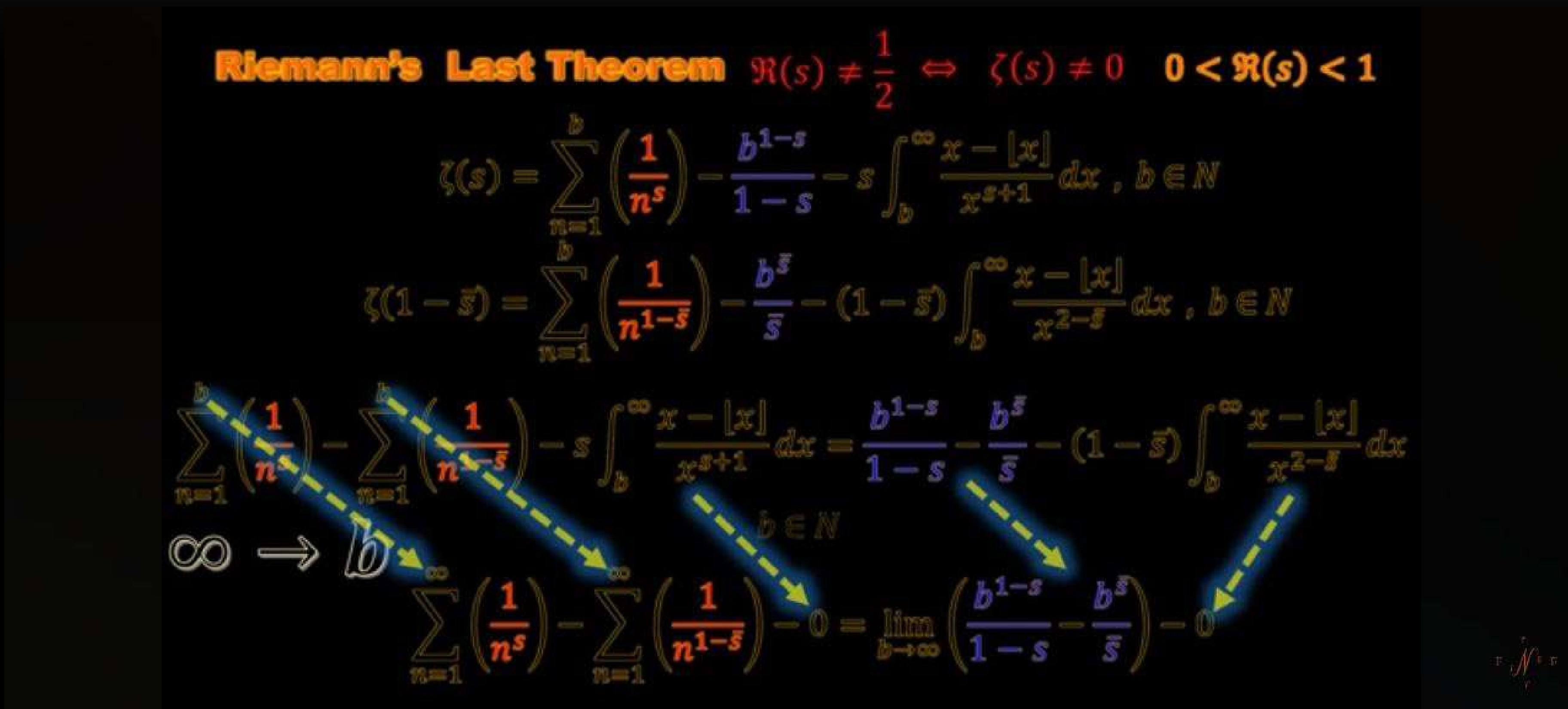
Given the form of the Riemann oscillator, it is possible to think of $\upsilon(s)$ as playing a role analogous to the damping ratio in a harmonic oscillator, as it determines the behavior of the Riemann oscillator. However, it is important to note that the Riemann oscillator is a purely mathematical model and does not have a physical interpretation. As such, it is not a direct analogy, but rather a mathematical concept that can be used to study the properties of the Riemann zeta function. Likewise, it is possible to think of $\alpha(s)$ playing a role analogous to the decay rate, [4] and ω_s can be thought of as a frequency parameter. In a harmonic oscillator, the frequency is a real number that describes the number of oscillations per unit time. In the Riemann oscillator, the frequency is a complex number, which means that the oscillator is not oscillating in a simple sinusoidal pattern. Instead, the oscillator is behaving in a more complicated way that depends on both the real and imaginary parts of ω_s.

Now that the Riemann oscillator has been defined independently of the Riemann zeta function in a way that eliminates any assumptions in the definition, one can prove Lemma 1. Evaluate the Riemann oscillator at $t = 0$. At $t = 0$, equation (17) reduces to

$$\zeta_s(0) = \frac{1}{s-1} - \frac{2i\bar{s}\upsilon(s)}{(s-1)^2} - \frac{(\bar{s})^2}{(s-1)^3}. \tag{18}$$

Considering the explicit form of $\upsilon(s)$ in (14), the Riemann oscillator reduces to

THE ATTEMPTS TO PROVE RH.
ARIC B. CANNANIE 1



THE ATTEMPTS TO PROVE RH. ARIC B. CANNANIE 2

- The key statement is so-called “Super Symmetric Equation”:
- $\zeta(s) - \zeta(1-\bar{s}) = 0 \Leftrightarrow \sum_{n=1}^{\infty} \frac{1}{n^s} - \sum_{n=1}^{\infty} \frac{1}{n^{1-\bar{s}}} = 0, Re(s) \in (0,1)$

THE ATTEMPTS TO PROVE RH. ARIC B. CANNANIE 3

- Why it could make sense?
- Define $F(u, w, z) \coloneqq \sum_{n=1}^{\infty} \frac{1}{n^{u+w}} - \sum_{n=1}^{\infty} \frac{1}{n^{u+z}}$
- It coincides with $\zeta(u+w) - \zeta(u+z)$ on the domain $Re\ u > 2, Re\ w \ \in (0,1), Re\ z \ \in (0,1)$, which is an open set.
- Thus,$\zeta(u+w) - \zeta(u+z)$ is a.c. of F
- Substitute $u = 0, w = s, z = 1 - \bar{s}$

BUT IT HAS NOTHING TO DO WITH PASSING TO THE LIMIT! 1

Lemma 4. *Let s be a non-trivial zero of Riemann zeta-function. Then SSE* $\Longrightarrow \Re(s) = \frac{1}{3}$.

By the Lemma 1 we obtain the following.

$$\zeta(s) = \sum_{n=1}^{8k^3} \frac{1}{n^s} - \frac{(8k^3)^{1-s}}{1-s} + o(1), \tag{2}$$

$$\zeta(1-\bar{s}) = \sum_{n=1}^{8k^6} \frac{1}{n^{(1-\bar{s})}} - \frac{(8k^6)^{\bar{s}}}{\bar{s}} + o(1). \tag{3}$$

We note that $\{8k^3|k \geq 1\}$ and $\{8k^6|k \geq 1\}$ are the subsequences of the sequence of positive integers such that $\lim_{k\to\infty} 8k^3 = \infty \wedge \lim_{k\to\infty} 8k^6 = \infty$. Therefore, we are able to use Lemma 2 and obtain

$$\lim_{k\to\infty} \sum_{n=1}^{8k^3} \frac{1}{n^s} = \sum_{n=1}^{\infty} \frac{1}{n^s} \wedge \lim_{k\to\infty} \sum_{n=1}^{8k^6} \frac{1}{n^s} = \sum_{n=1}^{\infty} \frac{1}{n^s} \Longrightarrow \lim_{k\to\infty} \sum_{n=1}^{8k^3} \frac{1}{n^s} = \lim_{k\to\infty} \sum_{n=1}^{8k^6} \frac{1}{n^s} = \lim_{k\to\infty} \sum_{n=1}^{\infty} \frac{1}{n^s}.$$

BUT IT HAS NOTHING TO DO WITH PASSING TO THE LIMIT! 2

Subtract (3) from (2) and obtain the following with respect to Lemma 2 after taking the limit as $k \to \infty$.

$$\zeta(s) - \zeta(1-\bar{s}) = \sum_{n=1}^{\infty} \frac{1}{n^s} - \sum_{n=1}^{\infty} \frac{1}{n^{(1-\bar{s})}} + \lim_{k\to\infty} \left(\frac{(8k^6)^{\bar{s}}}{\bar{s}} - \frac{(8k^3)^{1-s}}{1-s}\right). \tag{4}$$

If s is a non-trivial zero of Riemann zeta-function, we obtain the following with respect to SSE from (4).

$$\lim_{k\to\infty} \left(\frac{8^{\bar{s}} k^{6\bar{s}}}{\bar{s}} - \frac{8^{1-s} k^{3(1-s)}}{1-s}\right) = 0. \tag{5}$$

Now we use the trick, which is given while deriving (15) in `https://www.0bq.com/arslt`. For the limit of this difference to be equal to zero one should have the same order of those terms, i.e., the real part of the degrees of k should be the same as $\forall z \in \mathbb{C} |e^z| = e^{\Re(z)}$ as otherwise one of the terms blows up. Therefore, we obtain

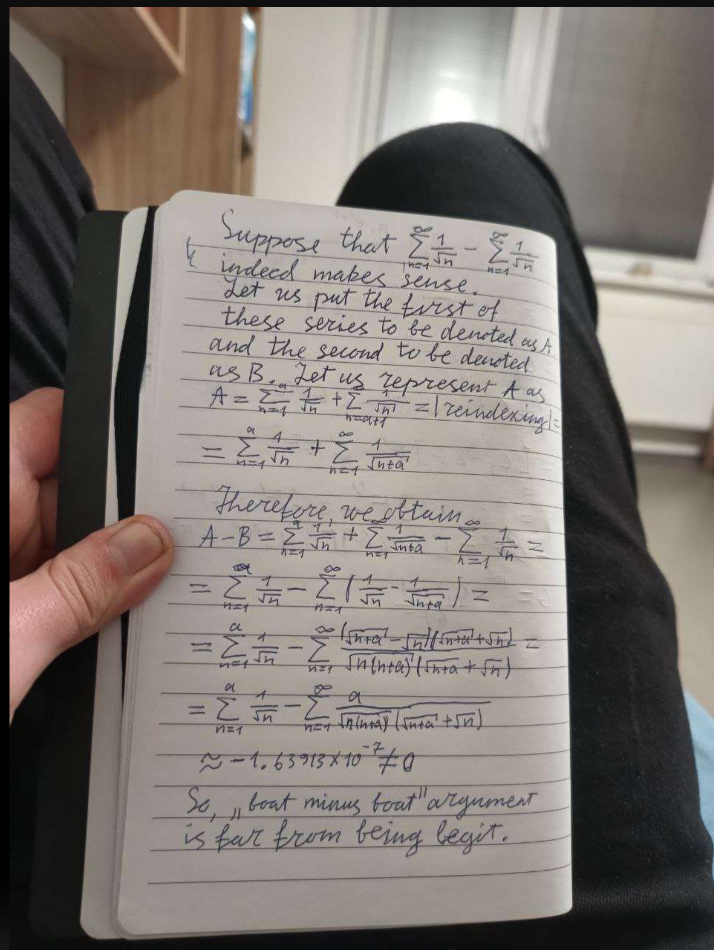
$$6\Re(s) = 3(1 - \Re(s)) \iff 2\Re(s) = 1 - \Re(s) \iff \Re(s) = \frac{1}{3}.$$

Thus, the proof is complete. Now for convenience we check the identity (5) for $s = \frac{1}{3}$. We obtain

$$\lim_{k\to\infty} \left(\frac{8^{\frac{1}{3}} k^{6\frac{1}{3}}}{\frac{1}{3}} - \frac{8^{1-\frac{1}{3}} k^{3(1-\frac{1}{3})}}{1-\frac{1}{3}}\right) = \lim_{k\to\infty} (6k^2 - 6k^2) = 0.$$

Now we shall show that the only possibility for SSE to be correct is the complete absence of non-trivial zeroes of Riemann zeta-function.

WHY THE DIFFERENCE OF SERIES DIVERGE EVEN FOR RE(S)=0.5



Suppose that $\sum_{n=1}^{\infty}\frac{1}{\sqrt{n}} - \sum_{n=1}^{\infty}\frac{1}{\sqrt{n}}$ indeed makes sense.

Let us put the first of these series to be denoted as A and the second to be denoted as B. Let us represent A as

$$A = \sum_{n=1}^{a}\frac{1}{\sqrt{n}} + \sum_{n=a+1}^{\infty}\frac{1}{\sqrt{n}} = |\text{reindexing}| =$$

$$= \sum_{n=1}^{a}\frac{1}{\sqrt{n}} + \sum_{n=1}^{\infty}\frac{1}{\sqrt{n+a}}$$

Therefore, we obtain

$$A-B = \sum_{n=1}^{a}\frac{1}{\sqrt{n}} + \sum_{n=1}^{\infty}\frac{1}{\sqrt{n+a}} - \sum_{n=1}^{\infty}\frac{1}{\sqrt{n}} =$$

$$= \sum_{n=1}^{a}\frac{1}{\sqrt{n}} - \sum_{n=1}^{\infty}\left(\frac{1}{\sqrt{n}} - \frac{1}{\sqrt{n+a}}\right) =$$

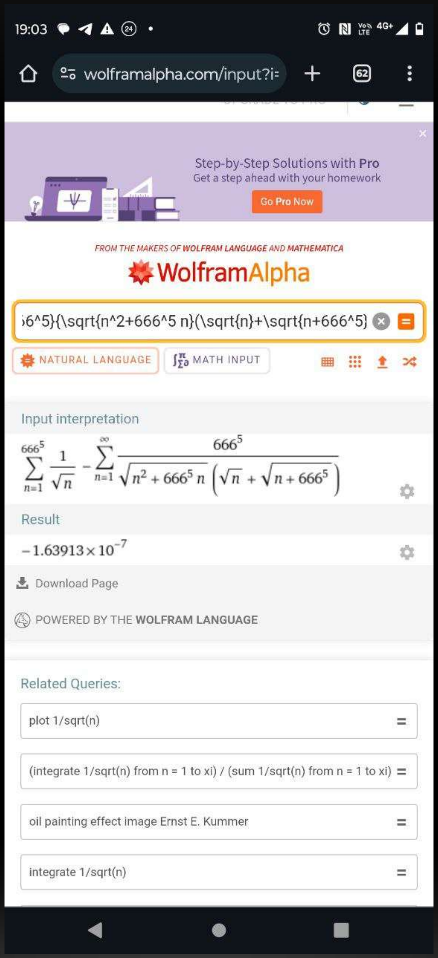
$$= \sum_{n=1}^{a}\frac{1}{\sqrt{n}} - \sum_{n=1}^{\infty}\frac{(\sqrt{n+a}-\sqrt{n})(\sqrt{n+a}+\sqrt{n})}{\sqrt{n(n+a)}(\sqrt{n+a}+\sqrt{n})} =$$

$$= \sum_{n=1}^{a}\frac{1}{\sqrt{n}} - \sum_{n=1}^{\infty}\frac{a}{\sqrt{n(n+a)}(\sqrt{n+a}+\sqrt{n})}$$

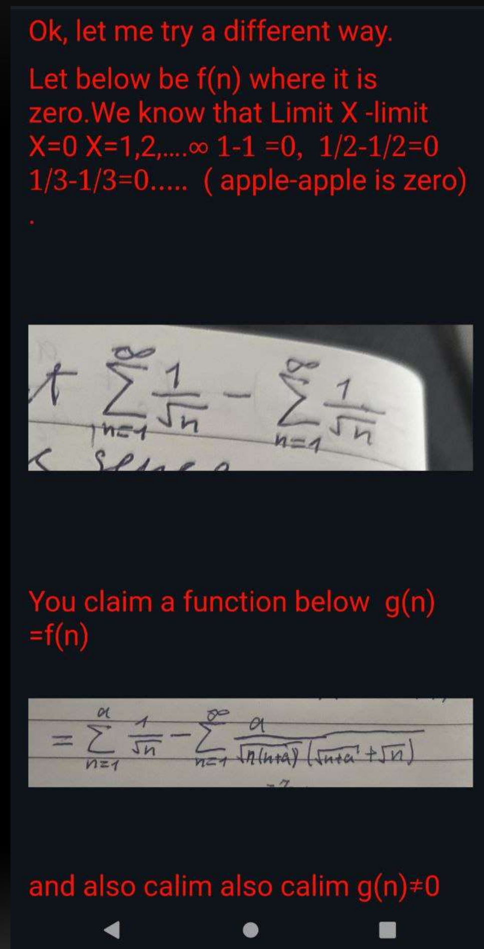
$$\approx -1.63913 \times 10^{-7} \neq 0$$

So, „boat minus boat" argument is far from being legit.

WOLFRAM CHECKING

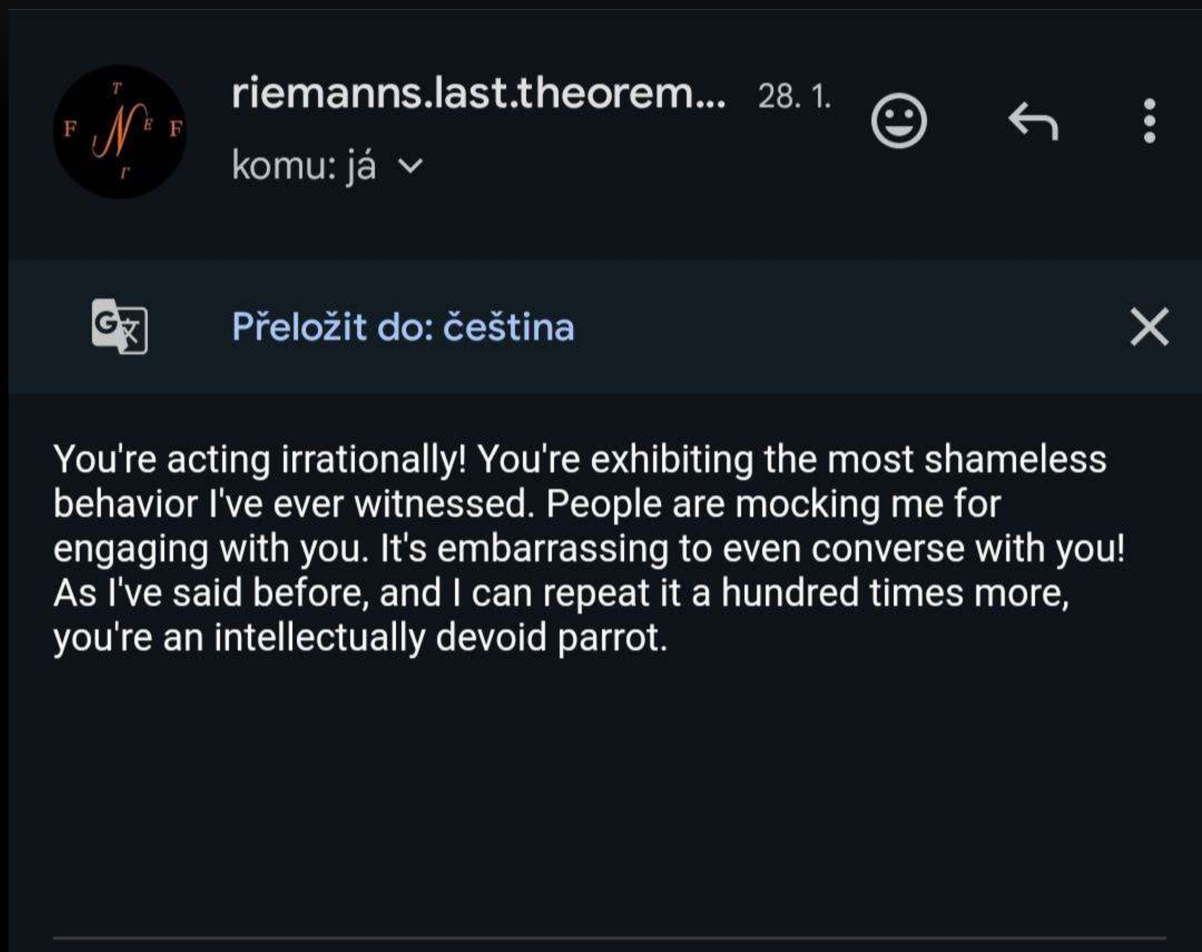


HE MEANS IT!



Ok, let me try a different way.
Let below be f(n) where it is zero.We know that Limit X -limit X=0 X=1,2,....∞ 1-1 =0, 1/2-1/2=0 1/3-1/3=0..... (apple-apple is zero) .
You claim a function below g(n) =f(n)
and also calim also calim g(n)≠0

WHAT DID I ACHIEVE?



riemanns.last.theorem... 28. 1.

komu: já

Přeložit do: čeština

You're acting irrationally! You're exhibiting the most shameless behavior I've ever witnessed. People are mocking me for engaging with you. It's embarrassing to even converse with you! As I've said before, and I can repeat it a hundred times more, you're an intellectually devoid parrot.

THANKS FOR WATCHING!

- And remember:
- The best is yet to come!