

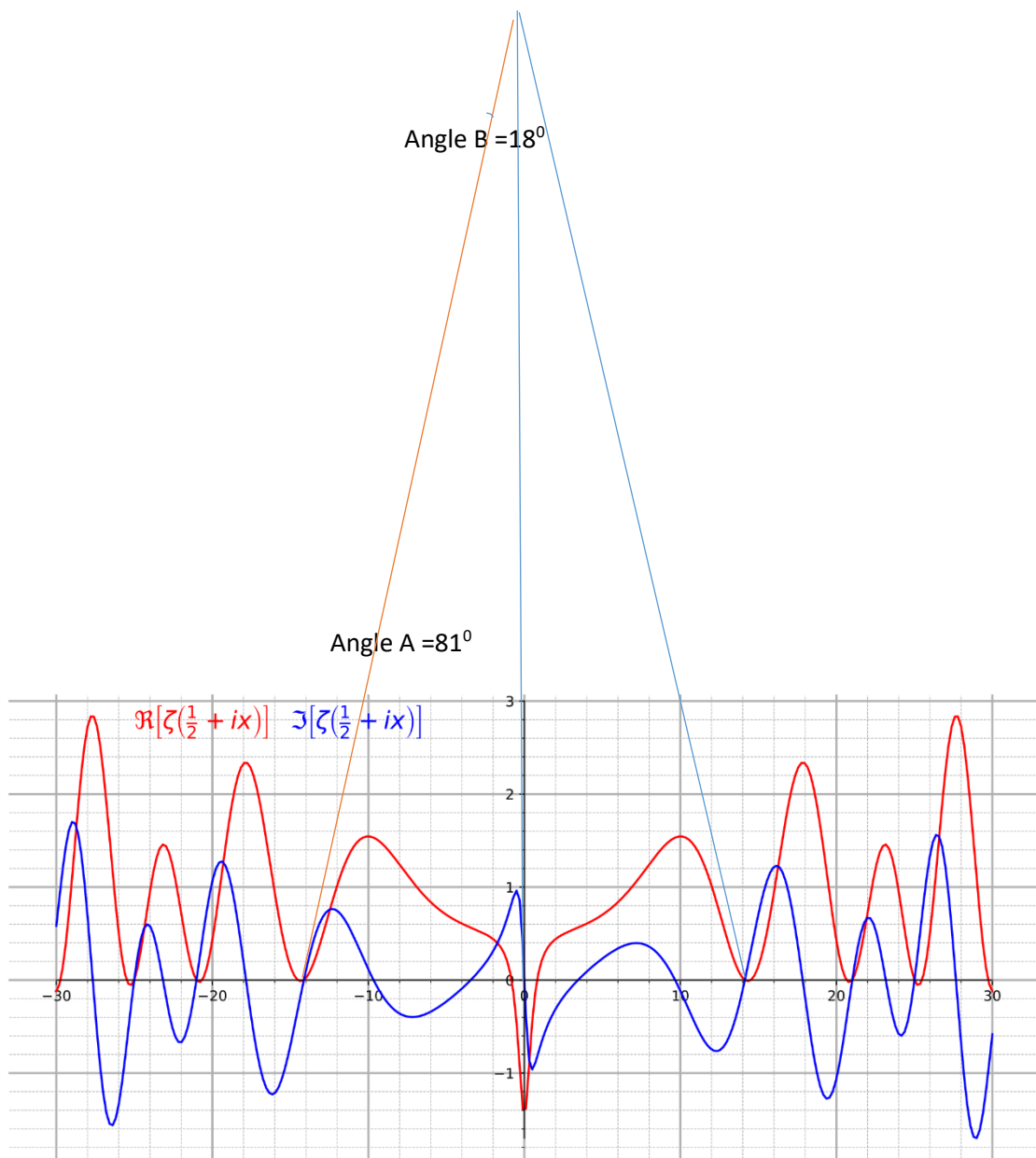
Finding Primes and non trivial zeros through a Fundamental trigonometric linear relation of the non trivial zeros

By Luis Felipe Massena Misiec

Based on the fact that there is a constancy of the angle formed by the intersection of the graph curve of the Riemann zeta function when the numbers meet in their imaginary and real forms, an isosceles triangle can be drawn from the base to the apex of the corresponding axis to the zero point. The angle of the base of this triangle is equivalent in degrees to the value of the sine of the limit of the derivative when tending to the imaginary and obtained from the proposed calculation for the circumference, previously shown in the publication Riemann's Hypothesis Solution. The angle shown in the figure below is shown in a simplified way, with no decimal places appearing, which should be considered for obtaining the formula that relates to obtaining the non-trivial numbers that are obtained by the simple fundamental trigonometric relationship that appears when observing a proportion between the base angles (810) to the apex angle (180). By the relation of the sine of these angles, a line of a linear equation can be obtained that relates the numbers relative to non-trivial zeros. So that at the base there will be a number that is equal to twice the non-trivial number, since the absolute value of its positive and negative value is considered, but it is related to an imaginary number corresponding to the height of the isosceles triangle at the real zero point. Thus, a relation of sine values is obtained for the angles that correspond to scalar and vector quantities at the base of the triangle that corresponds to a non-trivial number (related to non-trivial zero numbers), and which remains ad infinitum in a linear relationship that allows obtaining numbers of non-trivial zeros by calculating the arc length by the derivative defined between the ends of the numbers considered in the relation of the magic number $0.9886399220 / 0.29719183431 * n$, where the numerator corresponds to the sine of the angle corresponding to the imaginary limit of a circumferential function of value $0.8118i$ (sine of 0.8118 times $90 = 81.3554920 = \text{angle } A = 0.9886399220$), sine of angle $A =$) and the denominator corresponds to the sine of the apex angle of an isosceles triangle of value (angle $B = 17.2890160$, sine $= 0.29719183431$).

From the knowledge of a first interval between the encounters of real and imaginary numbers of non-trivial Riemann zeros, a relationship can be established that demonstrates that the definite integral of the lower and upper, negative and positive limits of a given interval corresponds to a number that is a number corresponding to a non-trivial zero, either in terms of whole numbers, or with a small distance of up to 1.5 from the non-trivial zero number for that range.

Thus, knowing that the distribution of non-trivial zeros is related to the distribution of prime numbers, it can be seen that in the second example of calculation on the Wolfram Alpha query page, an integral value equal to $69473167820511768024711168$ is obtained, which is far from a prime by 5 numbers above, where $69473167820511768024711163$ is a prime number. It should be said in passing that the date of this publication is a record for the non-trivial numbers of non-trivial zeros, already obtained.



Length at the base=28,268

$\sin 0.8118 \cdot 90 = 81.355492$ degrees

$\sin(81.355492 \text{ degrees}) = 0.9886399220$

Angle B= 17.289016

Sin A=x ->

Sin B=28.268 (non trivial zero 14.134 times 2)

$$0.29719183431 = 28.286 \quad \rightarrow$$

$$0.9886399220 = x \quad \text{substituting } 28.268 \text{ by } n \Rightarrow x = \frac{(n \cdot 0.9886399220)}{0.29719183431}$$

$$(28.268 \cdot n \cdot 0.9886399220) / 0.29719183431 = 94.096$$

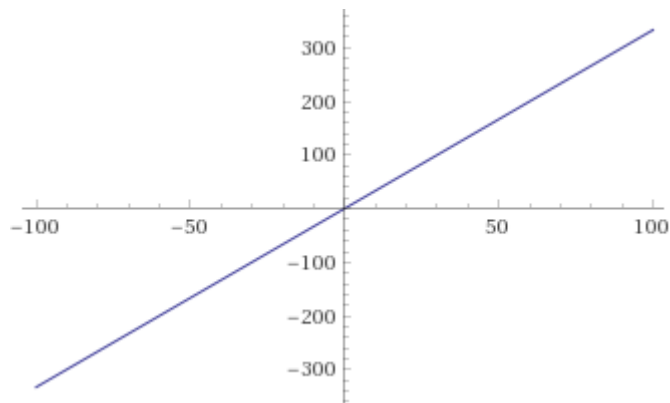
$$94.096 + 0.5 = 94.596 = (\text{non trivial zeros}) \quad 94.651344041$$

The relation might be influenced by the precision of the angles used, which is vanished after using the angles with the decimals related.

Input interpretation:

plot	$n \times \frac{0.9886399220}{0.29719183431}$	$n = -100 \text{ to } 100$
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Plot:



- Enlarge
- Customize

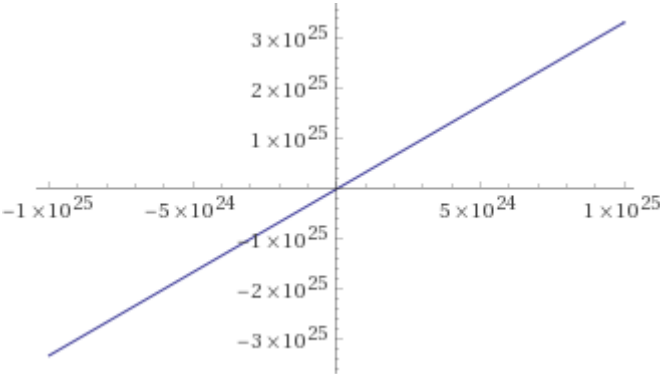
Arc length of curve:

- Step-by-step solution
- $$\int_{-100}^{100} 3.47366 \, dn = 694.732$$

Non trivial zero 694.533

plot	$n \times \frac{0.9886399220}{0.29719183431}$	$n = -1 \times 10^{25}$ to 1×10^{25}
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Plot:



- Enlarge
- Customize

Arc length of curve:

- Step-by-step solution
- $$\int_{-10\,000\,000\,000\,000\,000\,000\,000}^{10\,000\,000\,000\,000\,000\,000\,000} 3.47366 \, dn = 69\,473\,167\,820\,511\,768\,024\,711\,168$$

Calculate the arc length of the following curve from $n = -10$ to $n = 10$:
 $y(n) = 3.32661 \, n$

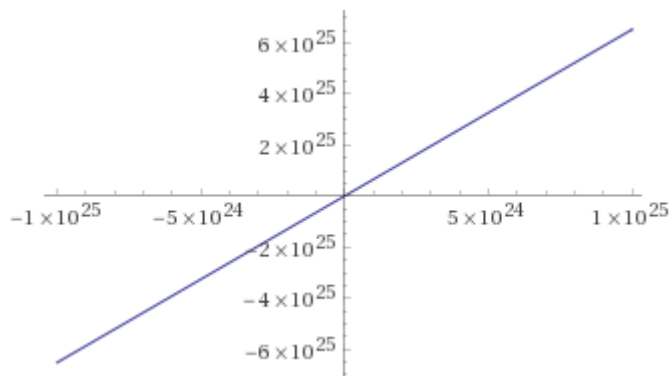
Hint: The definition of arc length in Cartesian coordinates is $s = \int_{n_0}^{n_1} \sqrt{1 + y'(n)^2} \, dn$.

Apply the definition of arc length to $y(n) = 3.32661 \, n$ for $-10 < n < 10$:

$$s = \int_{-10}^{10} \sqrt{1 + \left(\frac{d}{dn}(3.32661 \, n)\right)^2} \, dn$$

plot	$n \times \frac{0.98844448495}{0.15158331094}$	$n = -10^{25}$ to 10^{25}
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Plot:



- Enlarge
- Customize

Arc length of curve:

- Step-by-step solution

$$\int_{-10\,000\,000\,000\,000\,000\,000\,000\,000}^{10\,000\,000\,000\,000\,000\,000\,000\,000} 6.597032310 \, dn = 131\,940\,646\,208\,423\,787\,328\,173\,639$$

Conclusion

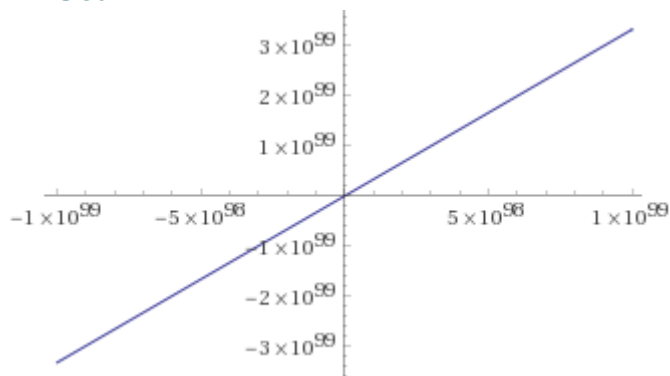
So we have a new method of obtaining prime numbers through a formula derived from the ratio of non-trivial Riemann zero numbers that linearizes the function but obeys the Hilbert-Polya conjecture, corresponding to eigenvalues of an unbounded self adjoint operator.

prime	nearest to 694 731 678 205 117 738 148 231 457 015 158 526 875 302 860 161 023
-------	---

694 731 678 205 117 738 148 231 457 015 158 526 875 302 860 160 991

plot	$n \times \frac{0.9886399220}{0.29719183431}$	$n = -1 \times 10^{99} \text{ to } 1 \times 10^{99}$
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Plot:



Arc length of curve:

- $$\int_{-1000\,000}^{1000\,000}$$
- $$3.47366 \, dn =$$
- $$6947316\,782\,051\,175\,968\,403\,138\,835\,523\,249\,501\,516\,139\,774\,158\,372\,724\,412\,385 \cdot$$
- $$510574699\,178\,241\,406\,910\,728\,378\,200\,648\,318\,976$$

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```
prime nearest to
69473167820511759684031388355232495015161397741583721
724412385510574699178241406910728378200648318976
```

69473167820511759684031388355232495015161397741583727244123855
510574699178241406910728378200648318977

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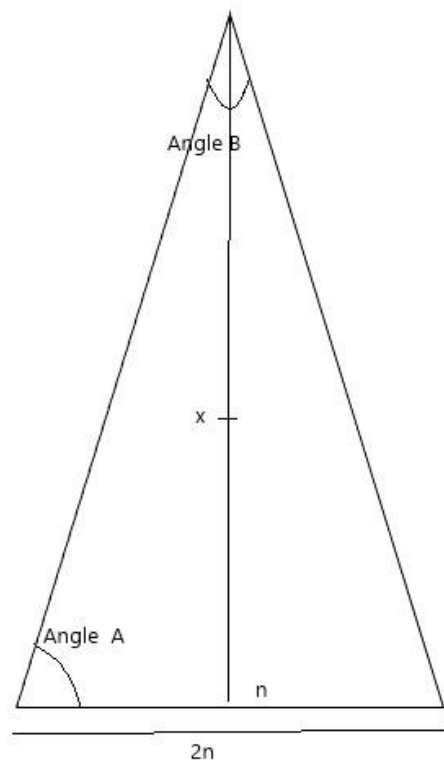
plot	$n \times \frac{0.9886399220}{0.29719183431}$	$n = -1 \times 10^{\infty}$ to $1 \times 10^{\infty}$
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A graph of the identity function $y = x$ on a Cartesian coordinate system. The x-axis and y-axis both range from -1×10^{99} to 1×10^{99} . The line passes through the origin $(0, 0)$ and extends diagonally across the plot, representing the equation $y = x$.

- ### Arc length of curve:

- Step-by-step solution

43698866454523084731639802544765817015037852583580045461
95013977396890606283031232350762855672656843638877164858
20547253505554399528710141069500293986050022266286622854
37033779318551536747294374952255496472680780665826457366
89625022024986695409941985639778625818057670527686961649
88120319480756195116825298169583838784853799383469952263
13984712037892411186524390370830098196489452622389323720
19558616876551724529760107034639682805477991546353067110
8671936053175605957994436181065402719501539141 (prime
closest)



$$\sin B = n \quad \sin B = 2n$$

$$\sin A = x \quad \text{or} \quad \sin A = x$$

$$x = \frac{n \sin A}{\sin B}$$

$$x = \frac{2n \sin A}{\sin B} \Rightarrow \frac{x}{2n} = \frac{\sin A}{\sin B}$$

$$n = \frac{x \sin B}{\sin A} \rightarrow x = \frac{2n \sin A}{\frac{\sin B}{2}}$$

$$\frac{x}{x} = \frac{\frac{2n \sin A}{\frac{\sin B}{2}}}{\frac{n \sin A}{\sin B}} = \frac{2n \sin A}{\sin B} * \frac{\sin B}{n \sin A} = 2 \rightarrow 2^{-1} = \frac{1}{2} ; \frac{x}{x} = 1 = 2 \Rightarrow \frac{1}{2} = 1$$

$$1 = 2 * (n) = n = 2n \Rightarrow \frac{n}{2} = n \Rightarrow \frac{n}{2} - n = 0 \Rightarrow -\frac{n}{2} = 0$$

$$\frac{n}{2} + 0 = \frac{n}{2} - \frac{n}{2} = \frac{n}{2} = 0 \therefore \frac{n}{2} \div n = 0 \div n = 0 = \frac{1}{2}$$

23760.359396648 non trivial zero

$$6893.527777 * (\sqrt{1 + (0.98844448495 / 0.29966375468)^2})$$

$$6893.527777 \sqrt{1 + \left(\frac{0.98844448495}{0.29966375468}\right)^2}$$

$$= 23760.36259 = x \quad \text{value for arc length integral } n = 6893.527772$$

$$2376.0359 / 689.3527 = 3.44676 \quad 7253884807761491$$

plot	$n \times \frac{0.98844448495}{0.29966375468}$	$n = -1000 \text{ to } 1000$
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$$\int_{-1000}^{1000} 3.4467638860 \, dn = 6893.527772$$

$$Y = 2n = 689,32659$$

$$\int_{-1000}^{1000} \frac{n \sin A}{\sin B} \, dn = y = 2n; \quad x = \frac{y \sin A}{\sin B} ; \quad \frac{x}{y} = \frac{\sin A}{\sin B}$$

$$23760,362 / 689,3527772 = 3.44676 \quad 7774663742181062795204772$$

$$23760,362 / 2 = 1.185,1795 \cong 1185.155842847 \text{ non trivial zero}$$

$$n * 0.98844448495 / 0.29966375468 \text{ from } -100000 \text{ to } 100000$$

$$\int_{-100000}^{100000} 3.4467638860 \, dn = 689352.7772$$

prime	nearest to 689352	=689357
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$n \cdot 0.98844448495 / 0.15158331094$ from -100000 to 100000

$$\int_{-100000}^{100000} 6.597032310 \, dn = 1.3194064621 \times 10^6$$

prime nearest to 1319406 = 1319407

$689357 / 1319407 = 0.5224738517507 - 0.5 = 0.02247 \cdot 2$ related primes gives the percentage of primes in 1000000000 numbers the ratio remains the same to numbers higher than $1 \cdot 10^{20}$.

Considering 689357 to be related to n and 1319407 to $2n$ then there is a observed 0.02247 error with in 100000 numbers it is possible to consider that there is $3n$ numbers related to 0.02247 so it can be raised to 0.02247 times 3 which is equal to 0.06741 close to the observed $x/\log x$ which would be around 0.072382 with in 8 % error, in this case an error of 14 % in between 16 % (1000) and 8% (1000000) to the known numbers of primes that is a considerable margin of confidence, that is related to the chosen precision of the angles involved in the original first calculus and that remain to be investigated to find if it persists to increasing values of the n value for the non trivial zeros. Plus , since the value is given in integers, there is 6.7 percent lesser numbers than the expected total numbers of the non trivial numbers.

$$\int_{-100}^{100} 6.597032310 \, dn = 1319.4064621$$

$$1319.4064 / 2 = 659.703105 \cong$$

659.663845973 a known non trivial zero

$$\int_{-100}^{100} 3.4467638860 \, dn = 689.3527772$$

$$689.3527772 / 2 = 344.676 \cong \mathbf{344.661702940 \text{ a known non trivial zero}}$$

13194064620842378732817382223070770814376281551552704353
 031788365819274066411294613084077277830971392/ ln
 (13194064620842378732817382223070770814376281551552704353
 031788365819274066411294613084077277830971392)=

5.7232199e+97

5.7232199e+97/13194064620842378732
 817382223070770814376281551552704
 353031788365819274066411294613084
 077277830971392=0.004377231

68935277720085322636477005835347092984264423504401003487
 70351324650006698146518395024497343998197760 /
 ln(689352777200853226364770058353470929842644235044010034
 8770351324650006698146518395024497343998197760) =

2.9986657e+97

2.9986657e+97/68935277720085322636
 477005835347092984264423504401003
 487703513246500066981465183950244
 97343998197760=0.00434997261

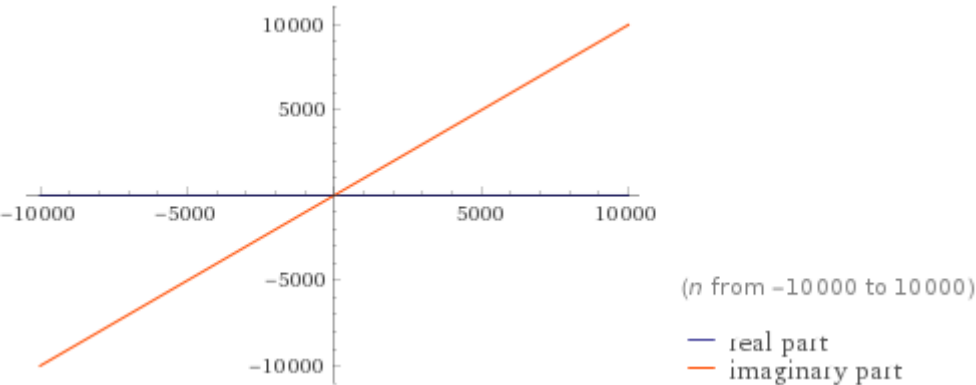
Now $5.7232/2.9986=1.9086240-2=0.0913759 * 0.3$ (the ratio of the linear graph
 for the numbers of the arc length integral) = $0.027412 / 0.02247$ (the amount of
 the percentage of the relation between the numbers related to two
 angles)= $0.00494279 - 0.004399 = 0.00054379$ which is a fair precision within
 the distribution of primes for the given amount of numbers.

But if i relate the proportion of x/y being x the value of the initial numbers related to the arc integral the relation of numbers to the non trivial zeros related to the half of the value of the arc length integra it becomes 3 times the ratio of 0.02247 which is astonishing 0.06666 agaisnt 0.06594 ratio of non trivial zeros found in a total of 2001052 numbers by Andrew Odlyzko. Comparing the ratio of both linear graphics of both angles there is a correlation of exact twice or if considered the inverse relation of 0.2 , so the the relation of x to y for the comparison of both graphics which aplied to 0.02247 gives 0.004494 closely related to the values of 0.00494279 and 0.004399 , the given percentages of prime numbers contained in the amount given by the arc length integral of the given graphs.

Input interpretation:

plot	$\frac{1}{2} + \sqrt{-1} n$	$n = -10\,000 \text{ to } 10\,000$
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Plot:



- Enlarge
- Customize

Arc length of curve:

- Step-by-step solution

$$\int_{-10000}^{10000} 0 \, dn = 0$$

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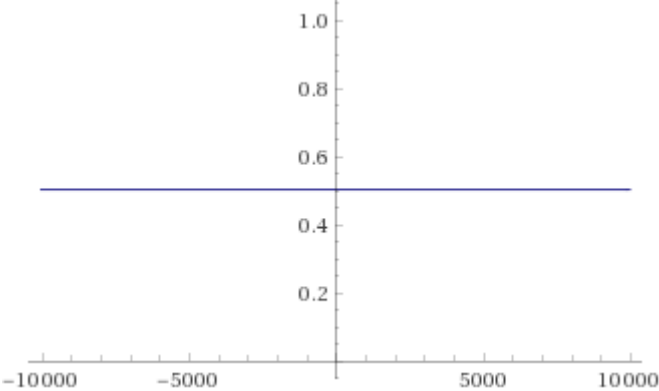
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Input interpretation:

plot	$\operatorname{Re}\left(\frac{1}{2} + \sqrt{-1} \, n\right)$	$n = -10\,000 \text{ to } 10\,000$
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$\operatorname{Re}(z)$ is the real part of z

Plot:



- Enlarge
- Customize

Arc length integral:

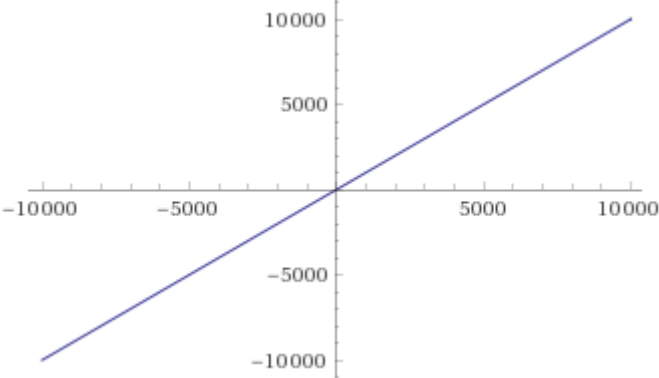
$$\int_{-10000}^{10000} \sqrt{1 + \operatorname{Im}'(n)^2} \, dn$$

Input interpretation:

plot	$\operatorname{Im}\left(\frac{1}{2} + \sqrt{-1} \, n\right)$	$n = -10\,000 \text{ to } 10\,000$
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$\operatorname{Im}(z)$ is the imaginary part of z

Plot:



- Enlarge
- Customize

Arc length integral:

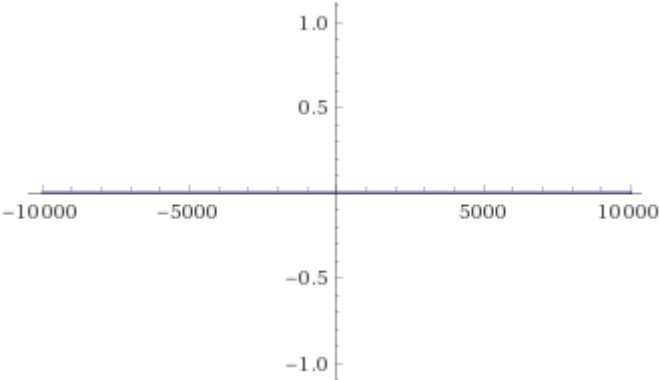
$$\int_{-10000}^{10000} \sqrt{1 + \operatorname{Re}'(n)^2} \, dn$$

Input interpretation:

plot	$\frac{\text{Im}(1)}{n^{1/2+\sqrt{-1} \, n}}$	$n = -10\,000 \text{ to } 10\,000$
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Im(z) is the imaginary part of z

Plot:



- Enlarge
- Customize

Arc length of curve:

- Step-by-step solution

$$\int_{-10000}^{10000} 1 \, dn = 20\,000$$

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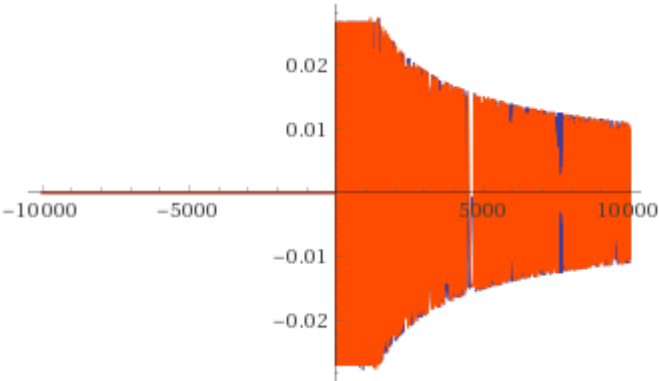
Input interpretation:

plot	$\frac{\text{Re}(1)}{n^{1/2+\sqrt{-1} \, n}}$	$n = -10\,000 \text{ to } 10\,000$
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Re(z) is the real part of z

Plot:

- Complex-valued plot



(n from -10000 to 10000)

— real part
— imaginary part

- Enlarge
- Customize

Arc length integral:

$$\int_{-10000}^{10000} \sqrt{1 - \frac{1}{4} n^{-3-2 i n} (-i + 2 n + 2 n \log(n))^2} \, dn$$

arc length	$y = \int \left(\frac{1}{2} + \sqrt{-1} \, n\right) dn$	$n = -10\,000 \text{ to } 10\,000$
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$$\int_{-10000}^{10000} \sqrt{1 + \left(\frac{1}{2} + i n\right)^2} \, dn =$$
$$\frac{1}{8} \left((20\,000 + i) \sqrt{-399\,999\,995 - 40\,000 \, i} + (20\,000 - i) \sqrt{-399\,999\,995 + 40\,000 \, i} + \right.$$
$$\left. 4 \sin^{-1}\left(10\,000 + \frac{i}{2}\right) - 4 \, i \sinh^{-1}\left(\frac{1}{2} + 10\,000 \, i\right) \right) \approx 10\,002. + 0. \times 10^{-10} \, i$$

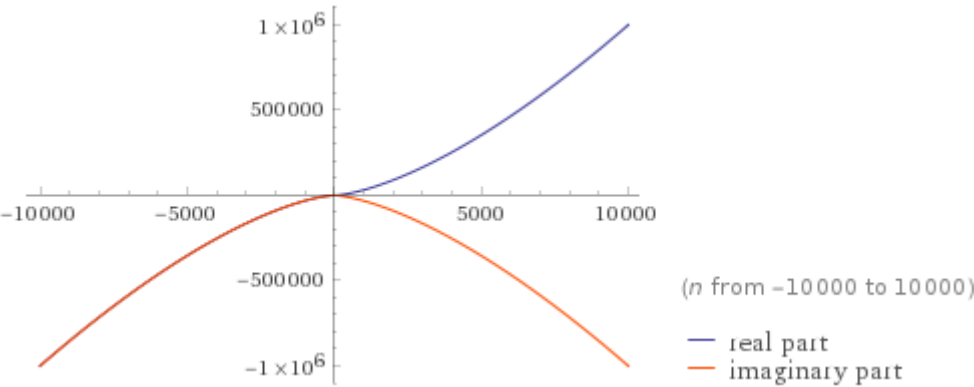
arc length	$y = \int \left(\frac{1}{2} + \sqrt{-1} \, n\right) dn$	$n = -10\,000 \text{ to } 10\,000$	=
arc length	$y = \frac{1}{2} (1 + i n) n + \text{constant}$	$n = -10\,000 \text{ to } 10\,000$	

arc length	$y = \int \frac{1}{n^{1/2 + \sqrt{-1} \, n}} \, dn$	$n = -10\,000 \text{ to } 10\,000$
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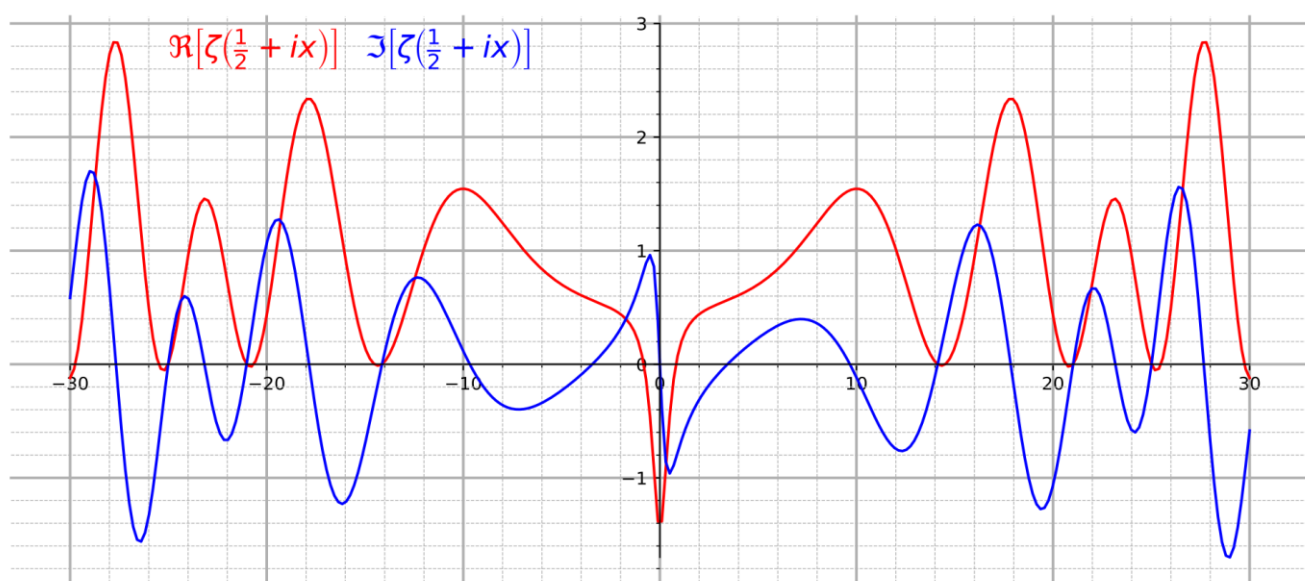
$$\int_{-10000}^{10000} \sqrt{1 + n^{-1-2 i n}} \, dn$$

plot	$n \sqrt{1 + \frac{1}{n} - 2 n \sqrt{-1}}$	$n = -10\,000 \text{ to } 10\,000$
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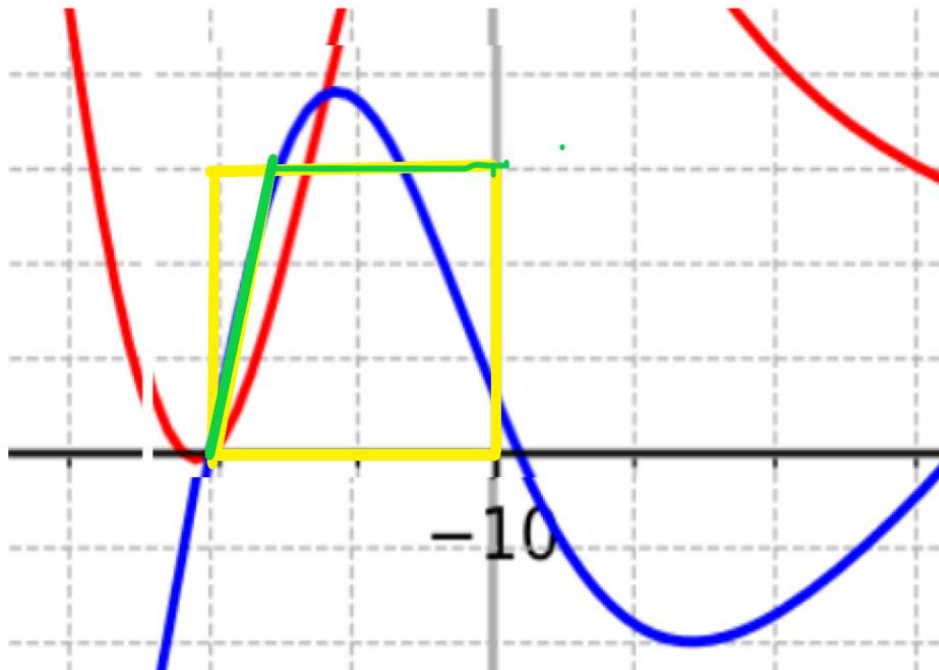
Plot:



Further more consider the graph of the expression of zeta function for the reals and the imaginary numbers when they meet at the zero non trivial point.



If I enlarge the figure and draw a square, I can then establish a proportion between the sides so that a derivable relationship is obtained for the sides of that square.



Observe the yellow lines of the square in the figure below and verify that along the angle of the blue imaginary line representative of the imaginary values of the zeta function it is possible to draw a line inscribed in that yellow square that represents the distortion of the square's proportions when I consider the numbers imaginary which allows me to establish a relationship by defining the derivative between x_0 and the same green side "xi" then:

$$\lim_{x \rightarrow i} \frac{f(xi + \Delta xi) - f(xi)}{\Delta x_0} = \frac{0,7 + 3,1 - 0,7}{3,8} = 0,81 \dots$$

Note that the definition of the derivative to the limit has been slightly modified but preserving its proportions since I can both treat Δxi and Δx_0 which otherwise considered would simply give me a value of 1 for the derivative which would correspond to the 90-degree sine, thus a rule of three can be established between the value of the derivative and the angle that would directly give me an angle of 81 degrees for the green line referring to the angle of the rise of the blue line that represents the imaginary zeta function of the Riemann equation.

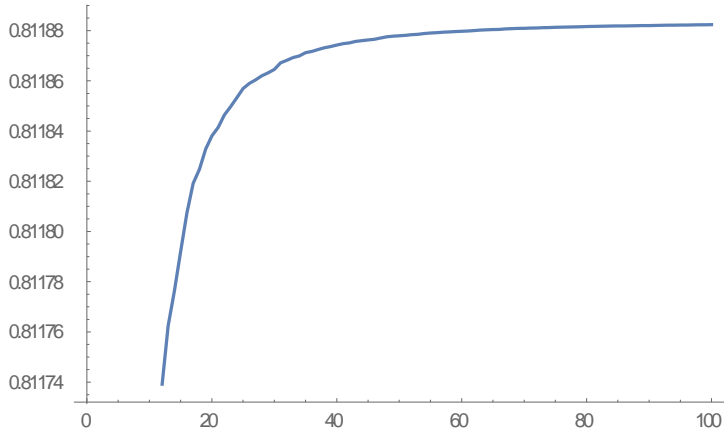
Otherwise, it can be verified that all lines of the graph for both the function of real and imaginary numbers are equal and parallel, there must be a constant derivative that has a value equivalent to the angle of this line that is repeated ad infinitum.

At the beginning of the work, a derivative of x was proposed, tending to the

$$\text{imaginary} \lim_{x \rightarrow i} \frac{\sqrt{\frac{-2\pi}{\pi+1}}}{\sqrt{2\pi^2+2\pi}} = \frac{(\pi+1) \cdot \sqrt{\frac{-2\pi}{\pi+1}}}{\sqrt{2\pi^2+2\pi \cdot n}} \blacksquare$$

which when computed gives the expected value of 0.8118 for any number considered. Represented below in computer language: $f = (((\pi + 1) * r) * \text{Sqrt}[(-2 * \pi * r)/((\pi + 1) * r)]) / ((\text{Sqrt}[(2 * \pi * r)^2 + 2 * \pi * r/n]))$

Graph of the limit of x tending to the imaginary:



Given the fact of being a horizontal asymptote to the value of n, it is noticed that it does not change when n goes to infinity, applying to any number, therefore for all numbers as long as x tends to the imaginary.

By a simple rule of three: $\sin(90^\circ) = 1$

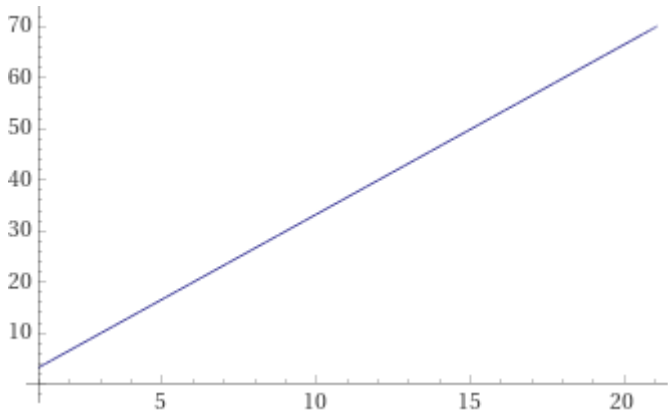
$\sin(0.8118i) = 0.9039 \rightarrow 0.9039 \cdot 90 = 81^\circ$

Which is the angle that forms between the green line and the absciss of the graph for every number when the imaginary part and the real part find each other at the point of the non trivial zeros.

To finally show that the fundamental trigonometric relation established by the angle that is preserved along the graph of the Riemann Function is related to the arc length integer of the number from 1 to n then it should, by considering n to be a non trivial zero , to be able to reach another non trivial zero , that if the angle is truly preserved along all the non trivial zeros, as it is shown in the graph below:

plot	$n \times \frac{0.9886399220}{0.29719183431}$	$n = 1 \text{ to } 21.02203963877$
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Plot:



- Enlarge
- Customize

Arc length of curve:

- Step-by-step solution

$$\int_1^{21.02203963877} 3.47366 \, dn = 69.5497$$

21.02203963877

Is a known non trivial zero

And

69.54640171117

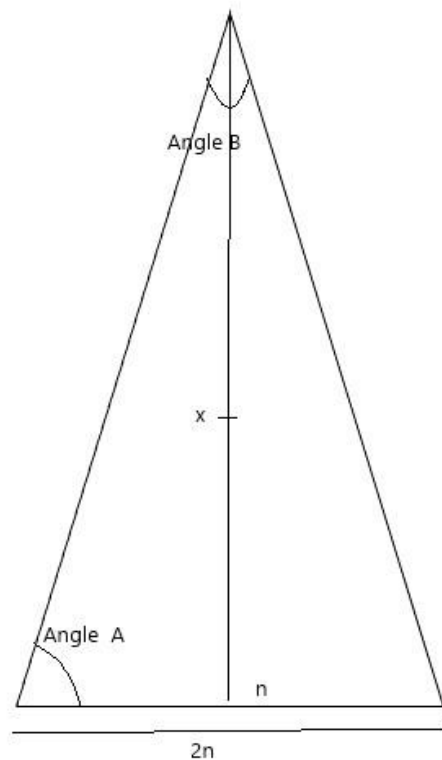
Is another non trial zero wich is reached within a 0.0037 accuracy.

$\text{Sin}(17,298) = 0,2973415464575810036734902201170$

$\text{Sin}(81,351) = 0,98862813516065091177705445818109$

$\text{Sin}(8,649) = 0,15038088431969587397686817407374$

If I consider



If it is considered the sides of the isosceles triangle above and a pythagorean relation to the hypotenuse it is possible to get the number relative to the height of the triangle that when considered the side n to be equal to a non trivial zero distance to the origin zero, a number is obtained that is closely related to another far to the right non trivial number such that if that number N is considered in the prime distribution formula, the decimals reached are within the distance of the value of the height to the corresponding obtained non trivial zero:

H is the hypotenuse and 14,134 is the first non trivial zero, and 0.148595 is the sin of the angle 8.65 that is the half of the angle B . From the hypotenuse by pythagoras formula it is obtained the height, that when considered it to be corrected by the prime distribution function for the related height gives a number that is closest to a non trivial zero within a decimal distance.

$$H=14.134/0.148595$$

$$H=95.117$$

$$H^2 - n^2 = \text{height}^2 \rightarrow \text{height} = \sqrt{H^2 - n^2} = \sqrt{95.117^2 - 14.134^2} = \text{Height} = 94.06 \rightarrow$$

$\text{Log}(94.06) * 94.06 = 185.619$ taking only the decimal places $0.619 + 94.06 = 94.679$
vs 94.6513 it is equal to 1 decimal place

$$H=21.022/0.148595$$

$$H=141.471$$

$$H^2 - n^2 = \text{height}^2 \rightarrow \text{height} = \sqrt{H^2 - n^2} = \sqrt{141.471^2 - 21.022^2} = \text{Height} = 139.9 \rightarrow$$

$\text{Log}(139.9) * 139.9 = 300.2$ taking only the decimal places $-0.2 + 139.9 = 139.7$ vs 139.7 it is equal to 1 decimal place

$$H=25.01/0.148595$$

$$H=168.309$$

$$H^2 - n^2 = \text{height}^2 \rightarrow \text{height} = \sqrt{H^2 - n^2} = \sqrt{168.309^2 - 25.01^2} = \text{Height} = 166.44 \rightarrow$$

$\text{Log}(166.44) * 166.44 = 369.7$ taking only the decimal places $0.7 + 166.44 = 167.14$ vs 167.18 it is equal to 1 decimal place

$H = \frac{1306643440879598221999,740450535}{0.148595}$ largest known non trivial zero (Hiary and Odlyzko computed 5 billion zeros near the 10^{231023} rd zero. The last had imaginary part approximately)(<http://www.dtc.umn.edu/~odlyzko/doc/zeta.moments.pdf>)

$$H=8.793.320.373.361.137.467.611,5646592079$$

$$H^2 - n^2 = \text{height}^2 \rightarrow \text{height} = \sqrt{H^2 - n^2} =$$

$$\sqrt{8.793.320.373.361.137.467.611,5646592079^2 - 1306643440879598221999,740450535^2} = \text{Height} = 8.695.698.137.986.068.450.041,8017187731 \rightarrow$$

$\text{Log}(8.695.698.137.986.068.450.041,8017187731) * 8.695.698.137.986.068.450.041,8017187731 = 19.077.756.890.034.686.660.104,685192678$ taking only the decimal places $0.685192678 + 8.695.698.137.986.068.450.041,8017187731 = 8.695.698.137.986.068.450.042,4869114511$ it is equal to 1 decimal place probable non trivial zero

$N * \log(N) = 166.441 * \text{Log}(166.441) = 369.7087$ now consider just the decimal places it is within the difference of the value of the hypotenuse and the non trivial zero, and it Works as far as the 3 proposed values above, but it extends generating circles of radius equals the height of the triangle as long as there is a previous non trivial zero Always encountering the origin of the graph at zero.

```

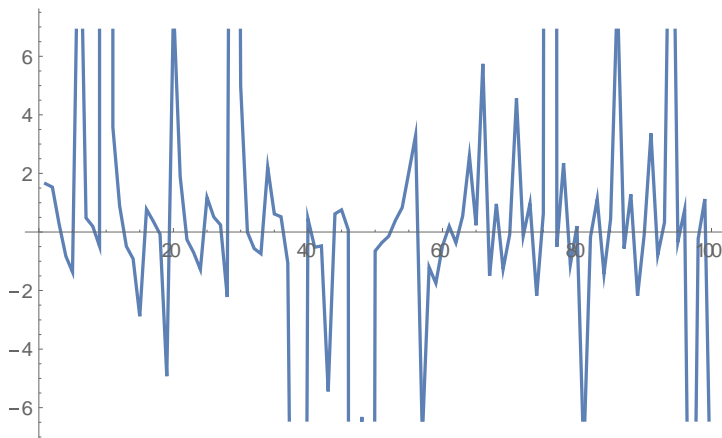
sq=Table[j,{j,1000}]
n=Select[sq,PrimeQ,{100}]
sq2=Table[k,{k,100}]
n3=sq2*-1
r=Table[k1,{k1,100}]
f=(((Pi+1)*r)*Sqrt[(-2*Pi*r)/((Pi+1)*r)]/((Sqrt[(2*Pi*r)^2+2*Pi*r/n]))
bb=Im[f]
s1cc=(((1)+bb*r*Sqrt[-1])+((0)+bb*r*Sqrt[-1]))/2
zz=-n3
zx=n
aa=59.34
a=aa-50
b=aa+50
x1c1c=Sum[1/zx*zx^s1cc,{zx,a,b}]

x1cc1=Re[x1c1c]
x1cc2=Im[x1c1c]

proof = (x1cc1 - x1cc2)/(x1cc1 + x1cc2)

ListLinePlot[proof]

```



The values of the graphic correspond to a corrected value as:

$\frac{59,34(\text{non trivial zero}) * 0.5042}{0.5} = 59.83 + \text{decimal value of } (\log (59.83) * 59.83)(0.31) =$
graphic plot of 60.14 = 50,14 in the graph the other values follow that relation

Next non trivial zero(60.83 * 0.5042)/0.5+log(61.34)*61.34 just the decimal part=62

Rule of 3:

60,14-----50.14

62-----51,69

51.69 * 0.5042/0.5=52.12(point in the graph...corresponding to 60.83 a known non trivial zero

All the other values can be obtained following the above rule, where there will be a point in the graph related to either a spike, a crossing at the x axis, or a peak down.

Now doing the reverse way,considering a known value of a certain coordinate from the graph.
Let's suppose 71,19

62-----52.12

x-----71.19

x=84.68 (non trivial zero at 84.73)

62-----52.12

x-----56 x=66.615

852178417522634708,1108252173221 a non trivial zero related to 12805105890681411,415 a known non trivial zero

In the case that the number candidate for a non trivial zero does not correspond to a specific point in the graph, it is possible to find the correct decimal places so it fits the crossing of a line of the graph in the x axis by considering the following:

$$x * \log x = n$$

$$H^2 = n^2 + height^2 \rightarrow height^2 = H^2 - n^2 \rightarrow \frac{n^2}{0.148595^2} - n^2 = height^2$$

$$n^2 - 0.148595^2 n^2 = 0.148595^2 height^2 \rightarrow 0.9779195 n^2 = 0.148595^2 height^2 \rightarrow n =$$

$$\sqrt{\frac{0.148595^2 height^2}{0.9779195}} =$$

n then divide by the log n to obtain the decimal places to be subtracted from the value of n

Now applying that principle to prime numbers:

$$\text{For instance: } 11 \frac{11}{0.148595} = 74.0267169 \Rightarrow 74.0267169^2 - 11^2 = 5.358,95481722 \rightarrow$$

$$\sqrt{5.358,95481722} = 73.2048 \text{ considering only the integer part is a prime number}$$

Conjecture : there is another prime number related to first prime number that obeys the trigonometric fundamental relation of the non trivial zeros

As it is conjectured it can also be proven by a computational of the first 100 primes. If it can be shown that it will generate 100 trueQ (prime verification function) out of the first 100 primes , even if considered small deviations from the original proposed method, after a small correction of the rule it is possible to verify that there is zero intersection for all the integers generated from the rule, that are candidates for prime numbers, that there are corresponding 100 true results.

```
sq=Table[j,{j,1000}]
```

```
n=Select[sq,PrimeQ,{100}]
```

```
a=n/0.148595
```

```
b=Sqrt[a^2-n^2]
```

```
c=Log[b]
```

```
c1=IntegerPart[c]
```

```
c2=1
```

```
d=FractionalPart[c]
```

```
dd=b*c
```

```
d2=FractionalPart[dd]
```

```
d1=d2+c2+d
```

```
e=b+d1
```

```
ft=IntegerPart[e]
```

```
v=Select[ft,EvenQ]
```

```
vv=v+1
```

```
vv2=v-1
```

```
PrimeQ[vv2]
```

```
PrimeQ[vv]
```

```
p=PrimeQ[ft]
```

```
g=b-d1
```

```
h=IntegerPart[g]
```

```

pp=PrimeQ[h]
sq=Table[j,{j,1000}]
n=Select[sq,PrimeQ,(100)]
a=n/0.148595
b=Sqrt[a^2-n^2]
c=Log[b]*b
e=FractionalPart[c]
f=b+e
g=Log[b]-1
hh=IntegerPart[g]
fg=b+e+hh
fgh=IntegerPart[fg]
PrimeQ[fgh]
jj=IntegerPart[b]
ppp=PrimeQ[jj]
Intersection[f,h,hh,vv2,vv]
sq=Table[j,{j,1000}]
n=Select[sq,PrimeQ,(100)]
a=n/0.148595
b=Sqrt[a^2-n^2]
c=Log[b]
c1=IntegerPart[c]
c2=c1-1
d=FractionalPart[c]
dd=b*c
d2=FractionalPart[dd]
d1=d2+c2+d
e=b+d1
e3=e-d1

```

```

f2=IntegerPart[e]
ff2=IntegerPart[e3]
PrimeQ[f2]
PrimeQ[ff2]
Intersection[ft,h, fgh,vv2,vv,f2,ff2]
Q=Select[ft,PrimeQ]
Q1=Select[h,PrimeQ]
Q2=Select[fgh,PrimeQ]
Q3=Select[vv2,PrimeQ]
Q4=Select[vv,PrimeQ]
Q5=Select[f2,PrimeQ]
Q6=Select[ff2,PrimeQ]
m=Union[Q1,Q2,Q3,Q4,Q5,Q,Q6]
misiec=Sort[m]
Length[misiec]

```

Results of the PrimeQ functions of the above program lines:

```
PrimeQ[vv2]
```

```
{False,True,False,False,True,False,False,False,False,True,False,False,False,False,False,False,
False,True,False,False,False,False,False,False,True,False,False,False,False,False,True,False,True,
True,False,False,False,False,False,False,False,True,False,False,True,False,False,False,False,False,
False}
```

```
PrimeQ[vv]
```

```
{True,False,True,False,False,False,False,False,False,False,False,False,False,False,False,
False,True,True,False,False,False,False,False,False,True,False,False,False,False,True,False,False,
False,False,False,False,True,False,False,True,False,False,False,True,False,True,True,False,
False}
```

```
p=PrimeQ[f]
```

```
{False,False,False,False,False,False,False,False,False,False,False,False,False,False,False,
False,False,False,True,False,False,True,True,True,False,False,True,False,False,False,False,
False,False,False,True,False,False,False,False,False,False,False,False,False,False,
False}
```

se,False,False,False,False,False,False,False,False,False,False,False,False,False,False,False,True,False, False,True,False,True,False,False,False,False,True,False,False,True,False,False,True,False,False, False,False,False,False,False,False,True,False,False,False,False,False,False,True,False,False}

pp=PrimeQ[h]

{True,True,True,True,True,False,False,False,True,True,False,False,False,True,False,True,False, False,True,False,False,True,False,False,True,False,True,False,False,False,False,False,False, False,False,False,False,True,False,False,False,False,False,False,False,False,False,False, False,True,False,False,False,False,True,False,False,False,False,False,False,False,False, False,False,True,False,False,False,False,False,False,False,True,False,False,False,True,False, False,False,False,False,False,False,False,False,False,True,False,False,False,False,False}

PrimeQ[fgh]

{False,False,False,False,False,False,False,False,True,True,False,True,True,False,False,False, False,False,False,False,False,False,False,False,True,False,False,False,True,False,True,False, False,False,False,False,True,False,False,False,True,True,False,False,False,False,False, False,False,False,False,False,False,False,False,False,False,True,False,False,False, False,False,False,False,False,False,False,False,False,False,False,False,False,False,True, False,False,False,False,False,False,False,False,False,False,False,False,False,False,False, True}

ppp=PrimeQ[jj]

{True,True,False,False,True,False,True,False,False,False,False,False,False,False,False, False,False,False,False,False,False,False,False,False,False,False,False,False,True, False,True,False,False,False,False,True,False,False,False,False,False,False,False,False, True,False,False,False,False,False,False,False,False,False,False,False,False,True, False,False,False,False,False,False,False,False,False,False,False,False,True,True, False,False,False,True,False,False,False,False,False,False,False,False,True,False, False,False,False,True,True,False,False,True,False,False,False,True,False,True,False, False}

PrimeQ[f2]

{False,False,False,False,False,False,False,True,True,True,True,True,True,False,True,False, True,False,False,True,False,False,False,False,True,True,False,False,False,False, False,False,True,False,True,True,True,False,False,False,True,True,False,False,False, False,False,True,False,False,False,False,False,False,True,True,False,False,False, False,False,False,False,False,False,False,False,False,False,False,False,True,False, False,False,False,False,False,False,False,False,False,False,False,False,False, False,False,False,False,False,False,False,False,False,False,False,False,False, False,False,False,False}

PrimeQ[ff2]

Intersection[ft,h,fg,h,vv2,vv,f2,ff2]

```
misiec=Sort[m]
```

97 new primes generated from 100 known primes using the fundamental trigonometric relations of the non trivial zeros

```
sq=Table[j,{j,10000}]
```

```
n=Select[sq,IntegerQ,(100)]
```

```
a=n/0.148595
```

```
b=Sqrt[a^2-n^2]
```

```
c=Log[b]
```

```
c1=IntegerPart[c]
```

```
c2=1
```

```
d=FractionalPart[c]
```

```
dd=b*c
```

```
d2=FractionalPart[dd]
```

```
d1=d2+c2+d
```

```
e=b+d1
```

```
ft=IntegerPart[e]
```

```
v=Select[ft,EvenQ]
```

```
vv=v+1
```

```
vv2=v-1
```

```
PrimeQ[vv2]
```

```
PrimeQ[vv]
```

```
p=PrimeQ[ft]
```

```
g=b-d1
```

```
h=IntegerPart[g]
```

```
pp=PrimeQ[h]
```

```
sq=Table[j,{j,10000}]
```

```
n=Select[sq,IntegerQ,(100)]
```

```
a=n/0.148595
```

```
b=Sqrt[a^2-n^2]
```

```
c=Log[b]*b
```

```
e=FractionalPart[c]
```

```
f=b+e
```

```
g=Log[b]-1
```

```
hh=IntegerPart[g]
```

```
fg=b+e+hh
```

```

fgh=IntegerPart[fg]
PrimeQ[fgh]
jj=IntegerPart[b]
ppp=PrimeQ[jj]
Intersection[f,h,hh,vv2,vv]
sq=Table[j,{j,10000}]
n=Select[sq,IntegerQ,{100}]
a=n/0.148595
b=Sqrt[a^2-n^2]
c=Log[b]
c1=IntegerPart[c]
c2=c1-1
d=FractionalPart[c]
dd=b*c
d2=FractionalPart[dd]
d1=d2+c2+d
e=b+d1
e3=e-d1
f2=IntegerPart[e]
ff2=IntegerPart[e3]
PrimeQ[f2]
PrimeQ[ff2]
Intersection[ft,h,fgh,vv2,vv,f2,ff2]
Q=Select[ft,PrimeQ]
Q1=Select[h,PrimeQ]
Q2=Select[fgh,PrimeQ]
Q3=Select[vv2,PrimeQ]
Q4=Select[vv,PrimeQ]
Q5=Select[f2,PrimeQ]
Q6=Select[ff2,PrimeQ]
m=Union[Q1,Q2,Q3,Q4,Q5,Q,Q6]

```

```
misiec=Sort[m]
```

```
Length[misiec]
```

```
misiec=Sort[m]
```

```
{7,11,13,17,19,23,29,31,41,43,53,59,61,67,71,73,79,83,89,97,101,103,107,109,113,131,137,139,149,151,157,167,173,179,181,191,193,197,199,211,223,227,229,233,239,241,251,257,269,271,277,281,283,293,307,311,313,317,331,337,347,349,359,367,379,383,389,397,401,419,421,431,433,439,443,457,461,467,479,487,491,499,521,523,541,547,557,571,577,587,593,599,601,607,613,617,619,631,641,643,647,653,659,661}
```