Riemann Hypothesis Solution

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Abstract
The first part of the solution to the Riemann Hypothesis that reveals why the trivial zeros will all appear at the canter of the n=0.5 Critical strip through the relational geometries found to form the golden and sliver ratio, that unify the infinite density of the zeta plain, thus producing only one solution whereby the analytic can be mapping into negative number space, by maintaining a 90 degree angle at all intersecting points across the number complex plain.

$$f(x + iy) = \sum_{k=1}^{\infty} \frac{1}{k^{(x + iy)}}$$

Conjecture : TRUE

The solution is derived from our system of 4th dimensional mathematics, developed by Colin Power. Through the process of Simultaneous Equation, we have created a **comparison chart** for (x + iy), where x and y hold the values -1, +1, -∞, +∞. This resulted in **four** zero solutions.

Next, we solved for k for each of the solutions (x + iy) and also for 1/k. The minimum range is defined as +1 and the maximum range as +∞-1, as the infinite set does not include zero. From this, we created two sets of nine solutions, with a pair of zero points for each set (4 zero solutions; **Summery Table X.Y**) and solved for
k = +1 and k = +∞ -1 and its reciprocal.

Table Summery K shows that all solutions result in only six states. If k = 1, there are three states +∞ -1, 0 , + ∞ +1. If k=+∞ -1, it equals the other three results -1, 0, +1. As k is in its infinite state, we can adjust this result to add or subtract additional whole number infinite sets from k= +∞ -1 and obtain the three results, +∞ -2, +∞ -1, +∞. We have used these results in a 4th dimensional calculator to view the zeta function.

However, to complete the solution we have solved for f and formulated a comparison table that reveals the scope of the proposed equation, by performing calculations of all possible outcomes for the unique solutions for f(x +iy), where f=1, and then again for f=∞.

This produces another nine solutions for each state. From this, we have created a **Comparison Table FK**, which resulted in two zero solutions for f=1 and k=1. The first is derived from the zero solution that appears at the centre of the table, whereas the second solution is found where f and k both equal ∞+1.

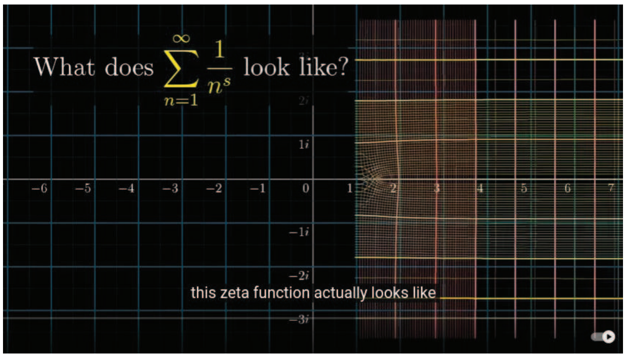
The concept of ∞+1 in 4th dimensional mathematics causes the number line to rotate in numerical space, which is driven by a new concept 'squaring of ZERO' at the centre of the number line (see rotational squaring). As infinity can not exceed itself on the linear plane, it must move dimension in order to compensate for this extra number density.

Using this solution, we can enter the values for k into the 4D calculator, and examine the wave function. For k=1 we enter into the time function, as either -1, 0 or +1, and notice that only the values +1 and -1 produce a mathematically acceptable output, whereas the zero state produces the output x/0 = DIV0! This in normal mathematics has no solution, but in 4D maths produces the division of the number line into 2 infinite sets; positive, and negative. For this reason the domain of the complex plane can only be extended into the negative by the bending of numerical space, through the process of analytic continuation.

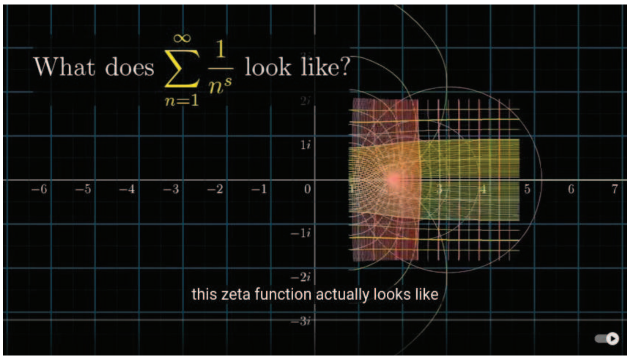
In 4D maths we can use the secondary *equation line* in order to achieve the same result, which sets the critical strip from -1 – 0 - +1, instead of 0 - 0.5 – 1, as we do not need to **bend** number space which distorts the numerical results. In 4D mathematics we can perform the equivalent of analytic continuation by **folding** number space over zero, which maintains the proportion of the infinite densities aleph 0.5 for reciprocal space and aleph 1 for whole number space.

(Note: see our solution to the Continuum Hypothesis for full details of aleph 0.5)

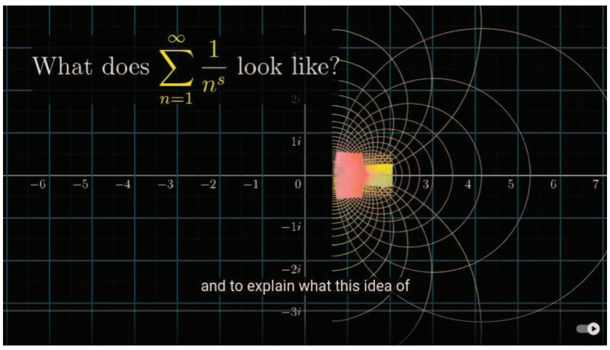
In this way we can explain the nature of the critical strip as the number ZERO is off-set by 0.5 through the bending of number space, which collapses the infinite density of whole numbers, aleph 1 into reciprocal number space aleph 0.5 the create the off-set zero line at n=0.5.



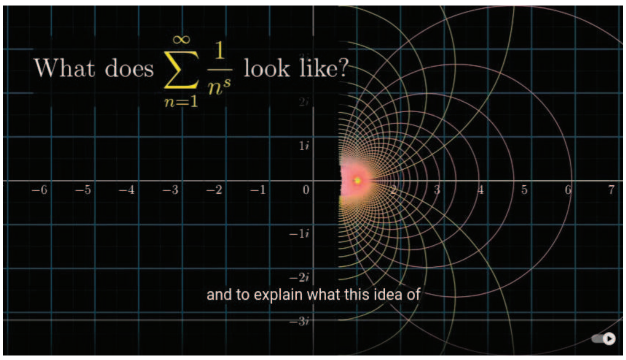
Stage 1: Complex number plane, notice the bend in square number space, crossing at around n=1.5



Stage 2: We see the division of number space, the red dot forms closer to the number 2 (√3)



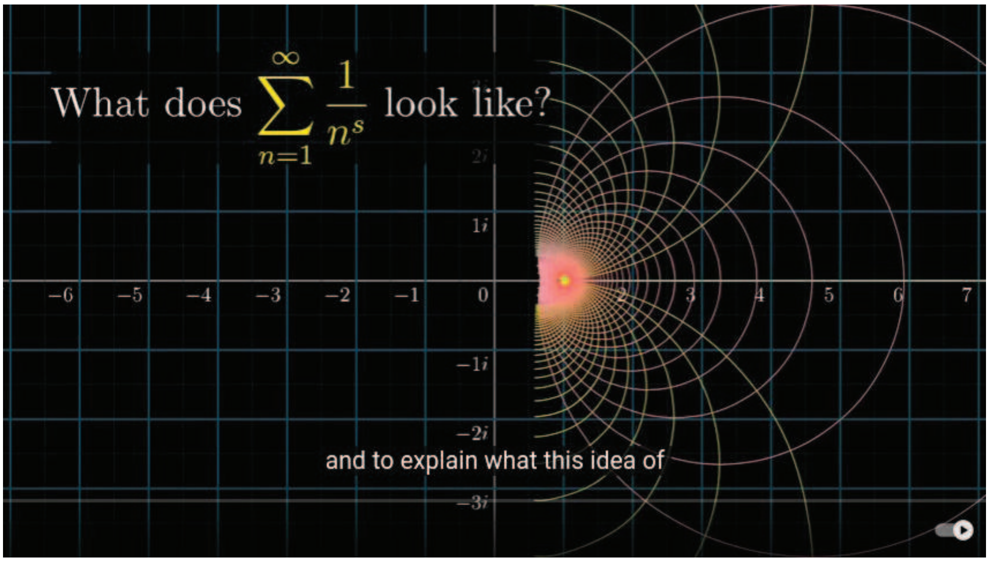
Stage 3: The red number space is pushed back to n=0.5 to form the critical strip.



Stage 4 – The yellow square of whole number space is compressed into a dot where n=1 and the red numerical space now becomes full wrapped around n=1, completing the critical strip.

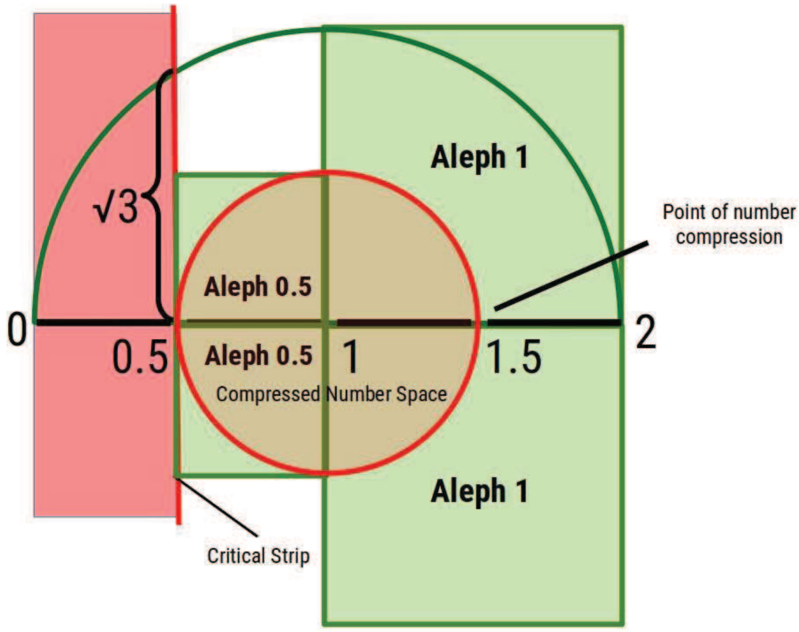
Images: by 3Brown 1Blue: https://www.youtube.com/watch?v=sD0NjbwqlYw

Therefore, we find the collapse of Aleph 1 (whole number space) into Aleph 0.5 through the bending of numerical space, which creates the non-trivial zeros along the critical strip. This is achieved by inverting the negative values of i into positive values, which is what the equation that produces the curvature is expressing. N=1 to infinity, whereas the second side of the equation is the reciprocal of n^s, which is an expression of reciprocal number law, $n / n^2 = {}^1/_n$, on the complex plane.



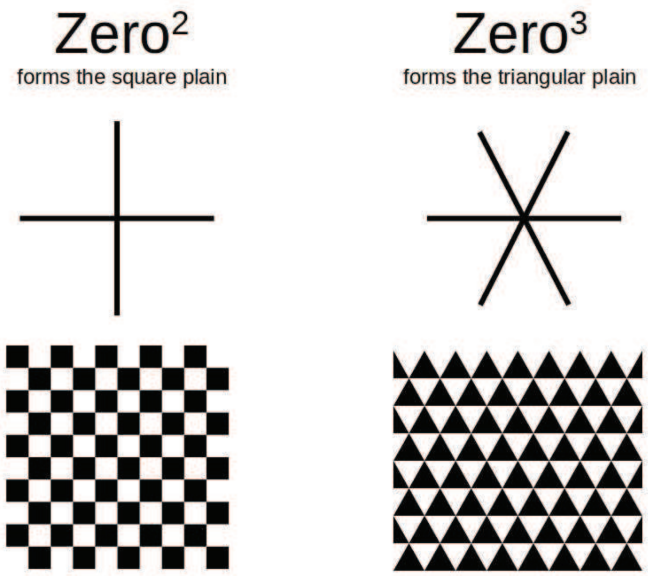
Bending the Square

For the number 2^2= 4, we can see that in the above images the number 4 denotes the point where the red rectangle meets the yellow one. Yet, on the complex plane this numerical space is also represented as a square divided into 4 smaller squares. Half of the square lies in the whole number plane, whereas the other half in the reciprocal space between 0 and 1. As these spaces have an infinite density ratio of 0.5:1 (whole space is half as dense as reciprocal space), when the square is folded through the circle, the density of whole numbers is wrapped into the reciprocal space. Therefore instead of ending up at the number zero, it ends at the number 0.5, forming the critical strip.



Number compression of the hexagonal plane

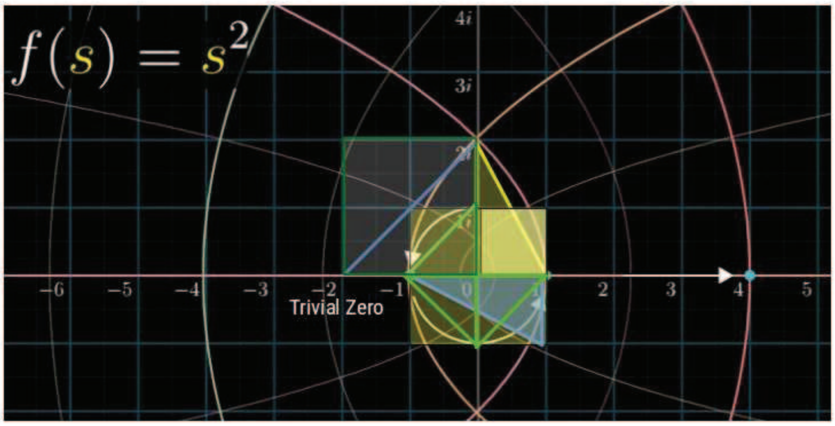
The complex plane is based on the square, which in 4D mathematics comes out of the notion of $ZERO^2$. The second number plane, based in the triangle, is not represented on the complex plane, but is represented in 4D mathematics derived from the notion of $ZERO^3$. This produces the two types regular 2D tapestries (formed only of 2 alternating colours), from the square and the triangle.

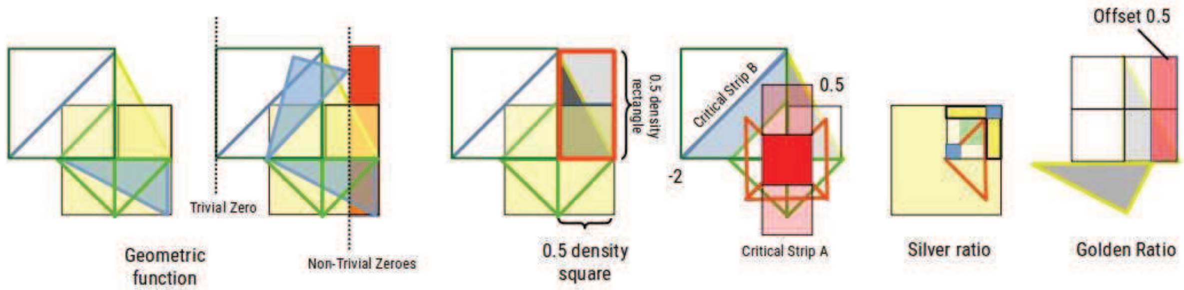


Note: in each case the number ZERO site at the centre of the cross

When we consider the nature of the hexagonal plane, we find that 6 triangles join to form a hexagon. This tapestry is created automatically from equal interlocking of two circles of the same dimension. This creates a geometric form called the Vesica Piscis. Once formed, more circles of the same dimension can be centred on the two nodes created to initiate the tapestry. The Vesica Piscis has a ratio of 1:√3, which is reflected throughout the number plain.

The function $f=s=(s^2)$ squares number space by rotating the x axis through 180° and 90° rotation on the i plain. This alters the the number density relationship of the whole numbers (Aleph 1) to the reciprocal space (aleph 0.5). However, instead of the points crossing at √3, (as per the triangular number plain) the number lines cross at the point of i2. This maintains a 90° angle at all intersecting points, instead of the 60° of the triangle, found on the 0^3 plain. We can examine this transformation from the perspective of the Silver and Golden ratio.





Here we can see that the rotation of the plain move +2i to the number -2. Whereas the value -1 is rotate double the distance creating the offset in infinite density. The square (Diagonal $\sqrt{2}$) exactly half density of the rectangle (2 Squares Diagonal $\sqrt{5}$). When the $\sqrt{5}$ triangle rotates, to lie along the same orientation as the $\sqrt{2}$ of the square, its corner point defines the halfway mark between 0 and +1, which creates the critical strip A. For this reason all non-trivial zeroes will fall on this line, just as any reciprocal square number series will devolve to zero. ON the negative side of the number plain we notice a +2i arcs through number space to arrive at the -1 position on the number line. Normally this rotation should find a position at at n= -2. On the square plain this offset forms a second critical strip (B) from the diagonal of the square in the negative plain, from a diagonal ratio of $-\sqrt{2}:\sqrt{8}$, which is a function of the silver ratio. However, on the positive plain the natural squaring function is not present, and $\sqrt{2}:\sqrt{8}$ is replace with $\sqrt{5}:2$, which is a function of the golden ratio. Such as

$$\sqrt{2} \pm 1 = \text{Silver ratio}$$

$$\sqrt{8} \pm 2 = \text{Silver ratio x2}$$

$$(\sqrt{5} \pm 1)/2 = \text{Golden ratio}$$

When we examine the difference between the silver and golden ratio equations, both exhibit the function of ± 1. However, when the number $\sqrt{2}$ is replace by $\sqrt{5}$, the whole equation must be halved to maintain this ± 1. From the we can calculate the height triangle formed where $\sqrt{5}$ triangle touches the critical strip A as:

$$\sqrt{(((\sqrt{5}-\sqrt{2})^2-0.5^2)} = 0.652261205$$

To this value we can add 1 to ascertain the distance from the zero point of the critical strip,and then multiply by $\sqrt{3}$ (the ratio of the triangular plain.)

$$1.652261205 \times \sqrt{3} = 2.861800354$$

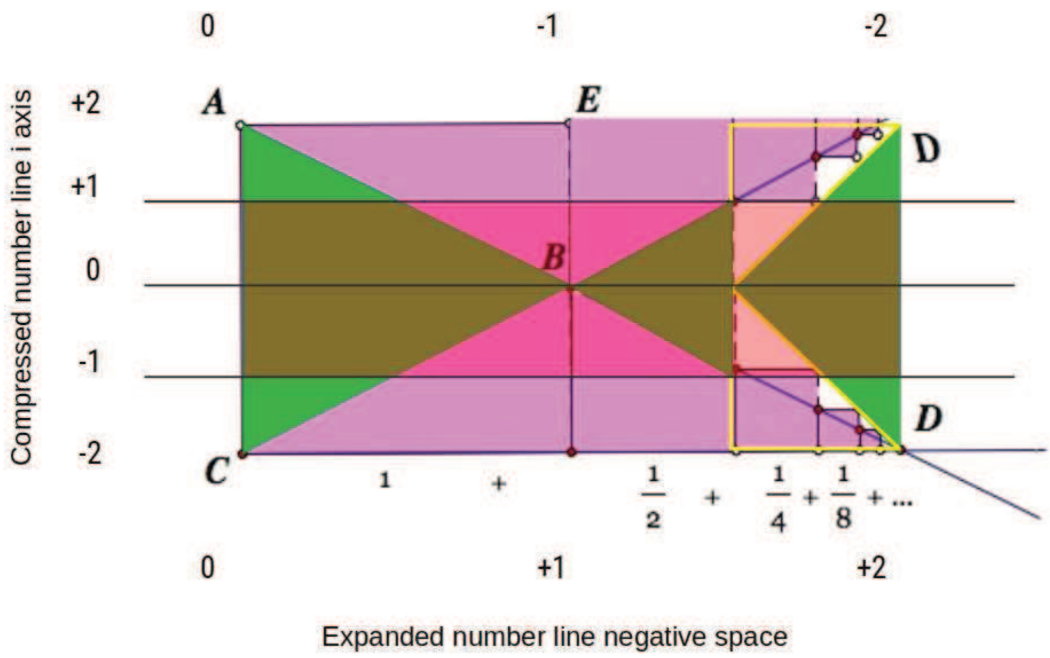
The number is also very close to √8, producing a squared value of 8.189901266 (≈8.19), whereas multiplying the value by √3 results in a value just short of the number 5. (2.861800354×√3 = 4.956783614 ≈ 4.9**5678**).

We notice that 8.19 is a number form of the digits 81 (9^2) and 9, whereas the number sequence formed after 2.8 is (6180) which is close to the golden ratio. Whereas the number (28= 7x4) which is the number proceeding it multiplied by 10, (base 10, see subtraction of 7 below.)

When considered from the perspective on the 0^2 (square) plain, a rectangle of sides 2:1 ratio a triangle with diagonal of √5, instead of √2 as is true for the square of 1.

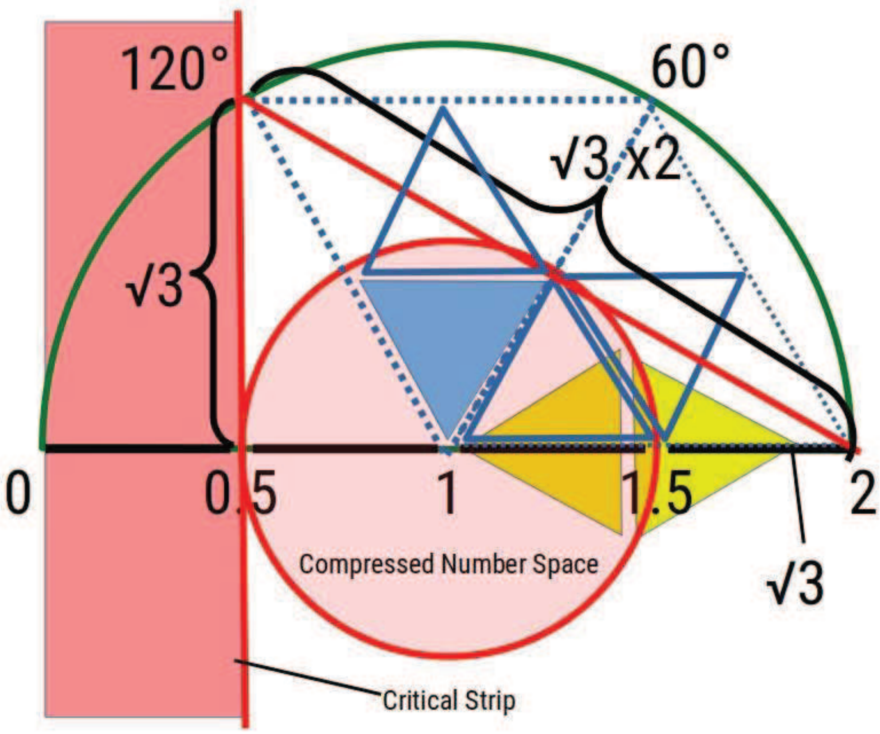
Next we can subtract √3+1 from 2.861800354 to find the difference = 0.129749546, which has a reciprocal value of 7.707156062. And then we find that $(7.707156062 - 7)^2 = 0.500069696$ = the critical strip. The number 7 is subtracted to de-π the value as 22/7 is close to π, and due to the nature of number e which demonstrates the difference in line length between the circle and hexagon in the triangular number plain (see $((2\pi-6)\times(2.25\times e) = 1.731999 \approx \sqrt{3})$. Here the value 2.25 is the relationship density x2 plus 0.5/2=0.25.

This function is most easily expressed in geometric terms as:



Here we see the reciprocal square number law has a limit of 1>∞ =2. The squares above 1^2 are reflected above and below, mirroring the density. The space left is formed of all reciprocal square numbers, from ¼ >∞ = 2, that have a diagonal of √0.5, which is also reflected on either side of the central line. As we compress the scale on the right to form the critical strip, so there is an expansion of number density along the x axis, (negative plain of the zeta function).

If we make a final comparison of the rotation of the line on the triangular plain we find that two unit rotations will produce a point on the critical strip that is at n=√3.



Therefore when we multiply this by (√5-√2), we get a reciprocal value that is around √3+7.
For those who are interested we can square these numbers to get the ratio 3+49 = 52. As a function of π this becomes expressed as a ratio 3:49 in the following equation:

$$((\pi /(^{3}/_{49})) + 1)^2 \approx \sqrt{2}$$

$$((\pi /(^{3}/_{49})) + 1) \times 7 \approx 10$$

√2:10 scaling function

As the Value for +2i rotates to position n=-1, however +i3 will rotate to the value of -12, simply because 3 x 4 = 12, which are the squared values for √3 and 2. As the function $f(s)=(s^2)$ is a squaring function, this compression ratio $\sqrt{3}^2 : 2^2$ maintains the perfect 90° angle of the zeta function as it bends the number plain through the ratio π on the x plain to π/2 on the i plain.

$$\pi : \pi/2 = 2$$

$$(^{\sqrt{3}}/_{2\pi}) \div e \approx 1$$

Where the result 1 in the second equation is equivalent to the +1 function in the √2:10 scaling equation. In 4D mathematics this relationship is defined by the simultaneous equation:

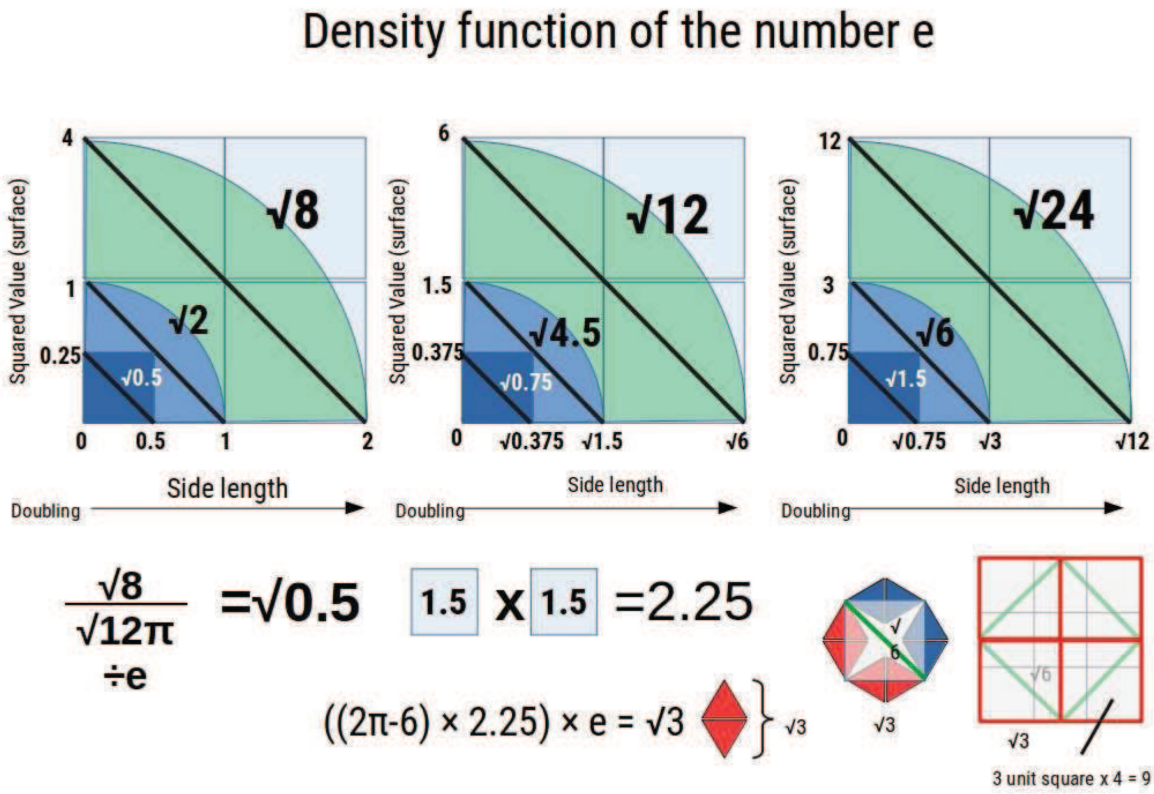
Simultaneous equations for infinite density function of e

Function through 3	Function through 2
$((2\pi\div\sqrt{3})\div e)\div((\pi\times\sqrt{3})\div e) = {}^{1}/_{1.5}$	$((\sqrt{3}\div 2\pi)\div e)\div((2\pi\times\sqrt{3})\div e) = 1/4$
$((\pi\div\sqrt{3})\div e)\div((2\pi\times\sqrt{3})\div e) = {}^{1}/_{6}$	$((\sqrt{3}\div\pi)\div e)\div((2\pi\times\sqrt{3})\div e) = 1/2$
$((2\pi\div\sqrt{3})\div e)\div((2\pi\times\sqrt{3})\div e) = {}^{1}/_{3}$	$((\sqrt{3}\div 2\pi)\div e)\div((2\pi\div\sqrt{3})\div e) = 3/4$
$((\sqrt{3}\times\pi)\div e)\div((\pi\times\sqrt{3})\div e) = 1$	**$((\sqrt{3}\times 2\pi)\div e)\div((2\pi\times\sqrt{3})\div e) = 1$**
$((2\pi\div\sqrt{3})\div e)\div((\pi\div\sqrt{3})\div e) = 2$	**$((\pi\times\sqrt{3})\div e)\div((2\pi\div\sqrt{3})\div e) = 1.5$**
$((\pi\times\sqrt{3})\div e)\div((\pi\div\sqrt{3})\div e) = 3$	**$((2\pi\times\sqrt{3})\div e)\div((\pi\times\sqrt{3})\div e) = 2$**
	$((2\pi\times\sqrt{3})\div e)\div((2\pi\div\sqrt{3})\div e) = 3$

$\sqrt{12\pi}\div e \approx 4$

Notice that the zero point of the critical strip (n=0.5) is form by an equation with a ratio of π : 2π. For more information on the function of e can be demonstrated by the e-ratio calculator

This function is more easily demonstrated by the following geometric presentation that shows how the density of two squares with a surface of area of 1.5 are compressed into the triangular plain through the number e.



Therefore 2.25 / √3 = 1.299038106 = √1.6875 ≈ 1.3 Notice that the square of 4 overlays the square of nine (bottom left, with equal density.

Number unit compression

It we examine the analytic transformation of the zeta plane, we see the 'red' dot accumulates first at point n=1.5, which moves towards the √3 before collapsing into the number one. This is due to the infinite density of numbers on the hexagonal plane. The number e is the accumulation of all reciprocal factorials, which are a series of triangular numbers added together in time. I.e the collapsing of number space into a dot. This is what is happening when the complex plane is transformed. However, as the plane is bent instead of being folded, the numbers are compressed into the triangular plane, which is the genesis of the hexagon in a circle.

This is expressed in 4D mathematics by the equation:

$$((2\pi - 6) \times 2.25) \times e = \sqrt{3}$$

Here, a circle with the radius of 1 has the 6 sides of the hexagon removed from its value. This is multiplied by 2.25 to form the 'infinite density constant' (unique to 4D maths). As the number e represents the infinite density of all numbers in reciprocal space compressed into a dot, the √3 represents the unit distance between the 2 tips of opposing triangles. We can see from the image above that when rotated 180° the unit measure between the start and end point is double √3. Therefore the equation becomes:

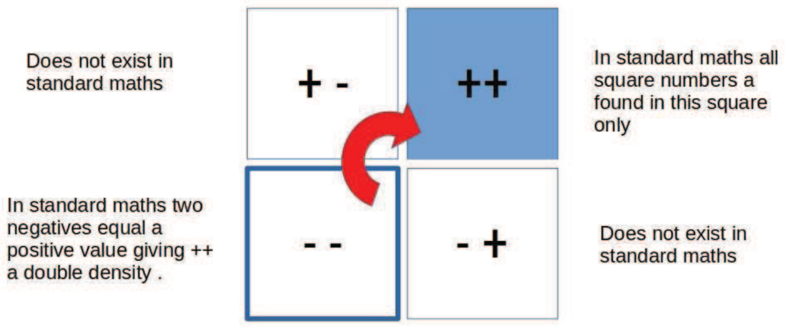
$$((2\pi - 6) \times 4.5) \times e = \sqrt{12}$$

However, in 4D mathematics whose axioms accepts the concept of negative squaring, due to the fact of the law or order (e.g: 2 x 3 is NOT 3 x 2 in 4D Maths), the 4 functions of squaring (++, - - , + - , and - +), means that the above equation becomes expressed in terms of the number 9.

$$((2\pi - 6) \times 9) \times e = \sqrt{24}$$

This is the 'real' equation in 4D mathematical space, that will never be expressed on a complex number plane that is missing ¾ of all numbers.

4D maths expressed the concept of negative squaring.



$ZERO^2$

The hexagon divides 2π into 6 parts. When multiplied by 9 we get 1.5 hexagons, which will rotate around the circle 1.5 times to end at the negative side of the number line. The square on the other hand, will perform the same rotation (1.5) in six steps. Therefore 6 squares x 1.5 = 9. However, as the zeta function bends the square number plane (complex plane) in both, the up and down direction from the real number line, the number e is produced at half density.

$$((2\pi\text{-}6) \times 9) \times (e \div 2) = \sqrt{12}$$

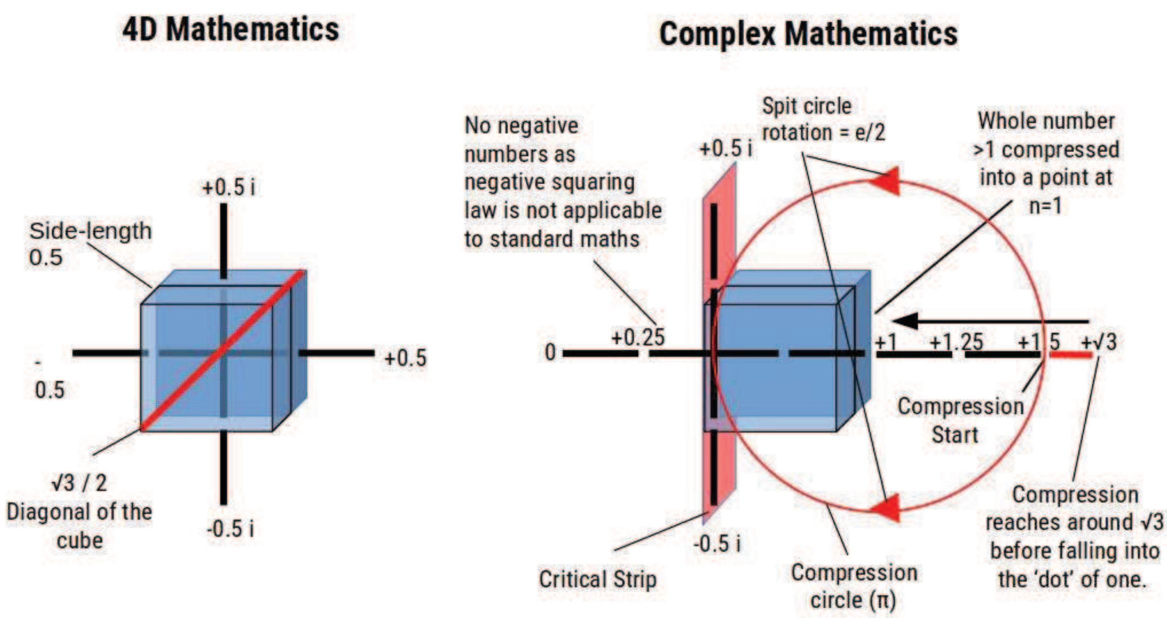
Furthermore, the rotation of number compression is accomplished through a single rotation of 180°, which is 2 steps on the square plane and 3 steps on the triangular plane. Therefore, we get:

$$((2\pi\text{-}6) \times 3) \times (e \div 2) = \sqrt{3} / 2$$

In 4D mathematics the number √3 /2 is found as the diagonal of a cube side length 0.5. Normally, this describes a hyper-cubic number space, a concept that is beyond a capabilities of the complex plane to express, as it excludes the function of negative squaring. The result is that the bending of number space of the zeta function can only accommodate numbers >+1, and no negative numbers.

4D mathematical view of the Zeta function

The Cube is off-set as the zeta function wraps numerical space around the number 1, an not the number 0, as the concept of negative squaring does not exist in Standard Mathematics.



In 4D mathematics the zeta function is depicted as a cube of number space that becomes flattened into a square and off-set when expressed on the complex plane.

In the next section we explain how 4D space exposes the correct views of number space beyond the number line, and the methods employed to calculate the infinite densities of all real numbers greater than 1.

Appendix

Calculating the infinite states of the zeta function in 4D Mathematics.

Solve for x + iy

Solution A – All Whole Numbers

X = +∞, Y =+∞
√-1 * +∞ = -∞ = (-Y∞) + (+X∞) = 0

X = -∞, Y =-∞
√-1 * -∞ = +∞ = (+Y∞) + (-X∞) = 0

Solution B – Square Space

X = -∞, Y =+∞
√-1 * +∞ = -∞ = (-Y∞) + (-X∞) = 2∞

X = +∞, Y =-∞
√-1 * -∞ = +∞ = (+Y∞) + (+X∞) = 2∞

+n * +n = +n

Solution C – Reciprocal Space

X = +1, Y =+1
√-1 * +1 = -1 = (-Y1) + (+X1) = 0

X = -1, Y =-1
√-1 * -1 = +1 = (+Y1) + (-X1) = 0

Solution D – Reciprocal Square Space

X = -1, Y =+1
√-1 * +1 = -1 = (-Y1) + (-X1) = -2

X = +1, Y =-1
√-1 * -1 = +1 = (+Y1) + (+X1) = +2

Solution E – Negative integers

X = +1, Y =+∞
√-1 * +∞ = -∞ = (-Y∞) + (+X1) = -∞+1

X = +∞, Y = +1
√-1 * +1 = -1 = (-Y1) + (-X∞) = -∞-1

Solution F – Positive integers

X = +1, Y =-∞
√-1 * -∞ = +∞ = (+Y∞) + (+X1) = +∞+1

X = +∞, Y = -1
√-1 * -1 = +1 = (-Y1) + (+X∞) = +∞-1

Solution G – Integers Stop Counting

X = -1, Y = -∞
√-1 * -∞ = +∞ = (+Y∞) + (-X1) = +∞-1

X = -∞, Y = -1
√-1 * -1 = +1 = (+Y1) + (-X∞) = -∞-1

Solution Table X.Y

	X=+1	X=-1	X= +∞	X= -∞
Y=+1	2	0	+∞ +1	**-∞ +1**
Y=-1	0	-2	**+∞ -1**	-∞ -1
Y= +∞	+∞ +1	**+∞ -1**	2∞	0
Y= -∞	**-∞ +1**	-∞ -1	0	-2∞

The complete set of solutions for (iy +x)

Unique solutions

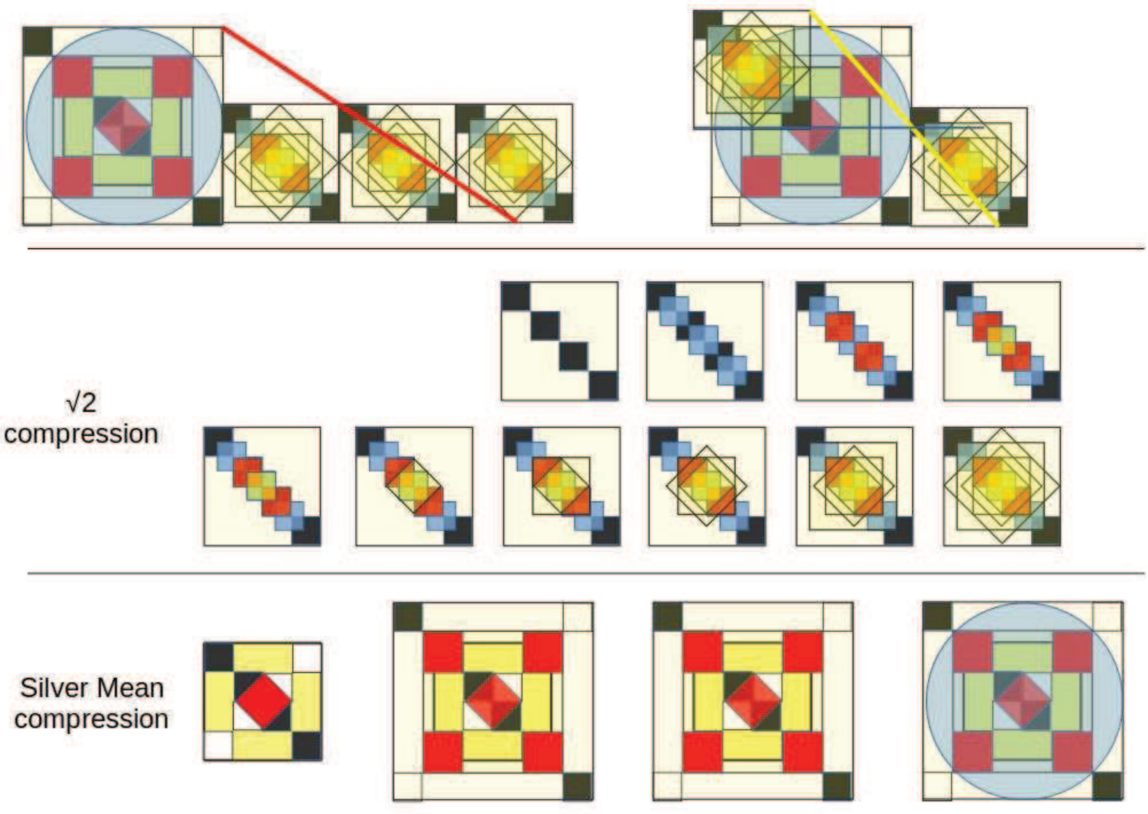
+2∞ +∞ +1 +∞ -1 +2 0 , 0, 0, 0 -2 -∞ +1 -∞ -1 -2∞

Note: there are 4 ZERO solutions. This is to be expected as:

Y+1 = X-1 Y-1 = X=+1 Y+∞ = X-∞ Y-∞ = X+∞

These are the four 'REAL' solutions in 4D mathematics, with the other 8 solutions being a 4^{th} dimensional identity, where 2 and -2 perform the function of 'Rotational Squaring', (Yellow square'), that require a number twice the length of the squared value, which is the function of the orange square in 4D mathematics. The functions of the eight states of ±∞ ±1 (Red and Green Squares) are the function of infinity that generates the functional algorithm +1, -1, +1, -1, which moves the infinite number line onto the diagonal, as a result of the combine infinite densities of a 'squared' pair of number lines. We term this function $ZERO^2$ in 4D Mathematics.

This function is demonstrated geometrically as the relationship to the sliver mean the defines π and the √2:1 ratio that forms the fractal of a square rotated inside on another. Due to its fractal nature, this relationship is a scalable phenomena that is distributed throughout the square number plain. The Sliver mean maintains the infinite density of the number line (2π/4= ½π), as it is rotated through ¼ of the number plain.



Notice that the diagonal in both cases is formed of 4 squares, which lie at the centre of a diagonal line between two infinite sets (x and i plain) . As one fractal expands from the centre (√2 compression), so the silver mean develops a diagonal of 6, with two of the squares across the diagonal rotated at 45° and expanded to the relative dimension of √2. In this way the circle (π) is defined from the Center point of the silver mean fractal. Note that in 4D mathematics we normally define π from the 'radius' of the circle, which has double the the value compared to mathematical π. This gives the quarter arc a value of ½ π.

At the top of the above diagram we see the fractal relationship between the two forms. On the left, the Silver mean fractal projects the diagonal (blue line) line 1.5 units of the √2 fractal's side-length. Notice the 1.5^2 = 2.25, which appears in the number equation, therefore $((2\pi-6) \times 1.5^2) \times e = \sqrt{3}$. Whereas when the √2 fractal is superimposed over the quarter square of the silver mean fractal, it produces a diagonal (yellow line) that defines the bottom left corner square of a second √2 fractal placed next to it, which defines its relative unit length.

Solve For K

$K^{(iy+x)} = +1^{(iy+x)} > +\infty^{(iy+x)}$

Solve for K = $+1^{(iy+x)}$		**Solve for K = $+\infty\text{-}1^{(iy+x)}$**	
$+1^{+2\infty}$	$= +1$	$+\infty\text{-}1^{+2\infty}$	$= (+2\infty-2)^2$
$+1^{+\infty+1}$	$= +1$	$+\infty\text{-}1^{+\infty+1}$	$= (+\infty-1)^2$
$+1^{+\infty-1}$	$= +1$	$+\infty\text{-}1^{+\infty-1}$	$= (+\infty+1)^2$
$+1^{+2}$	$= +1$	$+\infty\text{-}1^{+2}$	$= (+\infty-1)^2$
$\mathbf{+1^{0}}$	$\mathbf{= 0}$	$\mathbf{+\infty\text{-}1^{0}}$	$\mathbf{= 0}$
$+1^{-2}$	$= -1$	$+\infty\text{-}1^{-2}$	$= (-\infty+1)^2$
$+1^{-\infty+1}$	$= -1$	$+\infty\text{-}1^{-\infty+1}$	$= (-\infty-1)^2$
$+1^{-\infty-1}$	$= -1$	$+\infty\text{-}1^{-\infty-1}$	$= (-\infty+1)^2$
$+1^{-2\infty}$	$= -1$	$+\infty\text{-}1^{-2\infty}$	$= (-2\infty+2)^2$

Solve for K * $1/K^{(iy+x)}$

K=$+1^{(iy+x)}$		**K=$+\infty\text{-}1^{(iy+x)}$**	
1 * (1 / +1)	= +1/+1 = +1	$+\infty-1 * (1 / (+\infty-1)^2)$	$= (+\infty+1)$
1 * (1 / +1)	= +1/+1 = +1	$+\infty-1 * (1 / (+\infty+1)^2)$	$= (+\infty-1)$
1 * (1 / +1)	= +1/+1 = +1	$+\infty-1 * (1 / (+\infty-1)^2)$	$= (+\infty-1)$
1 * (1 / 0)	= +1/0 = 0	+∞-1 * (1 / (∞-1^0)	= 0
1 * (1 / -1)	= +1/-1 = -1	$+\infty-1 * (1/ (-\infty+1)^2)$	$= (-\infty-1)$
1 * (1 / -1)	= +1/-1 = -1	$+\infty-1 * (1/ (-\infty-1)^2)$	$= (-\infty-1)$
1 * (1 / -1)	= +1/-1 = -1	$+\infty-1 * (1/ (-\infty+1)^2)$	$= (-\infty+1)$

Table Summery K

K=∞-1	-1	0	1	K= ∞ > ∞-2
K=+1	∞-1	0	∞+1	K= 0±1

K=∞-1	∞-2	∞-1	∞	K= ∞ > ∞-2
K=+1	∞-1	0	∞+1	K= 0±1

First we solve for K in the infinite producing potential extremes. K can equal any value from +1 to ∞-1 (as the number Zero is excluded from the set). We then solve for both types of K with to the power of (x + iy), and then do the same for the reciprocal. In this way we establish the relationship of K to $^1/_K$ which is called the 'Bounce Point of the number in 4D Mathematics. The next step is to find the instances when F is equal to K, however, from the above table we are able to establish the 4^{th} Dimensional proportions to solve the problem using a simple 4D calculator.

See video Example (coming soon)

Solve for f

f= +1		**f= ∞**	
+1 * +2∞	= +2∞	+∞ * +2∞	= $+2\infty^2$
+1 * +∞ +1	= +∞ +1	+∞ * +∞ +1	= $+\infty +1^2$
+1 * +∞	= +∞	+∞ * +∞	= $+\infty^2$
+1 * +2	= +2	+∞ * +2	= +2∞
+1 * 0	= 0	+∞ * 0	= 0
+1 * -2	= -2	+∞ * -2	= -2∞
+1 * -∞ +1	= -∞ +1	+∞ * -∞ +1	= $-\infty +1^2$
+1 * -∞ -1	= -∞ -1	+∞ * -∞ -1	= $-\infty -1^2$
+1 * -2∞	= -2∞	+∞ * -2∞	= $-2\infty^2$

If f may be in any state from 1 to infinity, there will be a specific point where it will fall into equilibrium with k, so that when multiplied by its reciprocal to the power (x + iy) the result will be equal to f * (x + iy). This produces 2 solutions, one for f=+1 where f = R, and another f=∞ Where f = R.

The table below show the above to value sets combined in a 4 tables, with the order maintained.

Table 1: f=+1 and k=+1 (top left), show a zero solution where +∞+1 is found, which is the 1:1 solution.

Table 2: f=+1 and k=+∞ (top right) shows a Zero solution where both f=+∞ and k+∞.

The light blue squares on these table show where each on appears reflected over two axis.

Table 3: f=+∞ and k=+1 (bottom left), show the $zero^2$ solution, which have no Zero solution, but instead exhibits +∞+1 solution, as a result of the squaring of zero, which produces the number cross in space, equivalent to the complex plane but in 2D space. This is because if f moves to infinity, then normally k will also need to change in order to remain in equilibrium with infinity. The significance of +∞+1 the reduction of the infinite density of infinity, by increasing the whole number line by one unit beyond infinity. This expansion can only be compensated for by the expansion of 1D linear number space into the 2D number plane, of which there are exactly two options, the square and the triangle.*

Finally, table 4 (bottom right), show the values when f=+∞ and k=+∞, which is the maximum values for each function. Here, we find the ratio $\infty:\infty^2$ where the number ∞ replaces the position of ZERO on the table above, as k:f fall into an x^2 relationship.

Notice, that on the bottom table the f numbers (green row) are squared from the numbers above. The table above is the linear solution, and the pair of table below is the 0^2 'Number Cross' solution.

As conversational mathematics has excluded the possibility of 'negative' square numbers, we have maintained f in the positive. However, in 4D mathematics, the negative function as positive and negative orders do matter in 4D. See 'Order Matters' Principles of 4D mathematics.

*For more information, see, 2 types of regular 2D space, Squaring triangles and squares

Comparison Table K,F

F = 1	K=1		
	+∞-1	0	+∞+1
+2∞	X	+2∞	X
+∞ +1	X	+∞ +1	0
+∞	X	+∞	X
+2	X	2	X
0	X	0	X
-2	X	-2	X
-∞ +1	X	-∞ +1	X
-∞ -1	X	-∞ -1	X
-2∞	X	-2∞	X

F=1	K=∞-1		
	∞	∞-1	∞-2
+2∞	X	X	X
+∞ +1	X	X	X
+∞	0	X	X
+2	X	X	X
0	X	X	X
-2	X	X	∞
-∞ +1	X	X	X
-∞ -1	X	X	X
-2∞	X	X	X

F=∞	+∞-1	0	+∞ +1
$+2\infty^2$	X	X	X
$+\infty +1^2$	X	X	X
$+\infty^2$	X	X	X
2^2	X	X	X
0^2	X	0^3	X
-2^2	X	X	X
$-\infty +1^2$	X	X	X
$-\infty -1^2$	X	X	X
$-2\infty^2$	X	X	X

F=∞	∞	∞-1	∞-2
$+2\infty^2$	X	X	X
$+\infty +1^2$	X	X	X
$+\infty^2$	X	X	X
2^2	X	X	X
0^2	X	X	X
-2^2	X	X	X
$-\infty +1^2$	X	X	X
$-\infty -1^2$	X	X	X
$-2\infty^2$	X	X	X

Comparison Table Refined (4D)

	K=1			K=∞-1		
F = 1						
	X	+2∞	X	X	+2∞	X
	X	+∞ +1	**0**	X	+∞ +1	X
	X	+∞	X	0	+∞	X
	X	+2	X	X	+2	X
	+∞-1	**0**	+∞+1	∞	**+∞-1**	∞-2
	X	-2	X	X	-2	X
	X	-∞ +1	X	X	-∞ +1	X
	X	-∞ -1	X	X	-∞ -1	X
	X	-2∞	X	X	-2∞	X
F=∞						
	X	$+2\infty^2$	X	X	$+2\infty^2$	X
	X	$+\infty +1^2$	**+∞ +1**	X	$+\infty +1^2$	X
	X	$+\infty^2$	X	∞	$+\infty^2$	X
	X	2^2	X	X	2^2	X
	+∞-1	$\mathbf{0^2}$	+∞ +1	∞	**+∞-1**	∞-2
	X	-2^2	X	X	-2^2	X
	X	$-\infty +1^2$	X	X	$-\infty +1^2$	X
	X	$-\infty -1^2$	X	X	$-\infty -1^2$	X
	X	$-2\infty^2$	X	X	$-2\infty^2$	X

This table represents a 4D blueprint of the solutions to the Riemann Hypothesis.

From this table we can incorporate k=1 and k=∞ into a 4th dimensional calculator, and solve for each state.