Temporary Work

20071028

Well as you might have known from testing the math work yourself, there are many fundamental problems with my Prime number solution. I did not mind that the computer program is always true, because that is not what I based my theory on. The fact that a spiral with radius = [(Prime #) / Pi] and arc length [S = to the Prime number in the series], is just that, "a spiral."

As it appears to me now having drawn the spiral for the first Prime numbers under 100, the spiral formed is irregular instead of increasing at a steady value as a logarithmic spiral should. At this time I have no equation (other that s = r * theta) to describe it.

It may be of use to note that any number divided by Pi is in increments of 0.318471. So if you were to take 43 for example 43 * 0.318471 = 13.6943 = 43 / Pi. This creates a nice involute, but it describes any number, not just Prime numbers. However if the Prime spiral with radius = [(Prime #) / Pi] had an known equation it could be set to equal that involute and where they meet would be the Prime numbers.

Maybe I should have concentrated with a logarithmic spiral of the rate of change. Or investigate a log spiral of the rate of change, of the rate of change of the Prime numbers. I still have a "boxed" log spiral that has a [chord of the Prime number / Pi]. In it the spiral seems to fit better instead of being fixed in increments of Pi. There is something to investigate there.

I received an anonymous email that showed the equation part is always true. It is always good to receive feedback if only to know if you are right or wrong. Here is the work:

P2 / [((P2-P1) / Pi) + (P1/Pi)] = Pi

=> P2 / [(P2-P1+P1) / Pi)] = Pi

=> P2 / [P2/Pi] = Pi

=> 1/ (1/Pi) = Pi

=> Pi = Pi

always true

How did I make such a mistake and why didn't I check my work? The fact is I put all my effort in solving the logarithmic spiral. I don't mind so much as such a simple equation could solve a 3000 year old problem. My work only partly depended upon it. I know it is naive to think you can solve such a problem in one night. However, I had this envision of the logarithmic spiral solving all kinds of series. I should have tried a known series first! However the main part of my work (click here for spiral_encryption and here for function_finder) did not rely on this equation working. Instead it relied on the truthfulness of the logarithmic spiral.

Summary:

This problem isn't finished, but it will be a lesser priority. I have put a lot of effort and work into it. It would be a waste of good (though mostly not correct) work. However as a book of unsolved problems says: "It does not recommend any of these unsolved problems... since the greatest mathematicians have been unable to solve them."

Even when you don't solve the math problem you learn something. I've studied cryptography, Prime theory, Laplace transforms, and geometry. I had a lot of theories most have proved untrue. But what is the established ratio of good to bad ideas? You know, the one were you have so many bad ideas until a good one is found.

You can read the discussion here at http://www.3dbuzz.com/vbforum/showthread.php?t=157642

I am not finished with this problem. I believe there is more to the story of the spiral that is envisioned as a boxed logarithmic spiral. (You can find its picture here in the Prime Summary.) As with any good math problem there is a challenge to it. I will still be updating the site with work as well as other projects. So until then...

May the Creative Force be with You

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor's Corner.

Temporary Work

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20071114—20071116

Well I have spent months trying to prove that the Prime number series can be solved by relating it to a logarithmic spiral with no great success. Sure I have had many good ideas and theories. However it has just left me wondering if the "boxed" logarithmic spiral is in fact a logarithmic spiral. And if it is, how do I solve for the values of the logarithmic spiral.

What kind of good ideas you ask? How about this:

Every logarithmic spiral has an involute that will intersect its values. Though sometimes difficult, if we could find this involute we could set the log spiral equation, equal to the known equation of the involute.

When using the boxed method to draw an involute, the "framework" or lines that make up the box are square. Which we know every box occurs at a 45 degree angle. Perhaps the difference between the known involute square and the rectangular shape of the logarithmic spiral can lead to a pattern that explains the log spiral.

That is pretty good, but there is the question of if it works. There are so many factors and variables to the log spiral it is very difficult to solve.

That is only the beginning of my efforts and work. If you would like to see more of my theories on this Website, "Constructor's Corner", email me at trurlthe_constructor@hotmail.com and I will be happy to share more of my work, although the work so far has failed to solve Prime numbers. However, remember that this work may be useful for other numerical series. I'm thinking of creating a spot on the Website for my math journal ideas that are just ideas and not explored completely.

May the Creative Force be with You

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Temporary Work

20071208-1211

Before reading review previous work.

So far it has appeared as if my work on Prime numbers related to a logarithmic spiral has proved nothing. But nothing could be further from the truth. Sometimes even if you put a lot of effort into a problem an it isn't solved, new ideas and hypothesis are formed. Here at Constructor's Corner we call them "hunches." And it is true that other times you have a hunch and you know the information is groundbreaking, but it just seems that figuring the solution to problem is impossible.

Long story short: My first attempts had many errors. And much of it proved to be untrue. But underneath it all I had a hunch and it still is a hunch. The solution relies on the "boxed" logarithmic spiral where [chord = Prime # / Pi] and [r = # / Pi] being a true logarithmic spiral or at least an approximate logarithmic spiral. What I am about to show will prove or disprove this hunch.

To start it must be stated that the assumed log spiral of [S = Prime #] is not a true logarithmic spiral. It is just a spiral that has no clearly seen harmony. However it is still may have some use. In fact, the same equations we used trying to find the equation for this spiral may be used on the "boxed" logarithmic spiral.

Assuming that the boxed spiral is a true logarithmic spiral. I see 2 ways to solved for its equation:

1. Find a involute which intersects its values. An involute will be a boxed logarithmic spiral that is perfecty square and whose values occur at 45 degree angles. If that unique involute can be found its equation and values can be put into the log spiral equation.

2. We can find a quadratic equation that describes the boxed logarithmic spiral. If it can be found the equations we get from the parabola will help us solve the log spirals equation and find the values of a and b. (This will be our approach. I have tried it before, but the [S = Prime #] proved not to be a true log spiral.)

start with the previous found equations

$$[x + r_1]^2 = \frac{r_2 * S_2}{\pi}$$

solve with known values $r_1 = 19$ *and* $r_2 = 23$

These are 2 *consecutive Prime numbers.*

$$[x + \frac{19}{\pi}]^2 = \frac{\frac{23}{\pi} * S_2}{\pi}$$

$$where\ S_2 = chord * segment$$

$$and\ chord\ with\ [\cos(\theta) * r_2 = \frac{1}{2} * \frac{23}{\pi}]$$

$$\theta = \cos^{-1}(.2)$$

$$\theta = 1.36944\ radians$$

$$S_2 = 1.36944 * r_2$$

$$= 1.36944 * \frac{23}{\pi}$$

$$= 10.0258$$

$$Plug\ S_2\ into$$

$$[x+\frac{19}{\pi}]^2=\frac{\frac{23}{\pi}*10.0258}{\pi}$$

$$[x+\frac{19}{\pi}]^2=23.364$$

$$x^2+12.0958x+36.577=23.364$$

$$x^2+12.0958x+13.213=0$$

We know have a quadratic formula that we can use to get values from the parabola. Ironically it is very similar to the previous parabola solved previously.

Very Important to Click Here

This is not what I was expecting. I was expecting a whole new quadratic equation. That means if the math on the previous work holds true we could solve for a and b in the logarithmic spiral equation. We would have the problem of not knowing the angle at which the Prime numbers occur. However the boxed spiral's lines intersect the log spiral itself. Restated, using geometry we can find the angle (theta).

We can try solving for its values. If the math doesn't break any rules and it does not give us a value, we must determine if the boxed spiral is in fact a logarithmic spiral.

May the Creative Force be with You

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Temporary Work

20080118---20080127

Forget the previous attempts of finding a logarithmic spiral which fits the properties of Prime numbers. Let the geometry form itself. All we need is a little help from calculus.

start with the previous found equations

$$[x + r_1]^2 = \frac{r_2 * S_2}{\pi}$$

solve with known values $r_1 = 19$ *and* $r_2 = 23$

These are 2 *consecutive Prime numbers.*

The $\frac{r_2 * S_2}{\pi}$ *portion is not true for the radius = chord logarithmic spiral. (That is the spiral which the most recent work has been done.)*

However we do not need it.

$$[x + r_1]^2 = r_2 * \pi = \textit{Prime number}$$

the Prime number in this case is 23

$$[x + r_1]^2 = 23$$

The theory is that the logarithmic spiral equations will form itself when the values of the variables are plugged in. The idea relies on the logaritmic spiral equations working based on the fact a logarithmic spiral exist which describes Prime numbers.

$$[x + r_1]^2 = 23$$

$$[x + \frac{19}{\pi}]^2 = 23$$

$$x + 12.0958 + 36.576947 = 23$$

$$x + 12.0958 + 13.5769 = 0$$

$$\frac{d\ radius}{d\ Prime} = x = \frac{\mathrm{d}}{\mathrm{d}y}$$

$$since\ x = the\ rate\ of\ change\ of\ radius\ (as\ shown\ in\ previous\ works)$$

$$we\ find\ x\ by\ using\ the\ quadratic\ equation\ for\ x + 12.0958 + 13.5769 = 0$$

$$\frac{d\theta}{dr} = \frac{\mathrm{d}}{\mathrm{d}x} \frac{Prime\ \#}{\int_0^x x\ dx}$$

Now all that remains is finding the inverse derivative of $\frac{d\theta}{dr}$ *to make it* $\frac{dr}{d\theta}$

Then plug into the following equations:

$$\text{That equation}^{1} \text{ is: } \frac{dr}{d\theta} = abe^{b\theta} = br$$

now we substitue $\frac{dr}{d\theta}$ *into*

$$\frac{dr}{d\theta} = br$$

to find b and then subsitute b into

$$abe^{b\theta} = br$$

to find a

and place a & b into the equation of the logarithmic spiral:

$$r = ae^{b\theta}$$

Summary:

This remains untested which means there is a great chance that it is wrong. However the idea is outlined here. If the idea is correct all that needs to be found is the inverse of the derivative for d-theta / d radius . This is just a draft. I will try to develop the ideas further. But until then...

May the Creative Force be with You

References:

1. Logarithmic Spiral from Wolfram MathWorld [equation noted with 1]
2. Wikipedia.org for equation references

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor's Corner.

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20080213 from 20080127

Before Newton invented the laws of motion, mathematicians and especially ordinary folk had a "feel" for what now is easily expressed by a set of equations. This feeling was based on personal experience and observation. The user knew what they were looking for, they just couldn't explain it simply. This is true and shown today in geometry and every skill. It is true when us would be mathematicians (including those who don't know they are mathematicians) try and solve an unknown or new math problem.

This mean that sometimes you get ideas that don't seem worth pursuing. It seems too abstract or to difficult to describe in a simple sentence. How do you decide if it is worth pursuing? This is were math, a logical field, becomes an art form: You have to go by "feel".

Often, the answer doesn't come easy. (Or else someone would have already discovered it.) It is also a question of effort. How long do you want to spend figuring and testing ideas? But even with a little effort something is learned. And your one step closer to discovery. You can't measure the distance between success and failure, because the road is not linear. Likewise, the closeness to discovery could be an equation or rely on several future discoveries.

That is where this logarithmic spiral vs. Prime numbers begins. I have been trying to solve this for almost a year. It is thought that Primes have no pattern. But the benefits to their discovery are huge. I have tried with 2 different spirals and failed. However, I still believe that a spiral can find the pattern between many series including Primes. After all if the modulus can be described as values wrapping around a circle, isn't a logarithmic spiral just a continuation of that concept? 1

However my latest attempt has 3 main characteristics that is must met if it is going to work.

20080213

1. *Does r/π hold to be a true logarithmic spiral?*

2. *Can $d\theta/dr'$ be formed to $d\theta/dr$ considering $r = \int x\,dx$? And then the derivative inverse of $d\theta/dr$?*

3. *Does the resulting logarithmic spiral have a pattern?*

It will be helpful to read the previous post Here
There is some corrections.

Correction

$$[x + r_1]^2 = r_2 * \pi = Prime\ number$$

$$the\ Prime\ number\ in\ this\ case\ is\ 23$$

$$[x + r_1]^2 = 23$$

The theory is that the logarithmic spiral equations will form itself when the values of the variables are plugged in. The idea relies on the logaritmic spiral equations working based on the fact a logarithmic spiral exist which describes Prime numbers.

$$[x + r_1]^2 = 23$$

$$[x + \frac{19}{\pi}]^2 = 23$$

$$x^2 + 12.0958x + 36.576947 = 23$$

$$x^2 + 12.0958x + 13.5769 = 0$$

$$\frac{d\ radius}{d\ Prime} = x = \frac{\mathrm{d}}{\mathrm{d}y}$$

$$since\ x = the\ rate\ of\ change\ of\ radius\ (as\ shown\ in\ previous\ works)$$

$$we\ find\ x\ by\ using\ the\ quadratic\ equation\ for\ x^2 + 12.0958x + 13.5769 = 0$$

$$\frac{d\theta}{dr'} = \frac{\mathrm{d}}{\mathrm{d}x}\frac{Prime\ \#}{\int_0^x x\ dx} = \frac{\mathrm{d}}{\mathrm{d}x}\frac{x^2 + 12.0958x + 13.5769}{\int_0^x x\ dx}$$

$$Knowing\ x = change\ of\ r$$

$$\mathrm{r} = \int_0^x x\ dx$$

we need to find $\frac{d\theta}{dr}$ *as it relates to* $\frac{d\theta}{dr'}$

then we find the inverse of $\frac{d\theta}{dr}$, *which is* $\frac{dr}{d\theta}$

Summary:

This remains untested which means there is a great chance that it is wrong. However the idea is outlined here. If the idea is correct all that needs to be found is the inverse of the derivative for d-theta / d radius . This is just a draft. I will try to develop the ideas further. But until then...

May the Creative Force be with You

References:

1. "The Code Book" , Simon Singh

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor's Corner.

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Temporary Work

20080324 from 200703

I have been working on the Prime number series since March 2007. After working on this project with so much work invested I did not want to end the project. The problem was that I had a parabola that described all values of the components of my equation. Even though the log spirals I formed were not true logarithmic spirals, the equation of the parabola was still useful. The only problem was that when solving for "x" I assumed that "y" equaled the Prime number. However there were some operations done to the equation before "x" was solved.

This is where this work starts. I have found the new values for y that relate to "x" when the number is Prime. Hard to describe but it is easily seen in the algebraic equations that follow.

This is important, but it is only a start. It has to be tested make sure it is not true for all values and unique to Primes. However, we now know where "x" is in relation to the parabola. Much work needs done.

$$P_2 = [x + r_1] \ and \ P_2 = \frac{r_2 * S_2}{x + r}$$

so that the 2 equations can be solved by the quadratic equation

$$[x+r_1] * \pi = \frac{r_2 * S_2}{x + r}$$

$$[x+r_1]^2 = \frac{r_2 * S_2}{\pi}$$

---

test two Prime numbers 19 *and* 23

$$[x+r_1]^2 = \frac{r_2 * S_2}{\pi}$$

$$[x+6.04789]^2 = \frac{7.32113 * 23}{\pi}$$

$$x^2 + 12.0958x + 36.577 = \frac{168.0386}{\pi}$$

$$x^2 + 12.0958x - 17.0219 = 0$$

We have changed the Prime number Y and must account for this:

$$\frac{P_2 * [x + r_1]}{\pi}$$

$and\ knowing\ r_1 + x = r_2\ so\ that$

$$\frac{P_2 * r_2}{\pi}$$

$which\ equals$

$$\frac{{P_2}^2}{\pi^2}$$

______________ ______________ ______________ ______________

____

$$\frac{23^2}{\pi^2} = 53.5989$$

and

$$\frac{19^2}{\pi^2} = 36.5769$$

$The\ vertex\ of\ our\ solved\ parabola\ is$ [-6.0479 , -53.5989]

$$\frac{23^2}{\pi^2} = 53.5989$$

$$absolute\ coordinates\ [4.3\ ,\ \text{-}53.5989]$$

$$relative\ coordinates\ (from\ center\ of\ vertex\ of\ parabola)\ [1.28,\ 0]$$

$$since\ \text{-}53.5989 + 53.5989 = 0\ ;\ the\ vertex\ of\ y + \frac{23^2}{\pi^2}$$

$$and$$

$$\frac{19^2}{\pi^2} = 36.5769$$

$$absolute\ coordinates\ [3.451,\ 36.5769]$$

$$relative\ coordinates\ (from\ center\ of\ vertex\ of\ parabola)\ [0,\ \text{-}17.022]$$

$$since\ \text{-}53.5989 + 36.5769 = \text{-}17.022$$

______________ ______________ ______________ ______________

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$$so\ that$$

$$1.28\ \text{-}\ 0 = 1.28 = \frac{23\ \text{-}\ 19}{\pi} = x$$

$$So\ when\ P_2 = 23,\ x = 1.28$$

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Temporary Work

20080501

I am going to "wrap up" work on Prime numbers soon. It has been over a year since I started and I only have some creative ideas without solid results. But that's how it is with Primes. That doesn't mean I will completely give up. I will continue to work on Primes, but focus more on other subjects and other projects.

But why not try one more idea that doesn't work?

20080517

There is also a question of when to conclude work on a math problem. It is when you are out of definable "hunches". I don't have anything that I is complete and can be written about in a clear manner. But that doesn't mean another future hunch won't bring a breakthrough.

Onto the idea that doesn't quite work:

So far the theory that many series including Prime numbers can be represent by a involute and logarithmic spiral has been established. However finding that specific spiral that defines Prime numbers is no easy task.

However we have something to work with. In previous work a parabola was found by the equations that are described by Prime numbers. In another working theory it is stated that a parabola can be translated into a involute or logarithmic spiral. The only questions are how to derive this spiral from the parabola, and once derived, does it explain the pattern and predictability of Prime numbers?

Resonance:

My definition of resonance after reading the following excerpted page is: "force that is lessened by an object over time; however there is not enough time to dampen the force before another force is applied". Not an exact definition but you get the idea. It is often in mechanical and electric disciplines. But I'm going to apply it to an involute. That is starting with the parabola from which the involute is derived.

*the following diagram is except from "Analytic Trigonometry", Barnett and Ziegler 6th Edition

3.4 Additional Applications 155

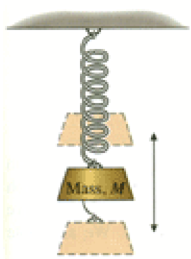


FIGURE 9

Damped harmonic motion is essential in the design of suspension systems for cars, buses, trains, and motorcycles, as well as in the design of buildings, bridges, and aircraft. Resonance is useful in some electric circuits and in some mechanical systems, but it can be disastrous in bridges, buildings, and aircraft. Commercial jets have lost wings in flight, and large bridges have collapsed because of resonance. Marching soldiers must break step while crossing a bridge in order to avoid the creation of resonance—and the collapse of the bridge!

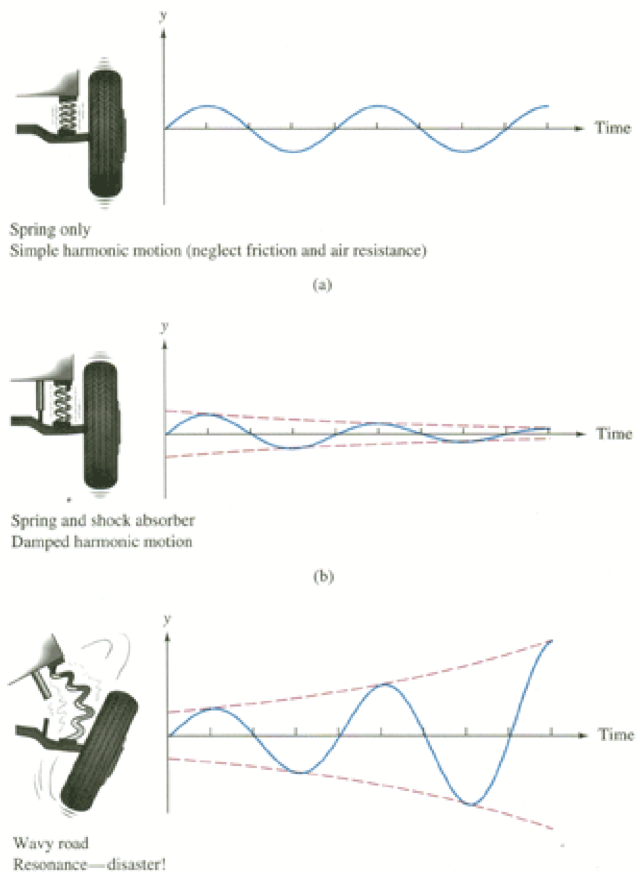
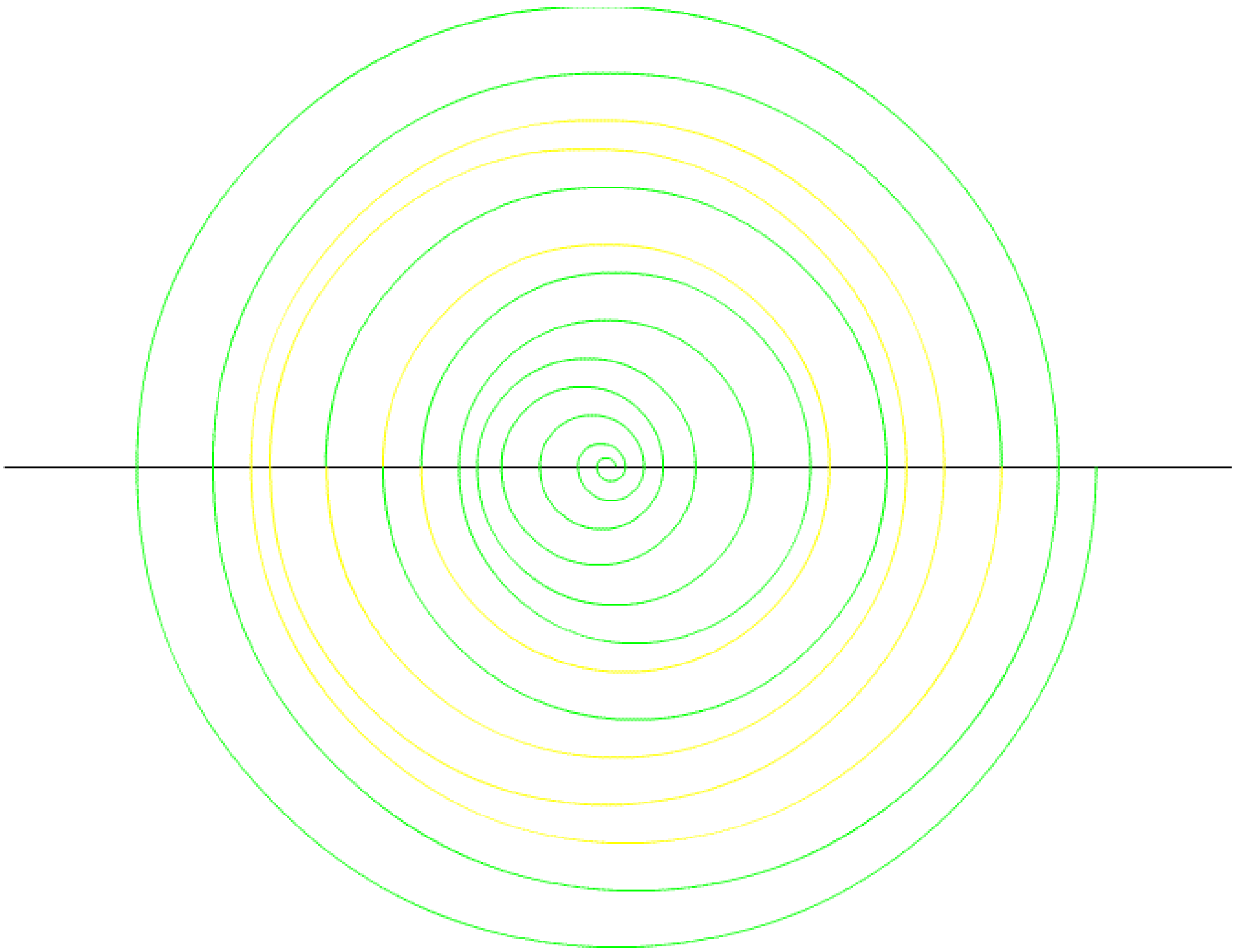


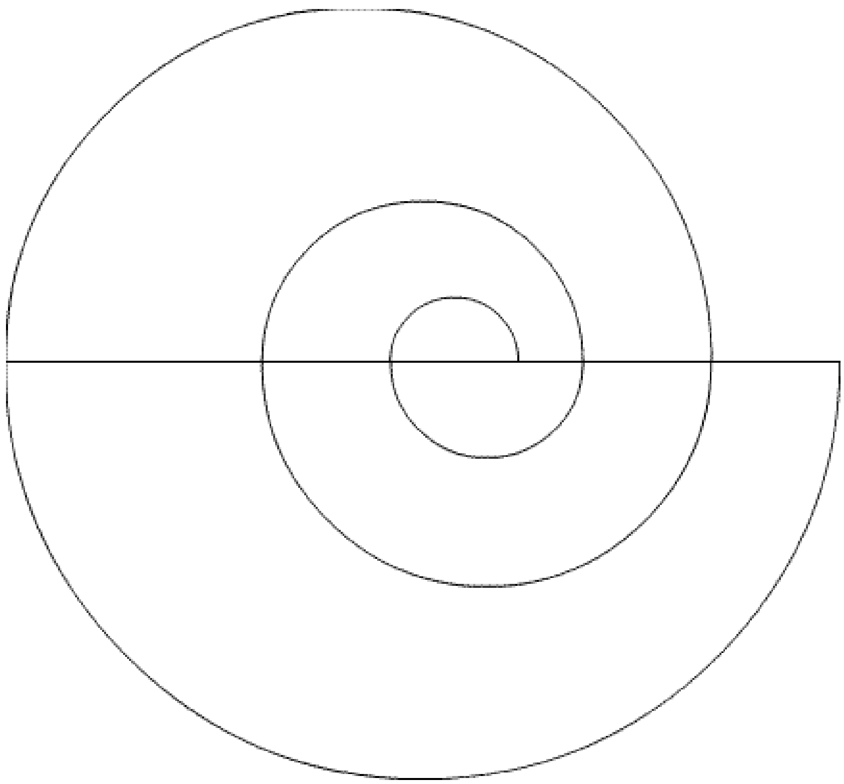
FIGURE 10

Log Spiral Shifted by Sine Wave or Line:

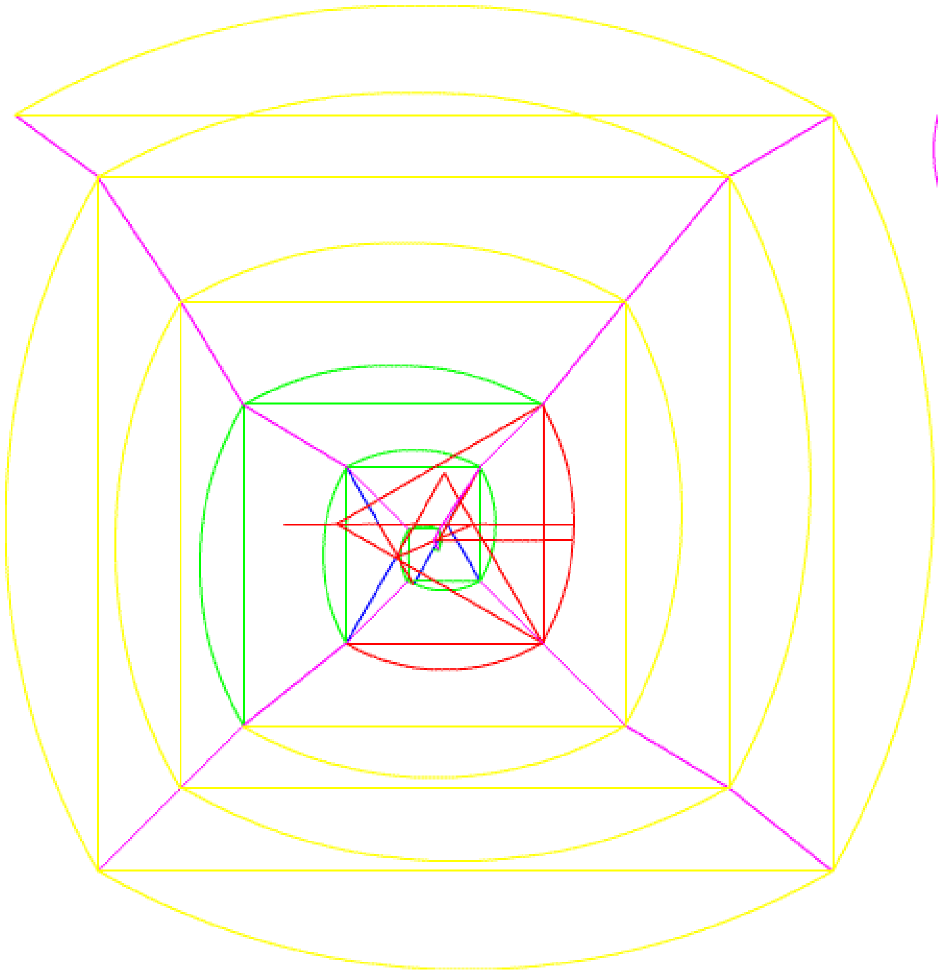
*the following spiral is a log spiral with "shifted values" in an attempt to find a true log spiral; S=Prime

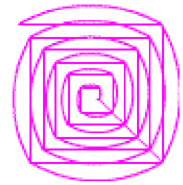


*here is the same spiral--in the small values it appears to be a true log spiral; S=Prime



*below is the boxed spiral--it looks like a spider web--may help lead to a true log spiral



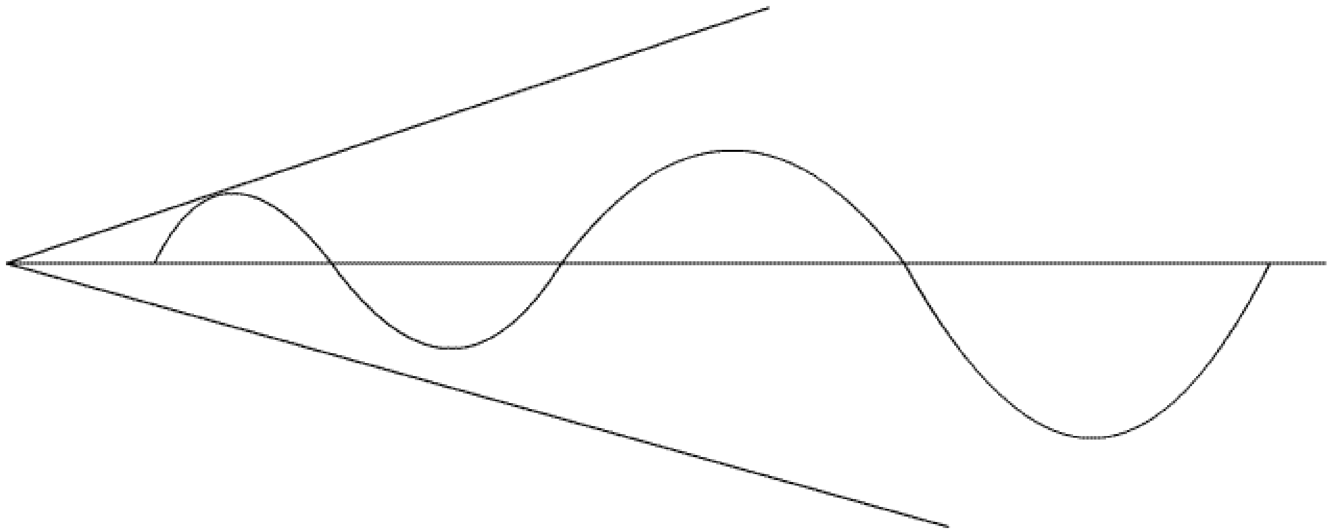


Involute:

The theory is that all parabolas can be represented by involutes. However it is difficult to find the rate of change.

Sine Curve Effected by Resonance Creating Involute:

If you view the values of a parabola as they relate to a circular function such as a sine curve, as the parabola increases it is as if the sine curve is affected by resonance. The value of the sine curve is the absolute value of its change from the last value. In other words, the rate of change of the sine curve equals that of the parabola.



20080518

Chord vs Circular Function

As seen in the **Chord vs Circular Function** it is explained how a sine curve fits a parabola. The exact proportions of the chord to the radius may not be correct. But this is only to express an idea.

The theory from the Chord vs Circular Function is:

*"Theory: If an arc that encompasses a chord on a sine curve (circular function) is known, the rest of the graph can be solved, with emphasis on the maximum value. We take the parabola, (**Parabola Key**), and find the positive value of the radius that corresponds to the given chord. It does not matter if this is the smallest encompassing circle. However, the graph must be of a circle with constant proportion. Proportions that are based on the reference circle around the chord and are consistent throughout the parabola. (The parabola graph we use is based on a chord of 1.25 and a perpendicular bisector of 2."* See **Arched Door Problem**

So if we can determine the correct rate of change, we can determine a pattern between the x chord and y radius because of similar proportions between circles.

Chord on Sine Curve Increasing Proportional to Certain Chord vs Radius:

Theory: The rate of a parabola can be determined by the proportion between the chord and radius. This means that a pattern should occur at similar proportioned circles. This needs to be investigated further. There is also a problem of the equations being always true having a correct value at every number. That happened with the **parabola of the Prime Numbers**. However moving a distance of every Pi along the graph of the parabola may reveal a pattern.

Derivative or Rate of Change of Parabola:

*here is the derivative of the parabola that was solved before

$$\frac{d}{dx}[x^2 + 12.0958x - 17.0219]$$

$$= 2x + 12.0958$$

The derivative doesn't seem to show much but it may lead to the clues that determine the rate of change of the involute.

Conclusion:

I realize it is hard to see the goal of the following work. It might even turn out to be untrue. But it remains my best "hunch" to finding any predictable pattern or any pattern at all between Primes. The work doesn't stop here. This is just a start. However I will be also working on different problems while I continue the Prime work. I also will turn to work that has already been found, such as textbooks on Primes. But remember, even if the work proves untrue, there is still much to be learned here.

Admittedly this writeup is confusing, but it will begin to make sense with following writeups.

The drawings are big placed in the web page because I wanted to show the pattern in detail. Download the Flash picture:

log_spiderweb
log_spiderweb002
log_spiderweb_center

This is just a quick draft to show the concept.

May the Creative Force be with You

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor's Corner.

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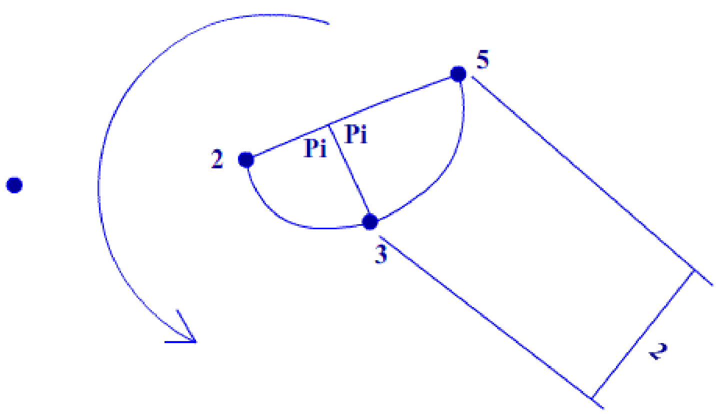
Temporary Work

20080530

The **Chord vs Circular Function** was very interesting, but a very difficult challenge of finding the rate of change of the logarithmic spiral occurs. It may be possible, but other approaches to the problem may prove easier.

My original equation and the parabola that was found was correct. We have already seen that the equation is always true for a given value. That is fine. We have found "x" in the **Corrected Solution**. The pattern of Primes occurs on how the numbers fit across the logarithmic spiral. That is a Prime number occurring in sequence every Pi radians.

I drew a spiral that tried to show this. The spiral was not a logarithmic spiral, but it also wasn't a true representation of the equation or the parabola. I tried to use circular arcs to draw the logarithmic spiral. It didn't work. It is very difficult to draw, but I will try to show in sketches how the logarithmic spiral is formed.



Basically at every Pi radians (the angle between Prime values), the next Prime occurs. It can be very hard to determine using already known equations of a logarithmic spiral. I tried to draw it with circular arcs but did not succeed. It is very difficult to describe non-circular curves mathematically.

But with previous attempts of **Spiral Encryption**, we should have the tools to solve the spiral. It is a conundrum without the Spiral Encryption tools. We know 2 points and the change of radius; the total arc length from the center of spiral; and lastly the angle of Pi radians. That should be enough to define the spiral, but a new way of describing logarithmic spirals would have to be invented. That is why we turn to the easier (relatively) Spiral Encryption.

Another error in the previous Spiral Encryption is that I used the wrong "x". In the **Corrected Solution** we found the correct value of x and y. Substituting these correct values into the Spiral Encryption work we may find a solution that describes the logarithmic spiral and thus Prime numbers. **Test it for yourself!** Of course there might be slight mathematical errors but the overall concept is here.

Below is a copy of Spiral Encryption. I have made corrections

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We already have found the parabola which describes Prime numbers as they are mapped across a logarithmic spiral every Pi. We find by looking at the parabola that its equation equals the arc length of the logarithmic spiral. That is the y coordinates of the graph of the parabola. We also find that when we solve for x by the Quadratic equation that x equals the radius.

$$Given\ through\ inspection:$$

$$S = f(x)$$

$$r = \int x\,dx$$

$$since\ \theta = \frac{s}{r}\ then\ \theta = \frac{f(x)}{\int x\,dx}\ (also\ equals) = \frac{f(x)}{r_1 + x}$$

Since our goal is to write an equation that describes the Prime numbers mapped on the logarithmic spiral, it is necessary to find a and b in the equation: $r = ae^{b\theta}$

However with a and b there are 2 unknowns. This proves to be a difficult problem to solve. However there are some tricks in our tool bag. When out of ideas: experiment. I tried to put this equation into usable form. I searched Wikipedia.org and Wolfram's "MathWorld" and found an equation that on a hunch I thought was useful.

That equation[1] is: $\frac{dr}{d\theta} = abe^{b\theta} = br$

There is a bit of improvisation here. There is no direct way to relate the radius and the angle theta together in the derivative part of the equation. However with a little math tinkering, we can find dr/ds and dθ/ds. Since they both relate to ds, we can compare there derivatives together. That is the derivative of r opposed to *theta*.

the derivative of θ as opposed to s

$$\frac{d\theta}{ds}\left[\frac{f(x)}{\int x\,dx}\right]$$

the derivative of r as opposed to s

$$\frac{dr}{ds}\left[\int x\,dx\right] = x \;\; ;where\; f(x) = x^2 + 12.0958x - 17.0219$$

so we use the Quadratic equation to solve for x

These pictures are separated because this is the difficult part I am unsure of. The goal is to find the [derivative of the radius R] as opposed to [the angle]. There will most definitely be errors here.

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so now we compare the derivatives of the radius (r) and angle (θ)

$$\frac{dr}{d\theta} = \frac{dr}{ds} * \frac{ds}{d\theta} \;\; ;where\; \frac{ds}{d\theta} \text{ is the inverse of } \frac{d\theta}{ds}$$

$$r = \int x\,dx$$

$$\theta = \frac{f\,(x)}{r}$$

$$\frac{dr}{d\theta}\,[\frac{f\,(x)}{\int x\,dx}]\ \textit{needs to be solved to substitute into following equations}$$

Note: not really sure if this is correct. The answer is here. We just need to correctly solve the equations.

$$\textit{now we substitue } \frac{dr}{d\theta} \textit{ into}$$

$$\frac{dr}{d\theta} = br$$

to find b and then subsitute b into

$$abe^{b\theta} = br$$

to find a

and place a & b into the equation of the logarithmic spiral:

$$r = ae^{b\theta}$$

This should describe the series of choice depending on what the parabola was solved for.

It is important to note that this is just a "hunch." It is a summary of my best (however, incomplete) work on trying to put the Prime numbers ordered across every Pi of a logarithmic spiral into an equation. If this math holds true it could mean a great advancement in cryptography. Ideally if some of the values of the encryption algorithm were known, you could decode it with equations like these by finding the series it was encrypted with. That is wishful thinking, but it just may work. That is, a step in the right direction.

References:

1. Logarithmic Spiral from Wolfram MathWorld [equation noted with 1]

2. Wikipedia.org for equation references

May the Creative Force be with You

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor's Corner.