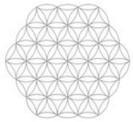
Math

Entertainment

The Flower of Life
Is it just another Pretty Face?



by Robert Vitrano UnderstandingIsBest.com

1. INTRODUCTION: As man journeys through space and time, he leaves behind artifacts to communicate with the cosmos. This is where math, considered a universal language, has always hitched a ride. Even today man allocates time capsules, for future discovery.

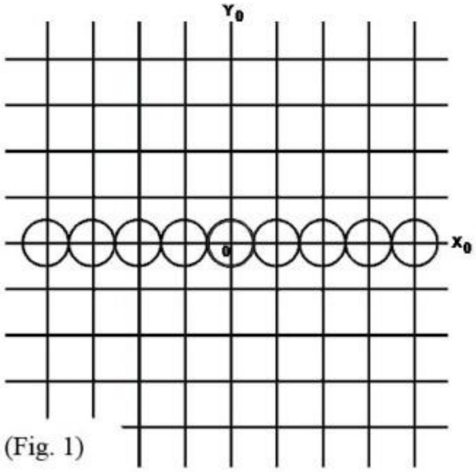
This article presents an accumulation of information, accidentally uncovered while designing a *DVD* to stimulate an interest in Graph and Number Theory. Here I will share my findings and opinions in the same manner as they unraveled to me. How the Flower of Life (FoL) contains secrets to the first number system, an equation that produces π . . . please have an open mind as I present this for your review.

I do not believe or disbelieve in Atlantis, U.F.Os . . . and pass no judgment on such. My first contact with FoL was while thumbing through the "CRC Concise Encyclopedia of Mathematics" to refresh myself with the four coins problem for the aforementioned *DVD*. While doing so, I flip past the FoL and take notice. I show my wife and she says, "That's pretty", and I move on. My journey starts with the Hexagonal Close Packing (HCP) of Circles, an array familiar to most, which I believe to be a universal pattern.

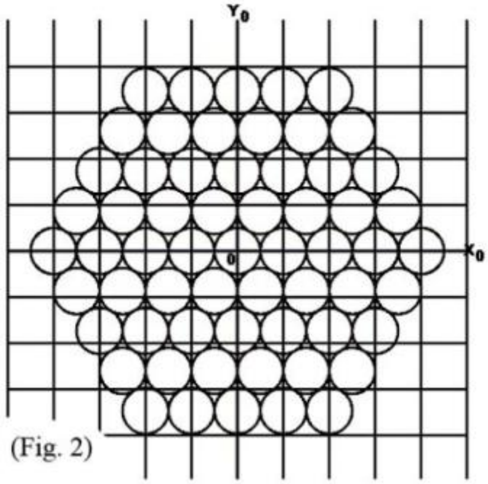
2. CREATING THE GRAPH: I begin with a simple graph, the coordinates displayed will be in respect to a pair of orthogonal Cartesian axes represented X_0, Y_0 in inches. I will apply analytical or 2-D Euclidean (plane) geometry as needed.

At the origin on a 1″ x 1″ lined graph, draw a circle. I chose (radius = .5″). As π is the ratio of a circle's circumference to its diameter. What number can be better to start with than the number one? On X_0, the center of each circle measures 2r from the adjacent circle's center. The circumference for each adjacent circle bonds to a point of tangency on X_0 creating a row of externally tangent circles of equal size (Fig.1).

With HCP of circles, the circle centers above and below a row of circles shift in X the length of the radius and sink in Y (+, −) as each circumference bonds to two more circles, at two new points of tangency in the cradle (Fig2). This event places these circles in their tightest arrangement possible.

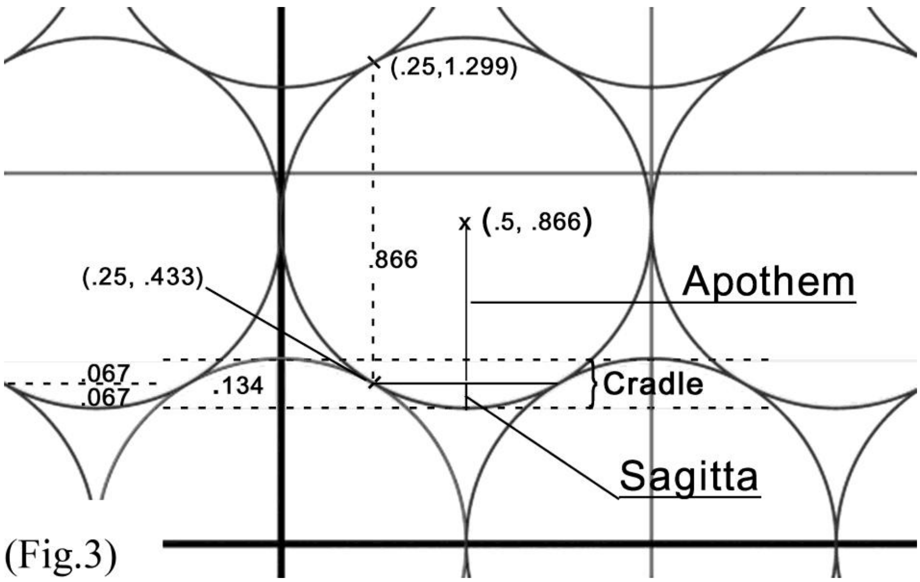


(Fig. 1)



(Fig. 2)

3. THE CIRCLE CRADLE: This measurement is 2x the Sagitta. “If you create a chord between two points located on the circumference of a circle, and bisect this chord and its arc length with the radius, the furthest distance between the chord and that arc length is the Sagitta.” The Sagitta + the Apothem = radius (Fig. 3).



(Fig.3)

4. THE SAGITTA & PYTHAGORAS' THEOREM: $c^2 = a^2 + b^2$

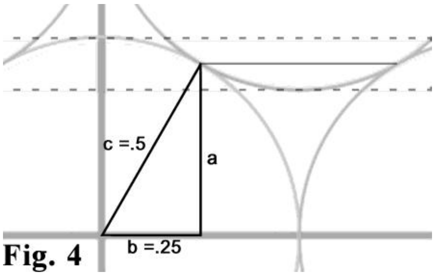


Fig. 4

Pythagoras' Theorem proves, the sum of the squares of the legs (a & b) of a triangle, equals the square of the hypotenuse (c) (Fig. 4).

$$.5^2 = a^2 + .25^2 \qquad .25 = a^2 + .0625 \qquad .25 - .0625 = a^2 \qquad .1875 = a^2$$
$$\sqrt{.1875} = a \approx 0.4330127018922193233818615853764 7$$

- Re-associating this height (a) with figure 3, allow you to see this length is equal to the apothem so displayed.
- Sagitta {S} = .5 – a ≈ 0.0669872981077806766181384146235 32
- Cradle {C} = {S} × 2 ≈ 0.1339745962155613532362768292470 6

The Circle Center Cycle height (CCCh)* in Y for HCP circles is equal to 2 × the radius minus the cradle, which is <u>2 × apothem displayed (Fig.3) for circles r = .5</u> ≈ 0.86602540378443864676372317075294 or is √.75 (Fig. 5)

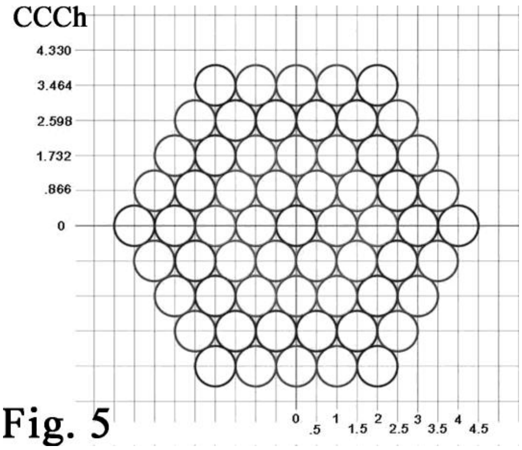


Fig. 5

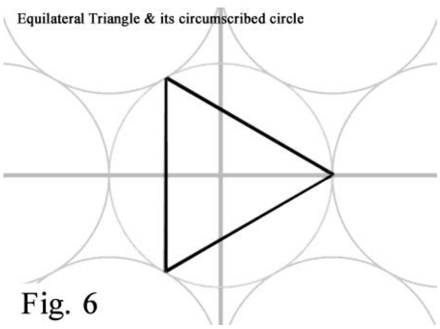


Fig. 6

*Circle Center Cycle height (CCCh) & abbreviation I created for this article only.

<u>5. CCCh in Y FOR RADII OF ALL HCP CIRCLES:</u> I find that the **Circle Center Cycle <u>Standard</u> (CCCS) ** for circles of ALL SIZES in Y,** for HCP circles is √**3 × (radius**), this also defines the length of a side of an inscribed equilateral triangle as shown (Fig. 6).

6. BASE 6 NUMBER SYSTEM: Another observation, each hexagonal group of circles increases by six circles as these groups move further from the center (Fig.7). **<u>Could base six be a universal number system</u>** continued verse (10.)? Also, six comes up many times in HCP. Is it no wonder long ago, with limited mathematical knowledge hearing of 666s became . . .?

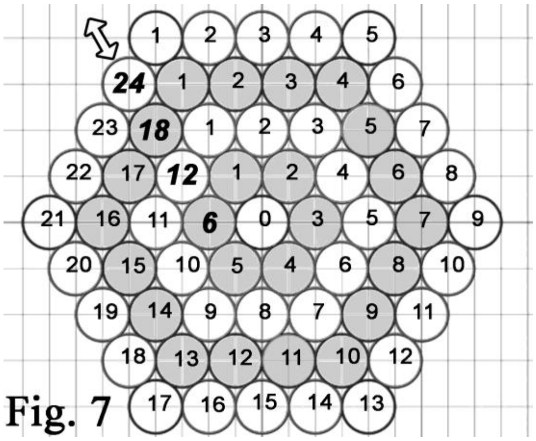


Fig. 7

7. THE FLOWER OF LIFE TAKES SHAPE: At this point, I decide to look at the HCP of circles with radii = 1″ in my practical environment*. Without adjusting the circles centers "<u>not my intention</u>". I double the size of all radii. The HCP of circles r = .5″ transforms into the familiar Flower of Life arrangement of circles. Manipulation needed see (Fig.8) verse (8).

Viewing this transformation entices me. <u>Now</u> I research the geometric shape I have seen only once before. "The spiritual meaning it holds astonishes me." The dating of this geometric shape seems unsure. It dates somewhere at the beginning of ancient Egypt, found at the Temple of Osiris, Abydos, Egypt.

** Circle centers cycle standard (CCCS) & abbreviation I created for this article only.

*Autodesk's Alias Maya Unlimited

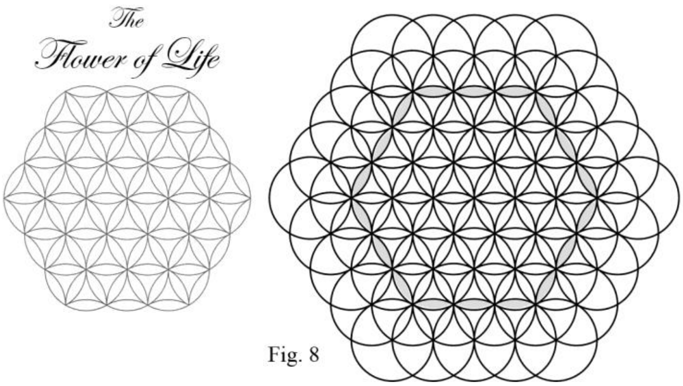
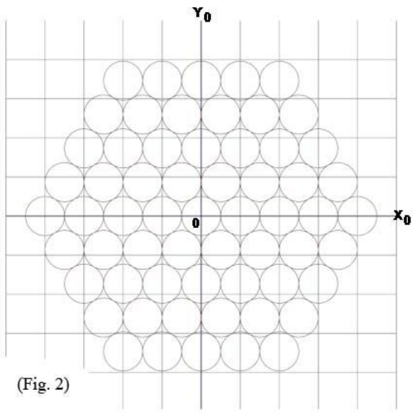
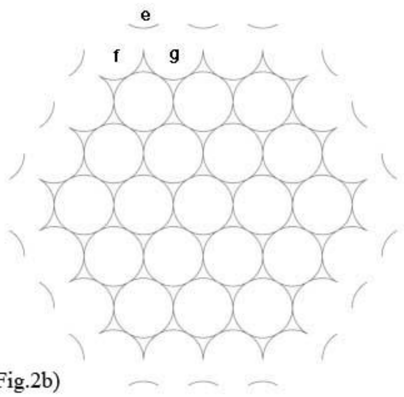


Fig. 8

8. EVENTS THAT LEAD TO THE FOL FINAL SHAPE: Start with circles radii = .5″ as seen in (Fig. 2) now displayed below,



(Fig. 2)



(Fig.2b)

To view FoL after doubling the radius, I must manipulate the circles contributing to the 2 outer groups of circles (fig. 2b). The 18 Circles that I display here (e) represent 1/6th of a circle each (60˚ea.). The six circles <u>not shown</u>, which would represent the six vertices of the outer perimeter, are missing. The six circles (f) which represent the six vertices for the hexagonal shape produced by the 3rd group represent 1/3 rd of a circle each (120˚ea.). Finally, the last 12 circles (g) represent ½ of a circle (180˚ea.) (Fig.2b is not to scale with Fig.2). As the circle centers remain fixed, increase the size of each radius to 1″ and The Flower of Life, comes into view (left side Fig.8) a beautiful site in motion. One must ask them self, <u>not</u> how this occurs. But why, this <u>precise number of circles</u>, not a group more or less, became this work of art more than 2,000 years ago. Is it coincidence?

9. THE FIRST VISUAL EVIDENCE OF π: This beautiful arrangement of circles is now four planes of clearly defined HCP circles, radii once X transformed to 2X (Fig. 9). "Comparison not to scale"

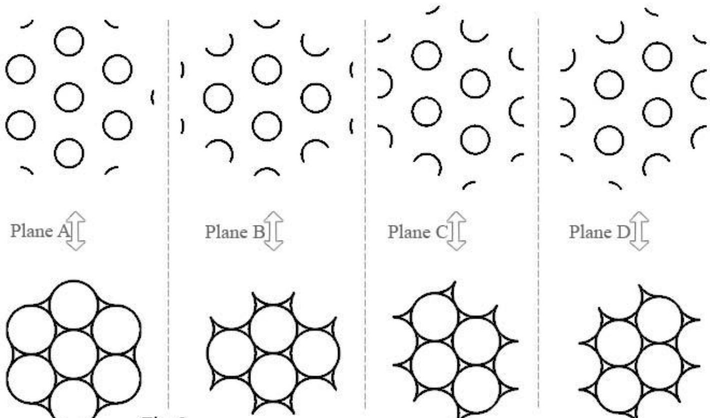


Fig. 9

Planes B, C & D (Fig. 9) are identical each containing 2,640˚, the same sum of degrees needed to represent 7⅓ Circles (Fig. 10). In the same manner, Plane A (Fig. 9) contains eight circles. If we were to consider only circles packed around the starting circle, because it is the starting point for the size of radii used and probably occupies its own plane. You would then have 22 circles over 7 circles, a number we understand to be close to π. Is this smoke & mirrors? Look back at (Fig.7), notice the 6 circles added to each hexagonal group as the groups get further from the center circle. Now start with the outer hexagonal cluster & subtract 6 circles from each cluster as you count down the hexagonal groups of circles to the origin. Using this method, you witness the center circle **stand-alone & actually hold a null value** (Fig. 11).

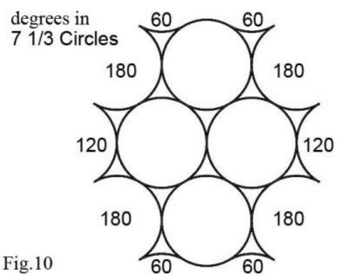


Fig.10

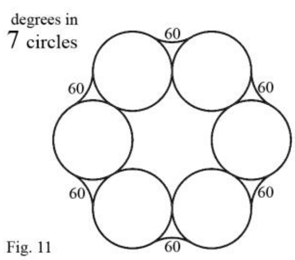


Fig. 11

Now, if somebody was told this little ditty. And that someone was to enter the quantity of π on record. Understanding how confusing yet mesmerizing FoL looks. Just maybe that someone might divide 7920˚ by 2,640˚ instead of 2,520˚ entering π as 3. So shall it be written?

10. BASE 6 NUMBER SYSTEM FOR FUN: As I briefly mention above in verse (**6.**) noticing the <u>increase of 6 circles per hexagonal group</u>, I begin to think outside of the box. We may never know for sure, as this thought dates back to Sumerian or pre-Sumerian times, I began to entertain myself, I thought this worth sharing even if just for fun.

Can you see the shapes representing ancient cuneiform writing shaded in (Fig.12)? Notice the five large bull's-eye circles that connect <u>all</u> of the circle centers (Fig.13). In time, these bull's eye circles would disappear, replaced by straight vertical or horizontal strokes (Fig.14).

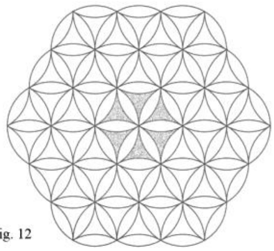


Fig. 12

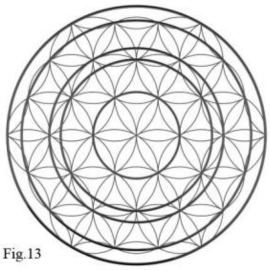


Fig.13

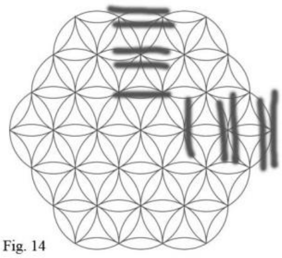


Fig. 14

Let's give it a try, count in base 6 from the outside in (Fig.15)

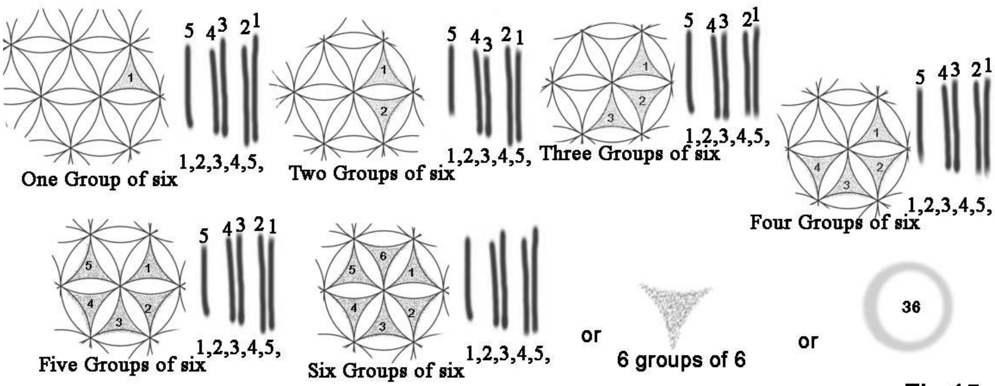


Fig.15

I have seen the lense shapes below also in ancient writing, some with circles in them. 

Instead of perfect shading, picture dirty smudged vertical or horizontal finger strokes and a thumb smudge in the cuneiform shape to track the groups of six.

If the FoL contained any more or less groups of HCP clusters of circles, "there would not be 5 bullseye rings to work with."

Also counting on one hand start fist closed, open your thumb for1, pointer 2, index 3, ring 4, pinky 5 <u>leaving the thumb open while closing fingers</u> for 1 group of 6. With thumb still extended start with the pointer 1, index 2, ring 3, pinky 4, thumb nudge 5 and <u>leave pointer finger & thumb extended while closing index, ring and pinky</u> for 2 groups of 6. Repeat similar steps with all fingers and you track 30. This also is the number of days in the ancient month. Using both hands can track 60, could this be the beginning of a sexagesimal number system to track both time & distance, both measured in minutes and seconds?

11. THE 12 POSITIONS FOR FOL: Have you ever tracked time on a watch with no numbers on it, or try to understand a new language? Below are some thoughts if we grew with might seem natural (Fig.16). Some tribes may have created a duodecimal number system with this. Of course our base 10 digits were probably not used.

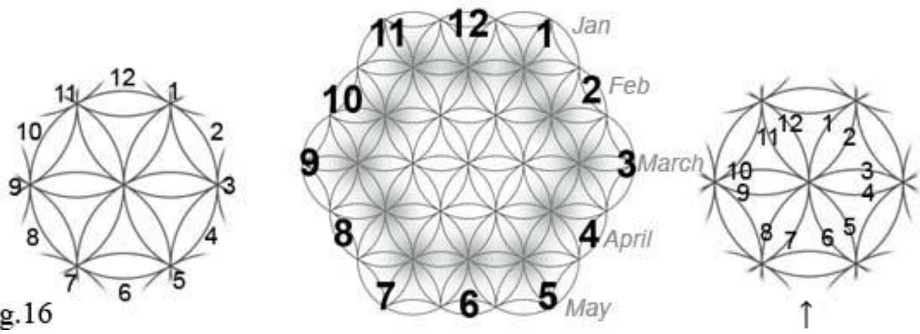


Fig.16

Some of you may think this view <u>radical</u> (interesting choice of a word) , but **<u>Math-can-be-Fun</u>**! I will not pursue this further.

12. π AS ACCURATE in Y as in X: The CircleCenter Cycle height in Y (√3× r) is as accurate as the Circle Center Cycle in X (2 × r). This, together with our knowledge of radians leads me to believe the phrase I used in verse 2 should have read, π is the ratio of a circle's circumference to its radius (not to say that, to its diameter is wrong). Accepting this would bring about a new trancendental number to explore, and creates a divisor for Pi that creates radicals, below are my findings on this matter;

I start with my beginning radius of .5 and take advantage of what we already know 2 × .5 × π = 3.1415926535897932384626433832795.

What number × √.75 (the CCCh for r =.5) would bring about the same results. This brings me to a new Pi in Y

<u>3.6275987284684357011881565152843</u>

At first I think as you, anyone can play with numbers, so I probe further. I find this new Pi in Y is <u>⅓ of the circumference of a circle r = √3</u> (Fig. 17).

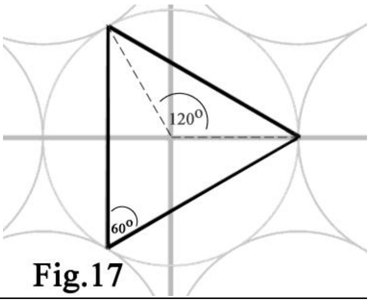


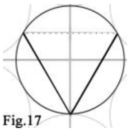
Fig.17

The circumference of a circle r = √3 is 2 × π × √3 and this is equal to 10.882796185405307103564469545853 divide this by 3 to get exactly **3.6275987284684357011881565152843**

You may prefer π(r)(α)/180 in creating an arc length for a circle

π(√3)(120)/180

13. ANOTHER PIECE TO THE PUZZLE: At this time, I would like to name the chord distance between the two vertices on the circumference of the circumscribed circle embracing its inscribed equilateral triangle, to limit confusion between the radius and the diameter. I close my eyes in silence and listen to the universe. As figure 17 rotates in my mind, I see V & O.

Fig.17  And it fits Vitrano or VO for short

The piece to the puzzle, which I refer:

Divide any diameter by its VO presents us another constant

1.15470053837925152901829756100039

Which when squared equals 1⅓

This constant multiplied by π equals "π in Y"

3.62759872846843570118815651528140

As you notice, the accuracy is to the 29th decimal place. Why is this? In working these numbers, can we find an absolute value for π? Is a circle simply a product of an infinitesimal quantity of unit vectors? What is the largest number? What is the smallest fraction? If a frog jumps half the distance of his jump each time to reach a wall, how long will it take him to reach that wall? Will we ever, be able to come around, full circle? Do we want to?

For when infinity meets zero, there is no form.

Is the Big Bang Theory Correct?

If memory serves, and I apologize for not recalling the title of a book I read of Stephen Hawking, but they're all great! He says something about this energy explosion creating an ever-expanding universe and that there will be a turn-around point where it will all reverse.

Does this idea join scientific study with spirituality?

Think of the Big Bang Theory, we all came from Oneness. And everything, and everyone is connected, and at some time, we will all become ONE again.

I apologize for going off on a tangent. But I did mention I would share my findings and opinions <u>in the same manner as they unraveled to me</u>.

Moving along:

As I was researching FoL, I remember viewing coordinates in Wikipedia. I thought about it, I shook my head *NO*, but had to check anyway. The coordinates for Abydos, Egypt are 26° 11′ 0″ N, 31° 55′ 0″ E In converting the coordinates to decimal form and dividing the longitude by the latitude. We have 31.916667° ÷ 26.183333° = 1.2189688379244918895543206817864 multiply this × 3 (the # of points made by the vertices of a triangle) and you come up with the number 3.6569065137734756686629620453592. If similar coordinates create Pi in Y, Abydos falls within a 60 mile radius of it. Latitude & longitude can be based on different datums and positional coordinates. These can vary, from one to another. Should any adjustments be made for polar shift in over 4,000 years? Is there any similarity Or is this foolish coincidence?

14. THERE ARE MORE MESSAGES:

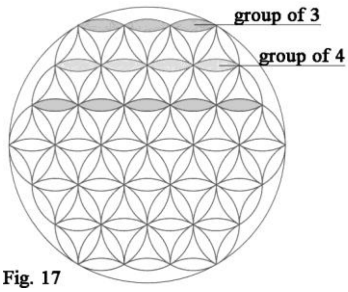


Fig. 17

For me;

- The ribbon like hex frame weaved with groups of three might represent the sides of the inscribed equilateral triangle, and may also represent √3.
- Groups 3 & 4, well 3 ÷ 4 = .75 and √.75 is the VO length in a circle of r = .5

- The outer circle diameter = 3 might represent the VO which would be found in a circle of $r = \sqrt{3}$ as $\sqrt{3} \times \sqrt{3} = 3$
- Also, all of the FoL patern made up of circles r = 1, fits completely and perfectly inside of the second bulls eye ring formed by FoL circles $r = \sqrt{3}$

The circumference of a circle is, 3 × its VO, + a little more. Now generalizing is not very mathematical, so with r = .5 we see $3 \times \sqrt{3} \times r + \sqrt{3} \times r \times X = \pi$, in doing the math

$$X \approx 0.62759872846843570118815651528592$$

This same circumference is less than 4 × one of these sides so

$$4 \times \sqrt{3} \times r - \sqrt{3} \times r \times X_1 = \pi \quad \text{working this equation}$$
$$X_1 = 0.37240127153156429881184348471483$$

Added together $X + X_1 = 1$

Below an equation with symbols (Fig. 18).

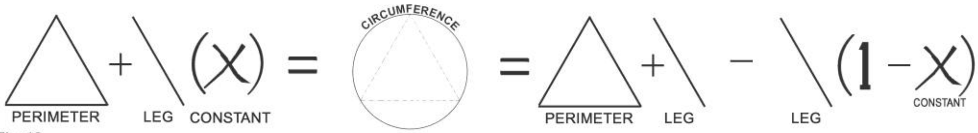


Fig. 18

If one were to try and solve this with r = .5 they would be working with a radical, $\sqrt{.75}$ but if **<u>r = √3</u>** you can work with the VO equal to 3.

$$3 \times \sqrt{3} \times r + \sqrt{3} \times r \times X = 4 \times \sqrt{3} \times r - \sqrt{3} \times r \times (1 - X)$$

$$3 \times \sqrt{3} \times \sqrt{3} + \sqrt{3} \times \sqrt{3} \times X = 4 \times \sqrt{3} \times \sqrt{3} - \sqrt{3} \times \sqrt{3} \times (1 - X)$$

If someone noticed this, many years ago

π just might be entered into history as 3

The circumference of a circle is in relation to the Hexagonal Close Packing distance, between the tangent points on the circle in X, which we represent with the diameter, and it is dependent on the radius. In Y, the circumference is represented by the distance between the tangent points on the circle in Y, this represents the circle centers cycle in height for that circle and is (√3 × r) also dependent on the radius. Let us put this to the test:

Circle radius = 749; Circumference figured with π in X:

2 × 749 × 3.1415926535897932384626433832795 =

4706.1057950775102712170397881527

Area = 3.1415926535897932384626433832795 × 561001 =

1762436.6202565275965707814006632

Circle radius = 749; Circumference figured with Pi in Y:

√3 × 749 × 3.6275987284684357011881565152843 =

4706.1057950775102712170397881523

Area = 3.6275987284684357011881565152843 × √3 × 561001 / 2 =

1762436.620256527596570781400663

We can create any number of Pi standards, but how many will work neatly with the Hexagonal Close Packing (HCP) of Circles and relate to their centers so precisely? Is the *Flower of Life* just an ancient geometric shape? Does it not date around the same time we find mathematical breakthroughs among the Babylonians. I pause a moment and do what I do. That is to listen and understand as completely as possible the why behind something. I think of the human ego 4,000 years ago. Would one jump up and say "Hey look what I found and guess what this does." Or would they be secretive and ruffle their feathers for fame. Well, this is something I stumbled across, and

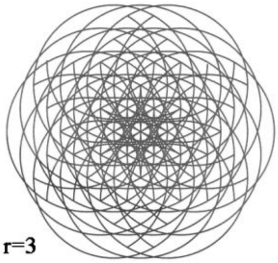
"Hey look what it does!"

You would think such an intelligence could have left us a *DVD* to follow.

As of now these opinions are fiction. I hope these observations and opinions spark excitement somewhere in the mathematic, scientific and historical communities.

Robert Vitrano, UnderstandingIsBest.com.

In closing I leave you with still photos of a kaleidoscope of shapes as I increase the radius further. You might see different combinations of numbers to work with.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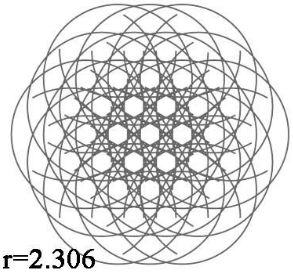
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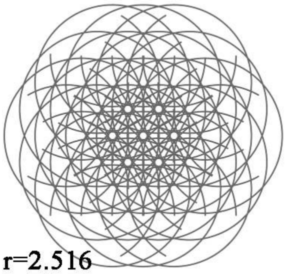
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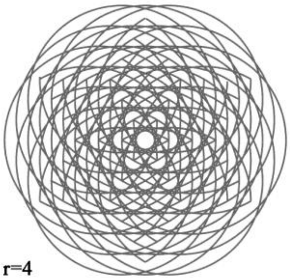
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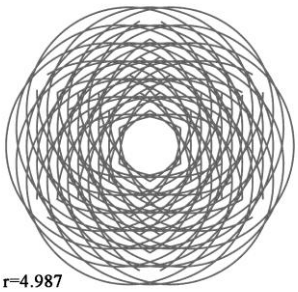
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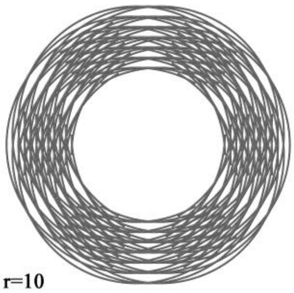
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