International Journal of Engineering Inventions
e-ISSN: 2278-7461, p-ISSN: 2319-6491
Volume 4, Issue 1 (July 2014) PP: 34-37

The Natural Selection Mode To Choose The Real Pi Value Based On The Resurrection Of The Decimal Part Over And Above 3 Of Pi (St. John's Medical College Method)

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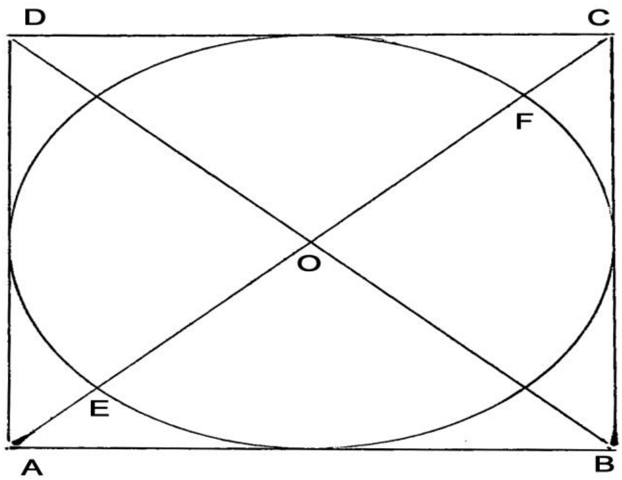
Abstract: $\frac{22}{7}$ *, 3.14, 3.1416, 3.14159265358… are being used as* π *values at school–level–calculations and at the research-level calculations. Many more numbers are found in the literature for* π*. A method, therefore, is necessary to decide which number is, the real* π *value. The following method chooses* $\frac{14-\sqrt{2}}{4}$ = *3.14644660942… as the real* π *value.*
Keywords: *Circle, corner area, diameter, side, square.*

I. Introduction

Circle and square are basic geometrical constructions. To find out perimeter and area of a square there are present two formulae 4a and a^2, where 'a' is the side of the square. Similarly, to calculate the circumference and the area of a circle, there are two formulae, $2\pi r$ and πr^2, where 'r' is the radius and π is a constant. The concept π represents, the ratio of the circumference and the diameter of its circle. Thus, the π constant is a **natural** and **divine** concept. We have **π radians** equal to 180^0, which is a **human creation** and **convenience**.

For the last 2000 years, 3.14159265358 …. has been ruling the mathematical world as **the** π value. In March 1998, a new π value $\frac{14-\sqrt{2}}{4}$ =3.14644660942… was discovered by Gayatri method and supported by more than one hundred different geometrical proofs in the last 16 years. The time now has come to decide, which π value, is present π value or is new π value, real ? Here is a simple procedure.



The nature has created a square and a circle. All the **celestial bodies** in the **Cosmos** are **spherical** in shape. It shows the basic **architectural design** of the physical world from the **Cosmic mind**. We see on paper that it has not only created an exact relationship between the circumference and the diameter of a circle and also, the **Nature** has established an interesting relationship between square and its inscribed circle too. This relationship is taken as the **guiding principle** to decide the real π value from many numbers. Hence, this method is called the Natural Selection.

II. Procedure

Draw a square. Inscribe a circle.
Square = ABCD, Side = AB = a, AC = BD = diagonal, 'O' centre.
EF = diameter = d = a

Area of the square = a^2

Area of the circle = $\frac{\pi d^2}{4} = \frac{\pi a^2}{4}$ where a = d

Square area – Circle area = Corner area $= a^2 - \frac{\pi a^2}{4} = \left(\frac{4-\pi}{4}\right)a^2$

$$\frac{\text{Square area}}{\text{Corner area}} = \frac{a^2}{\left(\frac{4-\pi}{4}\right)a^2} = \frac{4}{4-\pi} = x$$

Divide x by 32. In Siva method, it is found that when the circle – square composite geometrical construction is divided **symmetrically**, the number of segments are 16 + 16 = 32

$$\frac{x}{32} = \left(\frac{4}{4-\pi}\right)\frac{1}{32} = \frac{4}{32(4-\pi)} = \frac{1}{8(4-\pi)} = \frac{1}{32-8\pi} = \pi - 3$$

Thus, we obtain finally, the formula $\frac{1}{32-8\pi}$ which is equal to the π value over and above 3. As $\sqrt{2}$ of the diagonal of a square, so also $\sqrt{2}$ is for the circumference of the **inscribed** circle, and it is an established fact by this work. And further, the number 32 represents a common **associating factor** of the inscribed circle and the square.

The procedure followed here is in 4 steps.
Step 1, Calculates the areas of square and circle
Step 2, Obtains corner area by deducting circle area from the square area
Step 3, $= \frac{\text{Square area}}{\text{Corner area}}$ and
Step 4, $= = \left(\frac{\text{Square area}}{\text{Corner area}}\right)\frac{1}{32}$

At the 1st step while calculating the area of the circle, **known** π value is used. In this paper two π values are chosen:

3.14159265358… the official π value and

3.14644660942… the new π value $= \frac{14-\sqrt{2}}{4}$

Any π value enters at the 1st step, and it's decimal part **reappears** at the 4th step. Thus, the **resurrection** of the decimal part of π value is observed at the 4th step. And this happens only when the **real** π value is taken in the 1st step. Any other number, if used, does **not** reappear **fully**, at the 4th step.
Side = diameter = a = 1
Area of the square : $a^2 = 1 \times 1 = 1$

<u>I. With official π value 3.14159265358…</u>

Area of the circle = $\frac{\pi d^2}{4}$ = 3.14159265358 x 1 x 1 x $\frac{1}{4}$ = 0.78539816339

Square area – Circle area = Corner area = 1 – 0.78539816339
= 0.21460183661

$$\frac{\text{Square area}}{\text{Corner area}} = \frac{1}{0.21460183661} = 4.65979236616$$

$$\left(\frac{\text{Square area}}{\text{Corner area}}\right)\frac{1}{32} = \frac{4.65979236616}{32} = 0.14561851144$$

The decimal part of the **official** π value is 0.14159265358… Only first **two** decimals 0.14 reappeared in the 4th step, instead of all the decimals.

II. Let us repeat the above process with the new π value 3.14644660942…

Area of the circle = $\frac{\pi d^2}{4}$ = 3.14644660942 x 1 x 1 x $\frac{1}{4}$

= 0.78661165235

Square area – Circle area = Corner area = 1 – 0.78661165235 = 0.21338834765

$\frac{\text{Square area}}{\text{Corner area}} = \frac{1}{0.21338834765}$ = 4.68629150097

$\left(\frac{\text{Square area}}{\text{Corner area}}\right)\frac{1}{32} = \frac{4.68629150097}{32}$ = 0.1464466094

The decimal part of the **new** π value is 0.14644660942

All the decimals have now reappeared in the 4th step.

There are some more π numbers if one looks at the Internet. Prominent numbers that are attributed to π, besides $\frac{22}{7}$ of **Archimedes,** are 17 – 8$\sqrt{3}$ (Laxman S. Gogawale), 3.125 (Mohammadreza Mehdinia), 3.144605511 (from PHI) etc. All these values too have failed when processed in the above steps, to resurrect at the 4th step.

S. No.	Proposed/accepted numbers to π	Resurrected decimal part over and above 3 of π value
1.	$\frac{22}{7}$ = 3.142857142857	0.1458333333
2.	3.14159265358 (Official π value)	0.14561851144
3.	17 – 8$\sqrt{3}$ = 3.1435935396	0.14595873078
4.	3.125	0.14285714285
5.	3.144605511029	0.14613140674
6.	3.2	0.15625
7.	$\frac{14-\sqrt{2}}{4}$ =3.14644660942	0.14644660942

Archimedes' $\frac{22}{7}$ is much nearer to the real π value than 3.14159265358… though it has been considered as final value to π. 3.125 is farthest low value to π. π number of **Golden Ratio** is the next closest to the real π value attributed to π. Out of all the numbers attributed to π value detailed in the above Table, only one number 3.14644660942… of $\frac{14-\sqrt{2}}{4}$ has resurrected itself at the end, with its **all** the decimals, over and above 3. Hence $\frac{14-\sqrt{2}}{4}$ is the **true** π value. Other numbers have succeeded in coming back with one or two first decimals only beyond 3. Hence, these numbers have, failed in the race to qualify themselves, in the selection, by the natural geometrical construction as a true π value.

III. Conclusion

There are many π values in the literature. Two π values $\frac{22}{7}$ and 3.14159265358 … are very popular. Third π value equal to $\frac{14-\sqrt{2}}{4}$ = 3.14644660942… is added now to the existing values saying that the new value is the only **true** π value. In this paper a simple method is found, to choose, the real π value. This method chooses $\frac{14-\sqrt{2}}{4}$ as the real π value, which is the **exact** and an **algebraic number**.

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