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IN WHAT WAY $(\pi-2)$ & $(4-\pi)$ DO HELP IN KNOWING THE TRUE π ?

(381 st Proof on Rho)

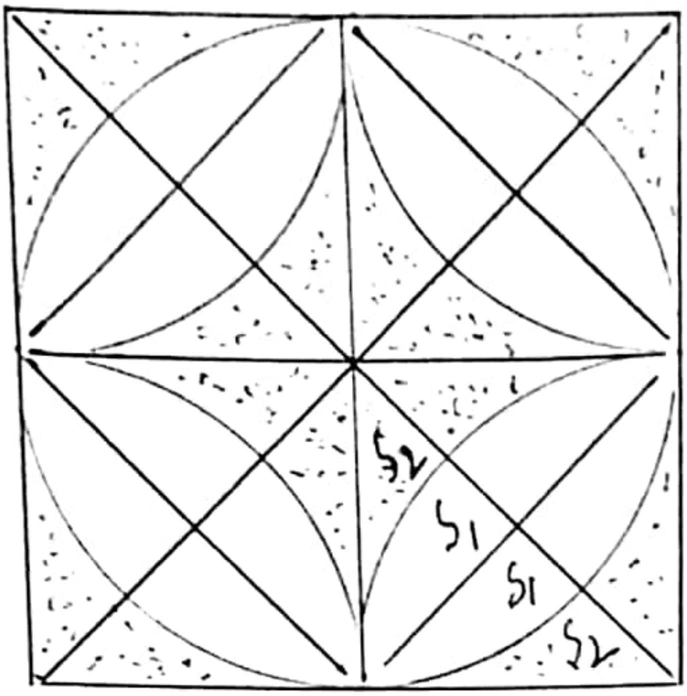

Fig.1

Square, Side = 1
Circle, Diameter = 1
The Circle - Square Composite Construction is divided into $16 S_1 + 16 S_2 = 32$ segments.

Area of Square $= 16\, S_1 + 16\, S_2 = a^2$

Area of Circle $= 16\, S_1 + 8\, S_2 = \frac{\pi a^2}{4}$

The area of S_1 is equal to $\left(\frac{\pi-2}{32}\right)a^2$

The area of S_2 is equal to $\left(\frac{4-\pi}{32}\right)a^2$

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$$\frac{16(\pi-2)a^2}{32} + \frac{16(4-\pi)a^2}{32} = a^2$$

$$\frac{16(\pi-2)a^2}{32} + \frac{8(4-\pi)a^2}{32} = \frac{\pi a^2}{4}$$

The above two formulae say Classical $\pi = 3.14159265358$, $\frac{22}{7}$, Cosmic π (Rho), π of Golden Ratio and ALL as RIGHT.

It is universally believed that there exist only one π value. Others are approximations or wrong.

Here is one way to know which π is true, among many.

It is well know that a line segment is the soul of Geometry. Hence, it is decided here, the π that has two line segments for $(\pi-2)$ and $(4-\pi)$ in the above Fig. 1, ~~is~~ as true π.

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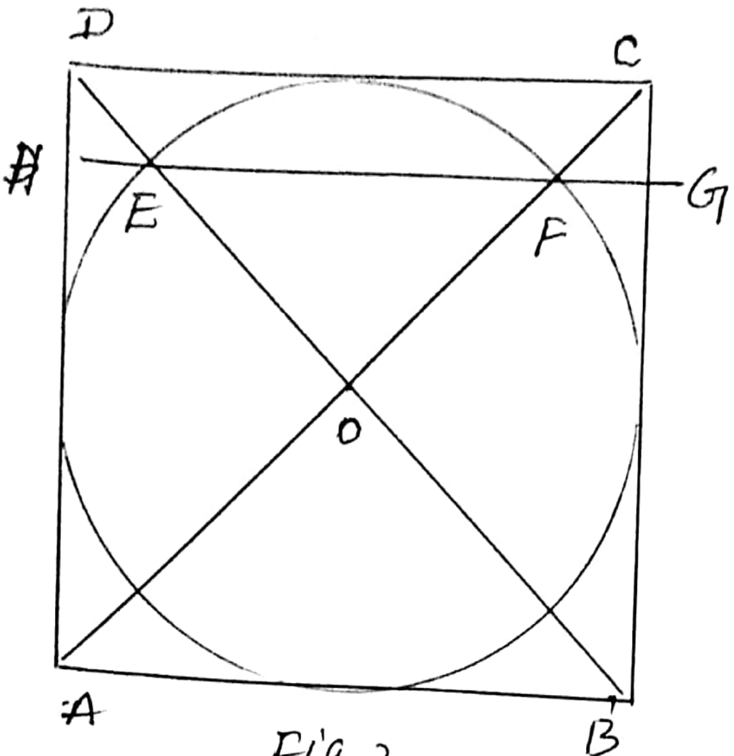

Fig. 2

Square, Side $= 1$
Circle, Diameter $= 1$
Radius $= OE = \frac{1}{2}$
Triangle $= EOF$
Hypotenuse $= EF$
$= OE \times \sqrt{2} = \frac{1}{2} \times \sqrt{2} = \frac{\sqrt{2}}{2}$

$DH = HE = FG = GC$
$= \dfrac{\text{Side} - \text{Hypotenuse}}{2}$

$$\frac{HG - EF}{2} = \left(1 - \frac{\sqrt{2}}{2}\right)\frac{1}{2} = \frac{2-\sqrt{2}}{4}$$

DC Side $+$ CG $= (\pi - 2)$ of Cosmic π

$$1 + \frac{2-\sqrt{2}}{4} = \frac{6-\sqrt{2}}{4} = 1.1464466094$$

Finding, next $4-\pi$ of Cosmic π

Side $-$ CG $= 1 - \left(\frac{2-\sqrt{2}}{4}\right) = \frac{2+\sqrt{2}}{4} = GB$

So, $GB = \frac{2+\sqrt{2}}{4}$ is equal to $(4-\pi)$ of Cosmic π.

Conclusion: Except Cosmic π called Rho, no other π has lengths for $(\pi-2)$ and $(4-\pi)$. So, Rho $= \rho = \frac{14-\sqrt{2}}{4}$ is the real π value.

Thank God

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