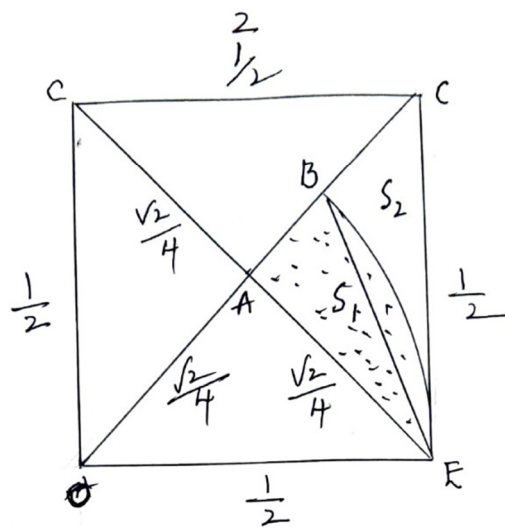
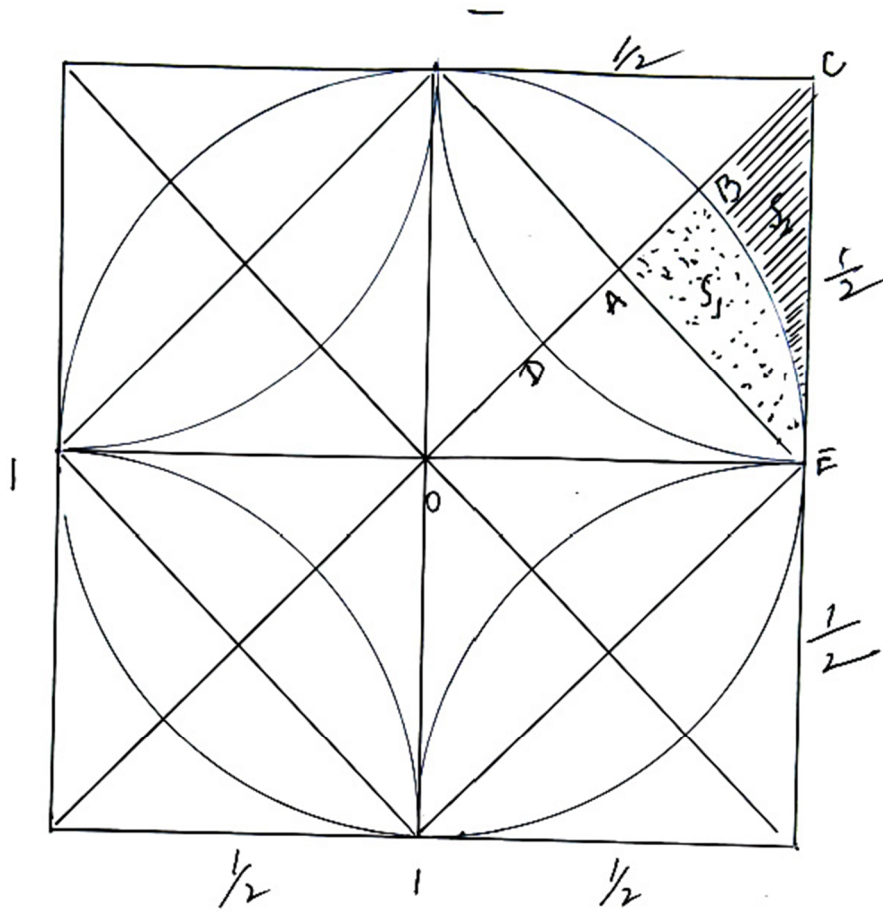


**THE SYMMETRICAL DIVISION OF
SQUARE – CIRCLE COMPOSITE CONSTRUCTION DERIVES THE**

**REDDY π
(2535th Paper)**



OB = Radius = $\frac{1}{2}$

OA = $\frac{\sqrt{2}}{4}$

$$AB = OB - OA = \frac{1}{2} - \frac{\sqrt{2}}{4}$$

$$= \frac{2 - \sqrt{2}}{4} = AB$$

What is BC length?

$$OC = \frac{\sqrt{2}}{2}$$

$$BC = OC - OB = \frac{\sqrt{2}}{2} - \frac{1}{2} = \frac{\sqrt{2} - 1}{2}$$

Let the shaded area (S_1) is equal to $\frac{6 - \sqrt{2}}{128}$ based on

$$AB = \frac{2 - \sqrt{2}}{4}$$

and

Let the unshaded area called S_2 is equal to $\frac{2 + \sqrt{2}}{128}$

based on BC length $\frac{\sqrt{2} - 1}{2}$

Important Step:

The area of the square is symmetrically divided into (32) segments.

It means area of square equal to 1 is divided into 16 S_1 segments and

16 S_2 segments

$$16S_1 + 16S_2 = \text{Area of Square} = 1$$

$$\text{When } S_1 = \frac{6 - \sqrt{2}}{128} \text{ and } S_2 = \frac{2 + \sqrt{2}}{128}$$

Then

$$16 \left(\frac{6 - \sqrt{2}}{128} \right) + 16 \left(\frac{2 + \sqrt{2}}{128} \right) = 1$$

$$\frac{6 - \sqrt{2} + 2 + \sqrt{2}}{8} = 1$$

$$\frac{8}{8} = 1 \text{ Proved}$$

2nd Very Important Step:

The circle consists of $16S_1$ segments and $8S_2$ segments

$$\text{Radius of circle} = \frac{1}{2}$$

$$\text{Area} = \pi r^2 = \pi \times \frac{1}{2} \times \frac{1}{2} = \frac{\pi}{4}$$

$$16S_1 + 8S_2 = \frac{\pi}{4}$$

$$S_1 = \frac{6 - \sqrt{2}}{128}, S_2 = \frac{2 + \sqrt{2}}{128}$$

$$16S_1 + 8S_2 = \frac{\pi}{4}$$

$$= 16 \left(\frac{6 - \sqrt{2}}{128} \right) + 8 \left(\frac{2 + \sqrt{2}}{128} \right) = \frac{\pi}{4}$$

$$\frac{6 - \sqrt{2}}{8} + \frac{2 + \sqrt{2}}{16} = \frac{\pi}{4}$$

$$\frac{12 - 2\sqrt{2} + 2 + \sqrt{2}}{16} = \frac{\pi}{4}$$

$$\frac{14 - \sqrt{2}}{16} = \frac{\pi}{4}$$

$$\pi = \frac{14 - \sqrt{2}}{4} = 3.146446609$$

In a fraction form (to avoid pocket calculator)

$$\frac{5135}{1632} = 3.146446..... \text{ and is similar to } \frac{22}{7} \text{ of Archimedes}$$

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2531st Paper “SQUARE A CIRCLE”