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FIRST JANUARY 2020 METHOD OF DUPLICATION OF CUBE (533 rd Proof on Rho)

The "Trisection of an arbitrary angle", "Squaring a Circle" and "Duplication of a Cube" are the unsolved geometrical problems for many Centuries.

Trisection of 90° angle has been done by this author. Squaring a Circle could become a reality with the discovery of March 1998 Π called Cosmic Π called Rho = ρ equal to $\frac{\pi - \sqrt{2}}{4}$ = 3.14644660941....

In this Study Duplication of Cube is solved. How? The $(\pi - 3)$ plays a decisive role.

We construct a square with Side equal to

$$\frac{(2\sqrt{2}-2)\times\sqrt[3]{2}}{(\pi-3)\times\sqrt{31+14\sqrt{2}}} = \frac{(2\sqrt{2}-2)\times\sqrt[3]{2}}{\frac{2-\sqrt{2}}{4}\times\sqrt{31+14\sqrt{2}}}$$

$$= \frac{0.828427124\,74 \times 1.259921049\,89}{0.146446609\,41 \times 7.127341001}$$

Side of Square $= 0.999978777677$

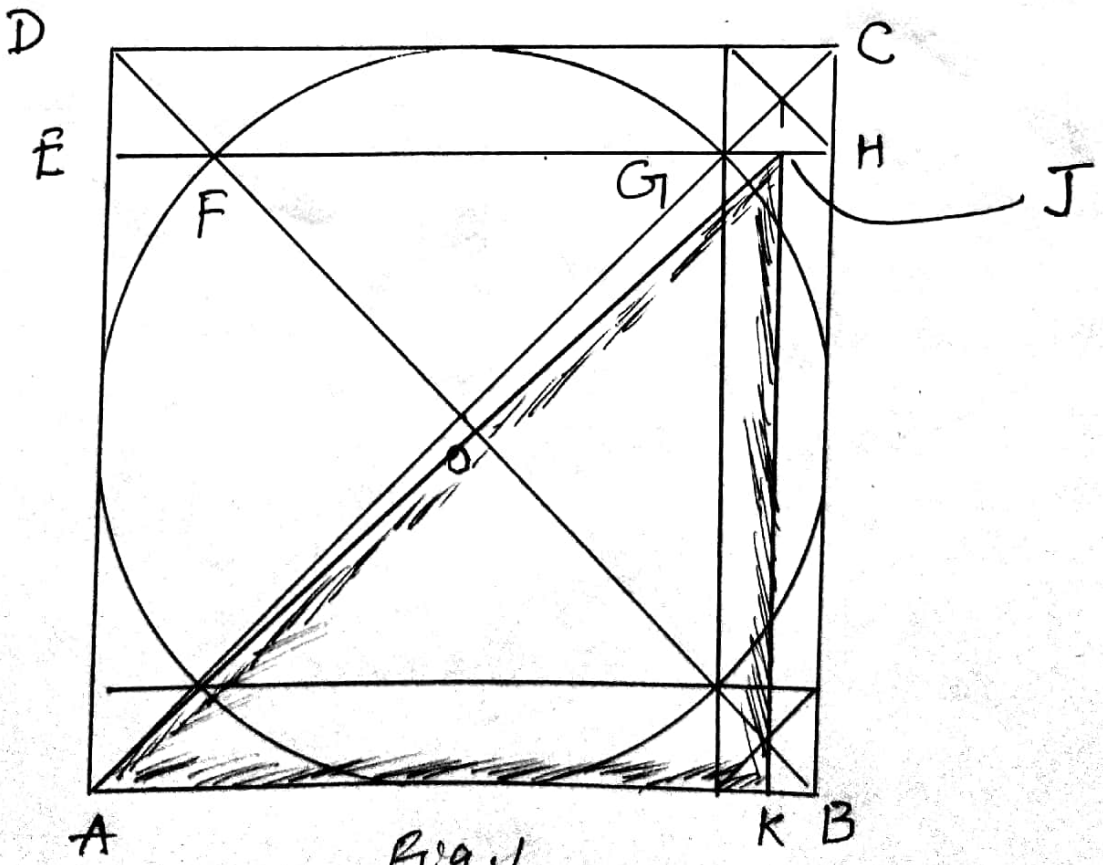


Fig. 1

In the Square, a Circle is inscribed.

A triangle AKJ is Created. AJ is the hypotenuse of AKJ triangle. It is the Required Side of Cube of 2 as its Volume.

To understand its values we have to follow the following Steps:

Step.1: To know FG hypotenuse of another triangle FOG

Step.2: Side = 0.999978 77677

(The values in terms of Surd are very long and appear very confusing. To avoid confusion all the lengths are represented by decimal values.

Step.3: Diameter = Side

Radius = $\frac{0.999978\,77677}{2}$

= 0.499 693 8838

Step. 4. FG Hypotenuse = Radius $\times \sqrt{2}$

$= 0.4999893838 \times \sqrt{2}$

$= 0.7070917740 8$

Step 5. $DE = EF = GH = CH =$

$$\frac{\text{Side} - \text{Hypotenuse FG}}{2} =$$

$$\frac{0.9999787767 - 0.7070917740 8}{2} =$$

$= 0.1464435013 4$

So, $CH = 0.1464435013 4$

Step.6 ; $GH = CH$

What is JH? It is half of GH.

Step.7 $JH = KB = \frac{CH = GH}{2}$

$$= \frac{0.1464435013 4}{2}$$

$= 0.0732217506 7$

Step. 8 : We have to find out HB and EG

HB = Side − CH =

= 0.9999787767 − 0.1466435013 4

= 0.8535352754 3

Step. 9

So, the JK side of ~~AK~~ J triangle

= 0.8535352754 3.

Step. 10 : What is 2nd side of triangle ~~AK~~ J ?

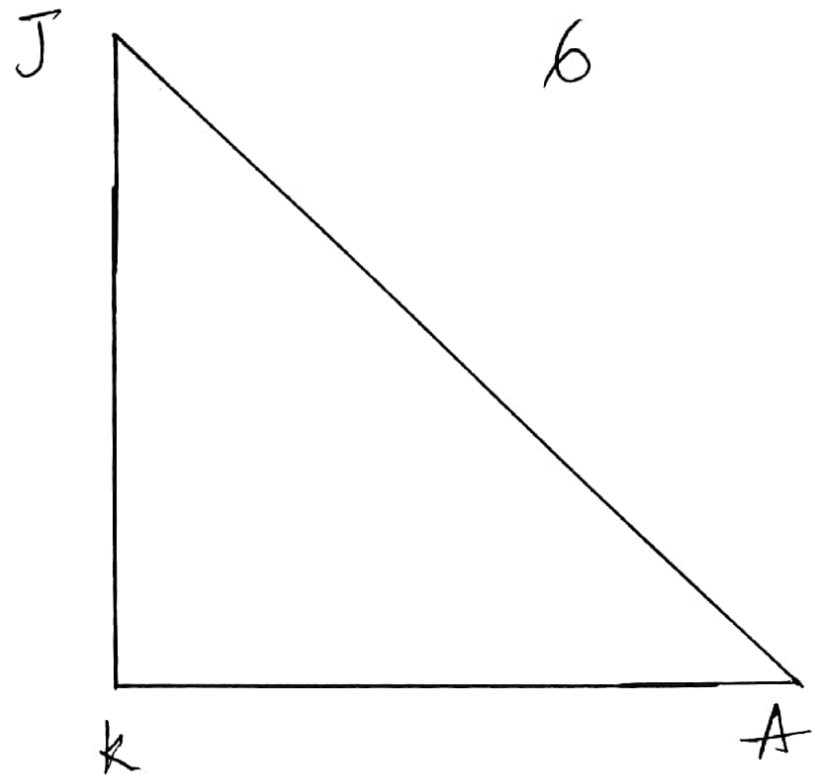
Side − KB = AK

KB = 0.0732217506 7 (Step. 7)

0.9999787767 − 0.0732217506 7

= 0.9267570261

Step. 11 Finally, the ~~AK~~ J =



Step. 11 $AK = 0.926757026l$

$JK = 0.8535352754 3$

$AJ = ?$

Pythagorean theorem

$$AJ = \sqrt{AK^2 + JK^2}$$

Step. 12

$$AJ = \sqrt{(0.926757026l)^2 + (0.8535352754 3)^2}$$

$$= \sqrt{0.8588765854 2 + 0.7285224664}$$

$$= \sqrt{1.5874010518 2}$$

$$= 1.2599210498 3$$

Step. 13 = Final Step

Finally we get AJ is the required side of Cube of 2 volume.

$$\text{Side} = (1.259921049\,83)^3$$

$$= 2.0$$

Conclusion

The "Duplication of Cube" (called Delian Problem) is solved. It means $1998\,\pi = \frac{\pi e - \sqrt{2}}{4}$ is Real π Value.

Thank God

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