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NO MORE A MATHEMATICAL IMPOSSIBILITY – SQUARE ROOT OF Pi FOUND (117th Method)

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ABSTRACT

Pi is a geometrical constant. Its official value is 3.14159265358… March 1998 discovery says Pi value is 3.14644660941…. With the official number square root of Pi and squaring of circle are impossible. With 3.14644660941… root Pi is possible and squaring a circle is also possible and done in this paper.
.

KEYWORDS: Circle, diameter, diagonal, Pi, side, square, square root.

INTRODUCTION

The official π value is 3.14159265358… Actually, it represents regular polygon in and about a circle. The ratio of the perimeter of **polygon** and the diameter of **circle** is now the **accepted definition** of so called π number 3.14159265358… for the last 2000 years and not the ***true definition*** of, the ratio of circumference and diameter of its circle. How ?

$$\frac{\text{Perimeter of the polygon}}{\text{Diameter of the circle (limit)}} = \text{official } \pi \text{ value} = 3.14159265358\ldots$$

From 1450, this value has been supported by infinite series and which is, however, without the involvement of **radius** of circle. We have **concluded** that 3.14159265358… is the correct value. And also, we have decided this number **is final**. By the **grace of God**, like bolt from blue, $\frac{14-\sqrt{2}}{4} = 3.14644660941\ldots$ revealed itself as **π of the circle** i.e. the real/ true and exact π value in March 1998.

Until the new discovery, three things were said about 3.14159265358… They are 1. π is a transcendental number, 2. Squaring of circle is an unsolved geometrical problem (along with the other two: trisection of an arbitrary angle and Duplication of cube) and 3. π value can **not** be obtained exactly.

With the discovery of March 1998 π value 3.14644660941… all the above three things that were said till March 1998, have been proved wrong. The March 1998 π value is an **algebraic number** squaring of circle **is** possible, with this number and the **exact** value to 3.14644660941… is $\frac{14-\sqrt{2}}{4}$.

The new π value is backed by 116 geometrical constructions and are available in www.rsjreddy.webnode.com
Speaking about the concept of squaring of circle, the book **How Round Is Your Circle** authored by John Bryant and Chris Sangwin (2007) in Page 80 & 81, says

"The impossibility of constructing π solves the second classical problem, that of 'squaring the circle'. Given a circle of radius r, can we construct a square with the same area? Since the area of the circle is πr^2, we need to construct the length $\sqrt{\pi}$ r. This is possible if and only if we can construct π. Since we cannot do this we may not square the circle.

These well-known impossibility proofs are encountered as part of most university undergraduate mathematics degrees. However, there are still those who seek in vain a geometrical construction that will square the circle, duplicate the cube or trisect the angle. Such people sometimes have a good grasp of geometry, and certainly great tenacity. Unfortunately, these attempts are bound to be futile, and the resulting lengthy calculations must inevitably contain at least one error. Professional mathematicians, including the authors, still occasionally receive unsolicited proofs of the impossible. The most recent bundle of papers one of us received arrived by airmail and included a 'proof' using exactly the ruler and compass constructions above, that

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

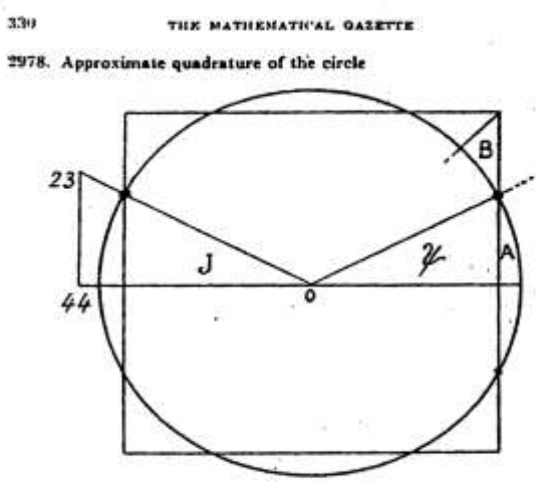
Anyone with a pocket calculator can immediately see that

$$\pi \approx 3.1415926... \neq 3.1464466...$$

which should be enough to suggest strongly that something is amiss. So what should the professional do? Clearly there is not sufficient time to wade through pages of nonsense, carefully correcting the inevitable mistakes. Since we know these constructions have been proved to be impossible, we know without reading the argument that it must be flawed. One option is to ignore such mail, but this may also be a serious error since G. H. Hardy discovered one of the greatest mathematicians, S. Ramanujan, on the strength of an unsolicited bundle of papers and helped obtain for him a fellowship at Cambridge. This is a famous story, told by Hardy in his A Mathematician's Apology (Hardy 1967). Furthermore, to ignore such correspondence confirms any suspicion the authors may have that the professional mathematical establishment is in conspiracy against them. Often this strengthens the resolve of the author who eventually publishes privately, as a newspaper advertisement or even, if the calculations are sufficiently extensive (unfortunately, to them at least, a synonym for 'important'), as a book. When such work is combined with a religious conviction, the result can be far from nourishing to the soul, as anyone who has tried to read such works as MacHuis-dean (1937) can attest.” **(By the courtesy of Princeton University Press, Princeton and Oxford)**

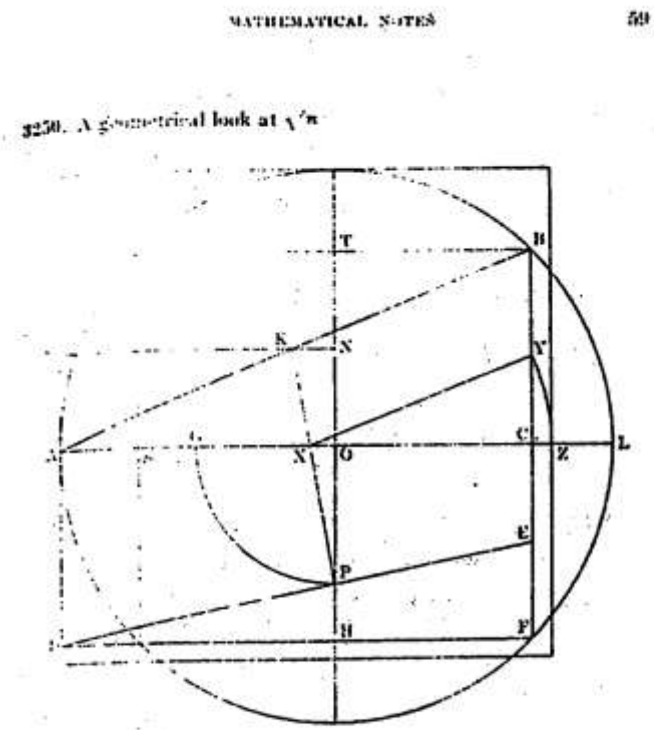
So, the above observation of the book is, that, obtaining $\sqrt{\pi}$ is impossible. This “impossible concept” of the World is proved wrong now. What is the reason ? Is it, that the mathematical world has been believing a number i.e. 3.14159265358… the π of the circle ? The answer is “Yes”. 3.14159265358… is the number which represents the polygon and **not** the circle. Everything said about based on this number, thus, is **totally** wrong and does not refer to the **real π value**.

Inspite of knowing the common belief of impossibility of getting $\sqrt{\pi}$ mathematicians have been trying to find a geometrical length equal to $\sqrt{\pi}$. The constructions of the four mathematicians are shown below:



1) (By courtesy) Loris Loynes (1961)

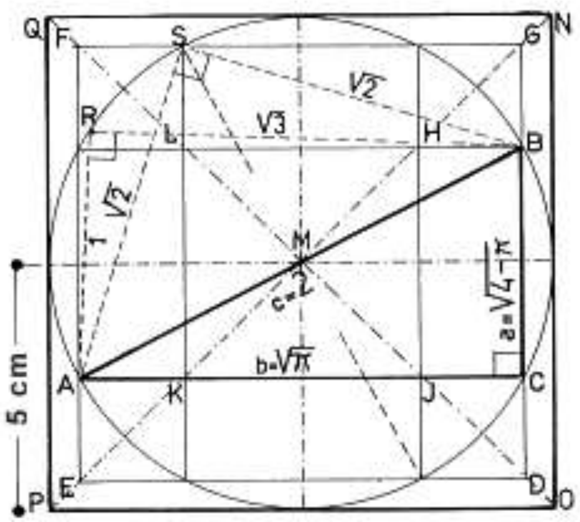
The Mathematical Gazette, UK, Dec. 1961, Page 330



2)(By courtesy) Crockkit Johnson (1970)

The Mathematical Gazette, UK, Feb. 1970, Pages 59 & 60

$[5(\text{root-}\pi)]^2 + [5(\text{root-}4 - \pi)]^2 = 25 (\pi + 4 - \pi) = 100.$



3) (By courtesy) Dr. Ing Helmut Sander (2000)

"A geometrical ensemble to generate the squaring of the circle" Nexus Network Journal, vol. 2 (2000), pp. 83-85.

The existence of a length equal to 2πr was seen **intuitively** by Archimedes of Syracuse (240 B.C)

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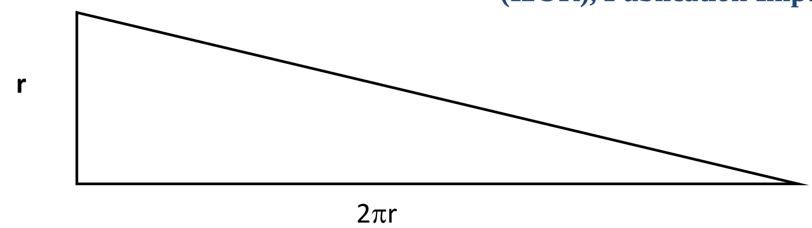


4) Archimedes of Syracuse (240 BC) (Rectification of circumference)

So, the above four great mathematicians could see the reality of the geometrical lengths equal to π and $\sqrt{\pi}$, **but the wrong π number 3.14159265358… has failed them, unfortunately.**

Procedure:

1. Diameter = AB = 2 ; Centre = O
   Radius = OA = OB = 1
   March 1998 Pi value = $\dfrac{14-\sqrt{2}}{4}$ = 3.14644660941…
2. Perpendicular line (down) on AB at O is OC
   AO = OC = 1
   Triangle AOC
   Hypotenuse = AC = $\sqrt{2}$ = 1.41421356237
3. AC = AD = $\sqrt{2}$
   AB = 2
   DB = AB – AD = 2 – $\sqrt{2}$ = 0.58578643762..
4. Bisect DB
   DE = EB = $\dfrac{2-\sqrt{2}}{2}$ =0.29289321881
5. AE = AB – EB = $2-\left(\dfrac{2-\sqrt{2}}{2}\right) = \dfrac{2+\sqrt{2}}{2}$ = 1.70710678119
6. Bisect AE twice
   AE $\rightarrow$ AF = EF = $\dfrac{2+\sqrt{2}}{4}$ = 0.85355339059
   AF $\rightarrow$ AG = GF = $\dfrac{2+\sqrt{2}}{8}$ = 0.42677669529
7. GB = AB – AG
   $= 2-\left(\dfrac{2+\sqrt{2}}{8}\right) = \dfrac{14-\sqrt{2}}{8}$ = 1.57322330471
8. As March 1998 π is equal to $= \dfrac{14-\sqrt{2}}{4} = 3.14644660941$
   then $\dfrac{14-\sqrt{2}}{8} = \dfrac{\pi}{2}$

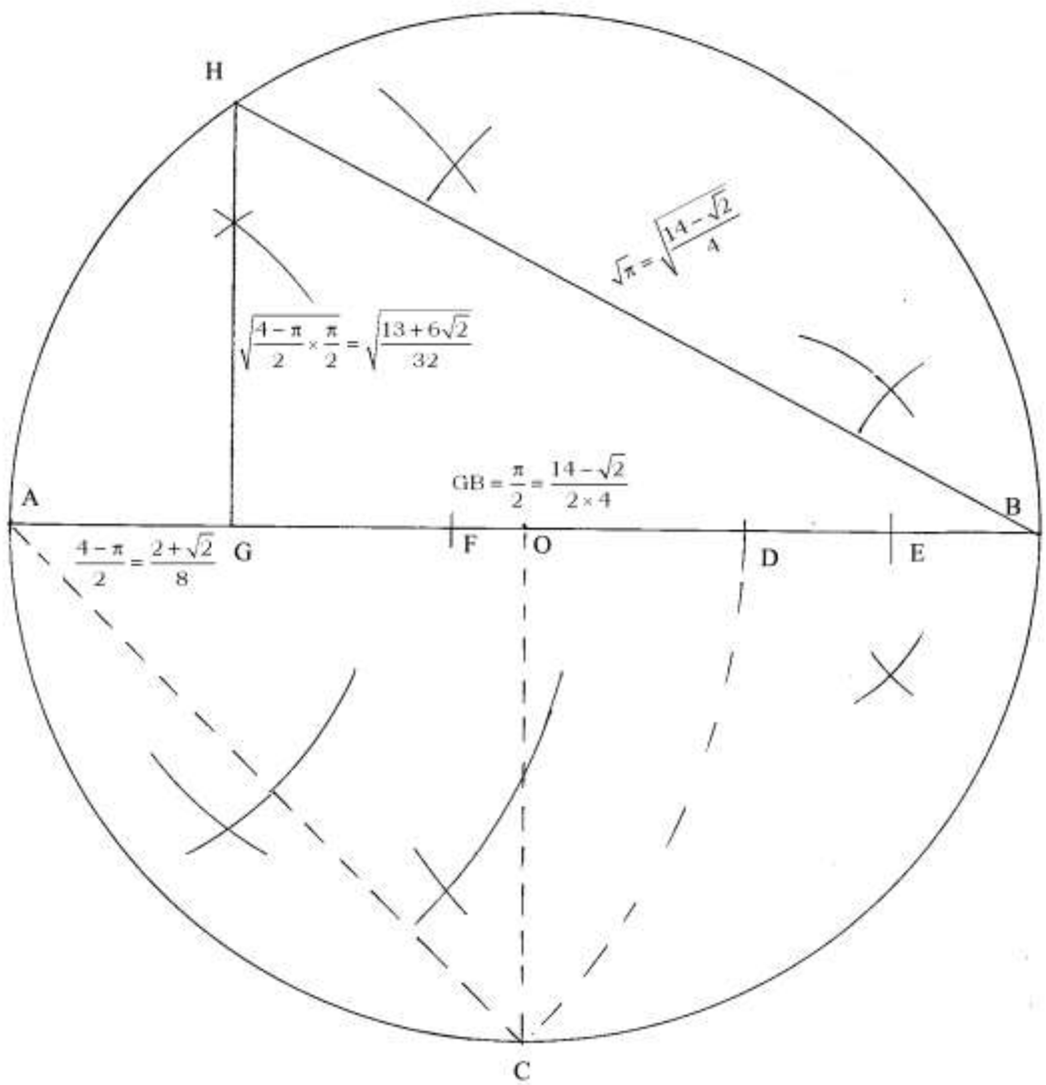
So, GB = $\frac{14-\sqrt{2}}{8} = \frac{\pi}{2}$

9. AG = AB – GB = $2 - \frac{14-\sqrt{2}}{8} = \frac{2+\sqrt{2}}{8}$ = 0.42677669529

10. Draw a perpendicular line on AB at G which meets circle at H.

11. GH = $\sqrt{AG \times GB}$ (on applying Attitude theorem)

= $\sqrt{\frac{2+\sqrt{2}}{8} \times \frac{14-\sqrt{2}}{8}} = \sqrt{\frac{13+6\sqrt{2}}{32}}$ = 0.81939919632



12. GH = $\sqrt{\frac{13+6\sqrt{2}}{32}}$ = 0.81939919632

13. Join HB, which is now a hypotenuse

14. Triangle HGB

GH = $\sqrt{\dfrac{13+6\sqrt{2}}{32}}$

GB = $\dfrac{14-\sqrt{2}}{8}$ (Step.7)

HB = Hypotenuse = $\sqrt{(HG)^2+(GB)^2}$

$$= \sqrt{\left(\frac{13+6\sqrt{2}}{32}\right)^2+\left(\frac{14-\sqrt{2}}{8}\right)^2} = \sqrt{\frac{14-\sqrt{2}}{4}} = 1.77382259806$$

HB is the length equal to $\sqrt{\dfrac{14-\sqrt{2}}{4}}$ = 1.77382259806…. represents $\sqrt{\pi}$ where π is $\dfrac{14-\sqrt{2}}{4}$.

CONCLUSION

As the real π value is known and is proved it as an algebraic number, obtaining the length of square root of Pi is done here.

DEDICATION

This paper is humbly dedicated to Archimedes of Syracuse (240 B.C) Prof. Loris Loynes (1961), Prof. Crockkit Johnson (1970) and Prof. Ing. Helmut Sander (2000).

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This author expresses his many many hearty thanks to the authors **Prof. John Bryant** and **Prof. Chris Sangwin** for their academic boldness in referring the March 1998 Pi value $\dfrac{14-\sqrt{2}}{4}$ in their great book **"How Round Is Your Circle",** and also many many thanks to **Dr. Gerry Leversha,** when thousands of mathematicians across the world, when sent similarly, were unable either to disprove this "extra ordinary discovery" (phrase used while reviewing this author's book by **Dr. Gerry Leversha,** Editor, The Mathematical Gazettee, UK), or reluctant to accept it and maintain silence and untouchability for the reasons of their own, which never enrich mathematics as this truth eluded us since human civilization. This author innocently **thought people would be very happy** for this 43-year search of labour of this discovery. But pained much when he was ridiculed in ungentlemanly and filthy language by some.

Author

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