

1/4th of 2 Sides Subtracted 14 Diameters of Inscribed Triangle is Equal to the Circumference 1409th Proof

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Introduction

In the beginning, the value of Pi was calculated by adopting the Exhaustion Method, which is a method of finding the area of a shape by inscribing inside it a sequence of polygons whose areas converge to the area of the containing shape. If the sequence is correctly constructed, the difference in area between the nth polygon and the containing shape will become arbitrarily small as n becomes large. As this difference becomes arbitrarily small, the possible values for the area of the shape are systematically "exhausted" by the lower bound areas successively established by the sequence members. Archimedes of Syracuse has said Pi is less than $22/7 = 3.1428571428\dots$

Later mathematicians have refined the above value to 3.14159265358...Prominent among them are Isaac Newton, S. Ramanujan. David Bailey, Peter Boerwein and Simon Plouffe have modernized the method of finding the same value to Pi in 1997 and helped to get the Pi value to its trillions of decimals using Super Computer. Unfortunately, we have failed to get the exact value to Pi. This

deficiency has made this author to find the exact value equal to $\frac{1}{2}(14 - \sqrt{2}) = 3.146446609$. This value has been discovered in

March 1998. It is an algebraic number, unlike 3.14159265358.. a transcendental number. In the following study the simplest method is discovered for the exact Pi value. The second benefit is we can Square a Circle in addition to the exactness of Pi value.

Properties

- The circle has an inscribed triangle with any three given angle measures (summing of course to 180°), and every triangle can be inscribed in some circle (which is called its circumscribed circle or circumcircle).
- The triangle ABC has an inscribed circle, called the incircle **FIG.1**.

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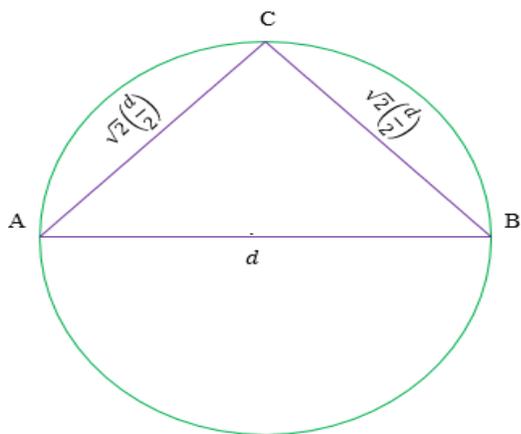


FIG.1 An Inscribed Tringle of a Circle.

$$\text{Diameter} = d = AB$$

$$\frac{14AB - (AC + BC)}{4} = \text{Circumference} = \pi AB = \pi d$$

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

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

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