

A Key to Solving the Angle Trisection Problem

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How to cite this paper: Barton, L.O. (2023) A Key to Solving the Angle Trisection Problem. *Advances in Pure Mathematics*, 13, 625-634.
<https://doi.org/10.4236/apm.2023.139042>

Received: August 18, 2023
Accepted: September 25, 2023
Published: September 28, 2023

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Abstract

This paper describes the methodology (or approach) that was key to the solution of the angle trisection problem published earlier in article entitled, “*A Procedure For Trisecting An Acute Angle*.” It was an approach that required first, designing a working model of a trisector mechanism, second, studying the motion of key elements of the mechanism and third, applying the fundamental principles of kinematics to arrive at the desired results. In presenting these results, since there was no requirement to provide a detailed analysis of the final construction, this information was not included. However, now that the publication is out, it is considered appropriate as well as instructive to explain more fully the mechanism analysis of the trisector in graphical detail, as covered in Section 3 of this paper, that formed the basis of the long sought solution to the age-old *Angle Trisection Problem*.

Keywords

Archimedes’ Construction, College Geometry, College Mathematics, Angle Trisection, Trisector, Famous Problems in Mathematics, History of Mathematics, Mechanism Analysis, Kinematics, Geometer’s Sketch Pad

1. Introduction

This paper is a sequel to its forerunner entitled, “*A Procedure For Trisecting an Acute Angle*,” published earlier [1] where it presented a construction capable of dividing any arbitrary acute angle into three *exactly equal* parts using a straightedge and compass only [1] [2] [3] [4]. In presenting this construction, there was no need to describe the methodology for its development, since it was not required. However, given the fact that a) *The Angle Trisection* (one of the three unsolvable problems of Geometry, the other two being *the squaring of a circle* and *the doubling of a cube*), has been for centuries one of the most intriguing challenges for mathematicians, and b) nowhere else in the literature [2] [3] [4] [5] has the principles of kinematics [1] [6] [7] [8] been applied in tackling

Trisection Problem

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Trisection Problem:

The Trisection Problem Robert Carl Yates,1971 **The Trisection Problem** Robert Carl Yates,1971 **Field Theory and Its Classical Problems** Charles Robert Hadlock,2000-12-07 An introduction to the classical notions behind modern Galois theory *The Secret of the Circle and Trisection of Angles* Jeremy Carlisle Willmon,1904 Unconventional Computation Cristian S. Calude,Michael J. Dinneen,Gheorghe Paun,Grzegorz Rozenberg,Susan Stepney,2006-08-29 This book constitutes the refereed proceedings of the 5th International Conference on Unconventional Computation UC 2006 held in York UK in September 2006 The 17 revised full papers presented together with four invited full papers were carefully reviewed and selected for inclusion in the book All current aspects of unconventional computation are addressed theory as well as experiments and applications Plane Geometry with Practical Problems Marquis Joseph Newell,George Andrew Harper,1914 A Budget of Trisections Underwood Dudley,2012-12-06 It is impossible to trisect angles with straightedge and compass alone but many people try and think they have succeeded This book is about angle trisections and the people who attempt them Its purposes are to collect many trisections in one place inform about trisectors to amuse the reader and perhaps most importantly to reduce the number of trisectors This book includes detailed information about the personalities of trisectors and their constructions It can be read by anyone who has taken a high school geometry course **Famous Geometrical Theorems and Problems, with Their History** William Whitehead Rupert,1901 Famous Geometrical Theorems and Problems William Whitehead Rupert,1900 Certain Aspects of the Trisection Problem ... Marguerite Edna Stagner,1932 *Godel's Theorem in Focus* S.G. Shanker,2012-08-21 A layman s guide to the mechanics of G del s proof together with a lucid discussion of the issues which it raises Includes an essay discussing the significance of G del s work in the light of Wittgenstein s criticisms *The Theosophical Path* Katherine Augusta Westcott Tingley,1920 *Revue Semestrielle Des Publications Mathematiques* ,1907 **American Biography** ,1928 **Plane Geometry** Charles Solomon,Herman H. Wright,1929 **The Open Court** ,1907 **The Open Court** Paul Carus,1907 vols 46 47 have special title New Orient Society monograph *History of Mathematics: General survey of the history of elementary mathematics* David Eugene Smith,1923 **Plane and Solid Geometry and Their Uses** Gordon Richmond Mirick,Marquis Joseph Newell,George Andrew Harper,George Walker Mullins,1929 **The American Mathematical Monthly** ,1916 Includes section Recent publications

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