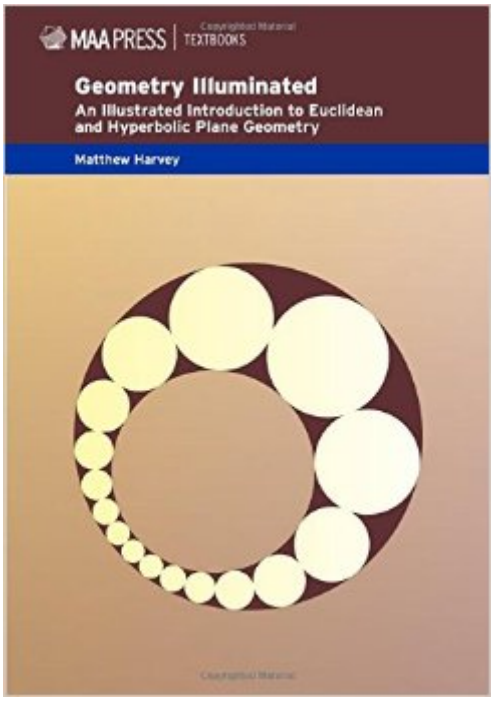
Geometry Illuminated: An Illustrated Introduction To Euclidean And Hyperbolic Plane Geometry (Maa Textbooks)



Synopsis

Geometry Illuminated is an introduction to geometry in the plane, both Euclidean and hyperbolic. It is designed to be used in an undergraduate course on geometry, and as such, its target audience is undergraduate math majors. However, much of it should be readable by anyone who is comfortable with the language of mathematical proof. Throughout, the goal is to develop the material patiently. One of the more appealing aspects of geometry is that it is a very "visual" subject. This book hopes to takes full advantage of that, with an extensive use of illustrations as guides. Geometry Illuminated is divided into four principal parts. Part 1 develops neutral geometry in the style of Hilbert, including a discussion of the construction of measure in that system, ultimately building up to the Saccheri-Legendre Theorem. Part 2 provides a glimpse of classical Euclidean geometry, with an emphasis on concurrence results, such as the nine-point circle. Part 3 studies transformations of the Euclidean plane, beginning with isometries and ending with inversion, with applications and a discussion of area in between. Part 4 is dedicated to the development of the PoincarÃ© disk model, and the study of geometry within that model. While this material is traditional, Geometry Illuminated does bring together topics that are generally not found in a book at this level. Most notably, it explicitly computes parametric equations for the pseudosphere and its geodesics. It focuses less on the nature of axiomatic systems for geometry, but emphasizes rather the logical development of geometry within such a system. It also includes sections dealing with trilinear and barycentric coordinates, theorems that can be proved using inversion, and Euclidean and hyperbolic tilings.

Book Information

Series: Maa Textbooks
Hardcover: 560 pages
Publisher: Mathematical Association of America; Ill edition (September 25, 2015)
Language: English
ISBN-10: 1939512115
ISBN-13: 978-1939512116
Product Dimensions: 1.2 x 7 x 10 inches
Shipping Weight: 1.6 pounds (View shipping rates and policies)
Average Customer Review: Be the first to review this item
Best Sellers Rank: #972,132 in Books (See Top 100 in Books) #225 inÂ Books > Science & Math > Mathematics > Geometry & Topology > Topology #573 inÂ Books > Textbooks > Science & Mathematics > Mathematics > Geometry

Geometry Illuminated: An Illustrated Introduction to Euclidean and Hyperbolic Plane Geometry (Maa Textbooks) The Foundations of Geometry and the Non-Euclidean Plane (Undergraduate Texts in Mathematics) Geometry by Construction: Object Creation and Problem-solving in Euclidean and Non-Euclidean Geometries Euclidean And Non-Euclidean Geometry::Development and History, 4th edition.[Hardcover,2007] Tilings of the Plane, Hyperbolic Groups and Small Cancellation Conditions Non-Euclidean Geometry (Mathematical Association of America Textbooks) Software Architecture And Design Illuminated (Jones and Bartlett Illuminated (Paperback)) Web Development With Javascript And Ajax Illuminated (Jones and Bartlett Illuminated (Paperback)) Basic and Advanced Light Plane Body Maintenance: (Light Plane Maintenance Library, Vol. 2) Euclidean and Non-Euclidean Geometries: Development and History Euclidean and Non Euclidean Geometries Development and History 4th (Fourth) Edition byGreenberg Euclidean and Non-Euclidean Geometries Taxicab Geometry: An Adventure in Non-Euclidean Geometry (Dover Books on Mathematics) Hyperbolic Geometry (Springer Undergraduate Mathematics Series) Lectures on Hyperbolic Geometry (Universitext) The Fourth Dimension and Non-Euclidean Geometry in Modern Art (Leonardo Book Series) Modern Geometries: Non-Euclidean, Projective, and Discrete Geometry (2nd Edition) Advanced Euclidean Geometry (Dover Books on Mathematics) Non-Euclidean Geometry for Babies (Math for Babies) Non-Euclidean Geometry (Dover Books on Mathematics)