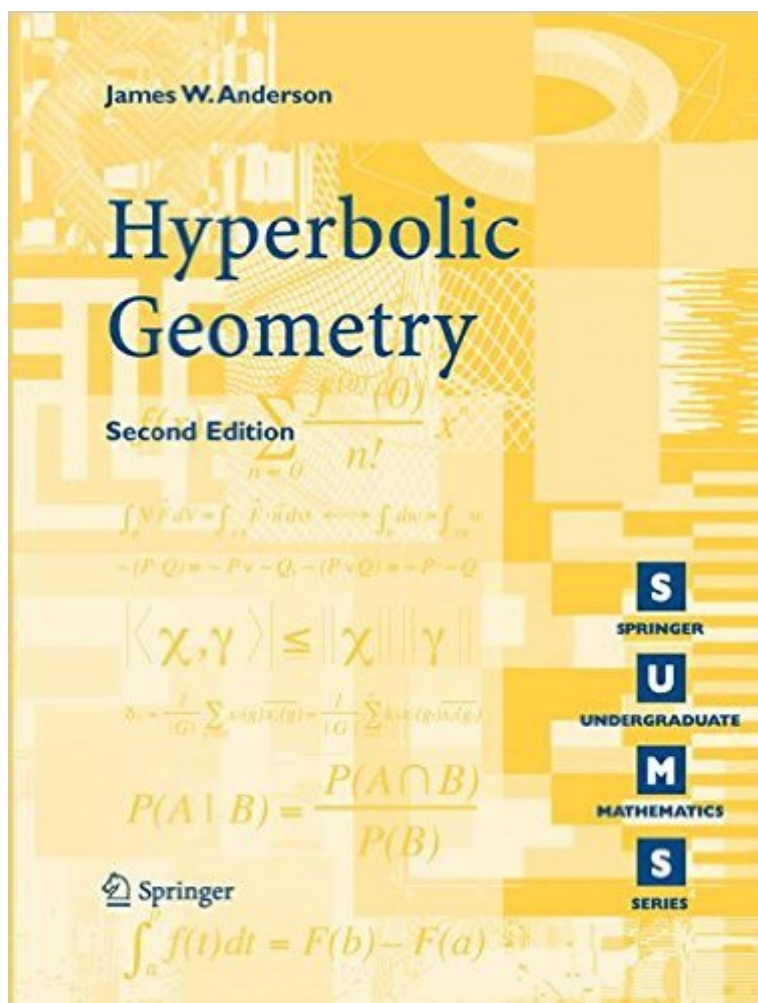


The book was found

# Hyperbolic Geometry (Springer Undergraduate Mathematics Series)



## Synopsis

Thoroughly updated, featuring new material on important topics such as hyperbolic geometry in higher dimensions and generalizations of hyperbolicity Includes full solutions for all exercises  
Successful first edition sold over 800 copies in North America

## Book Information

Series: Springer Undergraduate Mathematics Series

Paperback: 276 pages

Publisher: Springer; 2nd edition (October 10, 2008)

Language: English

ISBN-10: 1852339349

ISBN-13: 978-1852339340

Product Dimensions: 7 x 0.7 x 10 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: 4.0 out of 5 stars See all reviews (6 customer reviews)

Best Sellers Rank: #1,120,591 in Books (See Top 100 in Books) #43 in Books > Science & Math > Mathematics > Geometry & Topology > Non-Euclidean Geometries #649 in Books > Textbooks > Science & Mathematics > Mathematics > Geometry #261222 in Books > Reference

## Customer Reviews

I used this text along with Tristan Needham's "Visual Complex Analysis" to get a full dose of the geometric beauty inherent in studying complex variables. I found it to be a nice complement to the second year course in geometry at Cambridge University. Anderson does a wonderful job of working out in detail lots of examples so that you can get the algorithmic practice of solving problems. However this is not merely a cookbook. Rather, core elements of the theory are presented from the ground up, with plenty of time spent on understanding the group structure of Mobius transformations in various settings. Disc and upper-half plane models are treated as well as more general models. I recommend you buy both this book and Needham's if you want to appreciate the world of complex numbers.

This is an excellent introduction to hyperbolic geometry. It assumes knowledge of euclidean geometry, trigonometry, basic complex analysis, basic abstract algebra, and basic point set topology. That material is very well presented, and the exercises shed more light on what is being discussed. Plus, solutions to all the exercises are at the end of the book.

My review is based on the first edition. This book is a tour-de-force. While it is stated to be for undergraduates, I would caution that only those undergraduates with a solid grounding in calculus will be able to follow many of the technical details. To alleviate that, Anderson provides many examples and solutions to all the generally excellent exercises in his book. He does some lengthy calculations as well. His primary focus is on the upper half plane model  $H$  and its group  $Mob^+$  of Möbius transformations. He adopts Klein's viewpoint that the group and its invariants are primary. So it was a pleasure to see worked out in detail why  $|dz|/y$  (up to a positive constant multiple) is the Riemannian line element for  $H$ : It is the only conformal distortion of the Euclidean line element that is invariant under the group  $Mob^+$  (Theorem 3.5). He then works out the global metric on  $H$ . I was sorry to see from its table of contents that in the second edition he deleted his chapter about discrete subgroups of  $Mob$  acting on  $H$  and their fundamental polygons. He did replace it with a discussion of the hyperboloid model, which is important for special relativity.

[Download to continue reading...](#)

Hyperbolic Geometry (Springer Undergraduate Mathematics Series) Geometry Illuminated: An Illustrated Introduction to Euclidean and Hyperbolic Plane Geometry (Maa Textbooks) Mathematics for Finance: An Introduction to Financial Engineering (Springer Undergraduate Mathematics Series) A First Course in Discrete Mathematics (Springer Undergraduate Mathematics Series) An Introduction to Laplace Transforms and Fourier Series (Springer Undergraduate Mathematics Series) Mathematica®: A Problem-Centered Approach (Springer Undergraduate Mathematics Series) Vector Calculus (Springer Undergraduate Mathematics Series) Ordinary Differential Equations: Analysis, Qualitative Theory and Control (Springer Undergraduate Mathematics Series) Lectures on Hyperbolic Geometry (Universitext) Calculus with Vectors (Springer Undergraduate Texts in Mathematics and Technology) Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra (Undergraduate Texts in Mathematics) Elementary Topics in Differential Geometry (Undergraduate Texts in Mathematics) The Foundations of Geometry and the Non-Euclidean Plane (Undergraduate Texts in Mathematics) Elements of Algebra: Geometry, Numbers, Equations (Undergraduate Texts in Mathematics) Spectral Theory of Infinite-Area Hyperbolic Surfaces (Progress in Mathematics) Taxicab Geometry: An Adventure in Non-Euclidean Geometry (Dover Books on Mathematics) Discrete Mathematics: Elementary and Beyond (Undergraduate Texts in Mathematics) Mathematics and Its History (Undergraduate Texts in Mathematics) Geometric Control Theory and Sub-Riemannian Geometry (Springer INdAM Series) Global Propagation of Regular Nonlinear Hyperbolic Waves (Progress in

