Mathematics

TEXTBOOKS IN MATHEMATICS

Geometry is a rich and rewarding area for mathematical exploration. The visual aspects of the subject make exploration and experimentation natural and intuitive. At the same time, the abstractions developed to explain geometric patterns and connections make the subject extremely powerful and applicable to a wide variety of physical situations.

This textbook has been designed to promote student engagement with the beautiful ideas of geometry. Every major concept is introduced in its historical context then connected to a real-life basis. The arrangement of topics offers the instructor as much flexibility as possible.

A main feature is the interplay between the practical and the abstract. Students new to geometry will find numerous concrete exploratory activities to aid understanding. More experienced students will find proofs, explanations, and advanced topics. The text gives equal weight to intuitive and imaginative exploration of geometry as well as to abstract reasoning and proofs.

A system of experimentation followed by rigorous explanation and proof is central to the author's approach. Students conduct guided computer explorations of important foundational topics, followed by proofs of observed results. Exploratory projects play an integral role. These engage in active learning. The goal of this pedagogical approach is to enable students to master concepts at a deep level.

FEATURES AND CHANGES IN SECOND EDITION

- **New Chapters on Elliptic and Projective Geometry**
- **Consistency of Level Through All Chapters:** Material of a more advanced nature is now available separately as web chapters on the author's website at http://www.gac.edu/~hvidsten/geom-text
- **Computer Software:** Any dynamic geometry software can be used for the projects
- **Supplemental Proofs:** Added as an appendix
- **Instructor's Manual:** An instructor's manual with worked out solutions is available
- **Student's Manual:** An on-line student manual is available

The design of the text makes it appropriate for college courses at several levels. The rigorous analysis of all three classical geometries (Euclidean, Hyperbolic, and Elliptic) makes the text appropriate for courses designed for students with a strong mathematical background. The author has successfully used this text to teach a geometry course for math education majors at Gustavus Adolphus College.

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Exploring Geometry Second Edition Hvidsten

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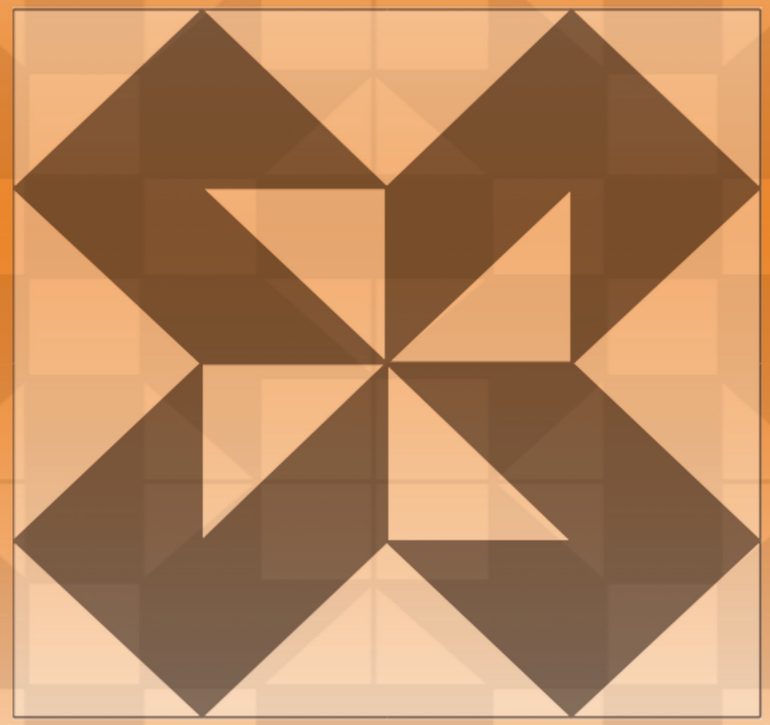
Exploring Geometry

Second Edition



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