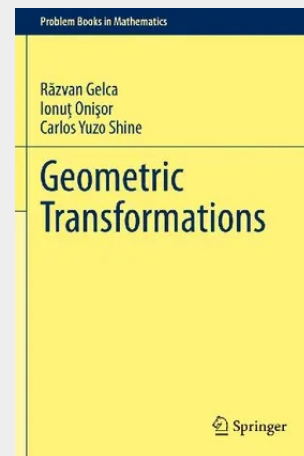


Geometric Transformations

This textbook teaches the transformations of plane Euclidean geometry through problems, offering a transformation-based perspective on problems that have appeared in recent years at mathematics competitions around the globe, as well as on some classical examples and theorems. It is based on the combined teaching experience of the authors (coaches of several Mathematical Olympiad teams in Brazil, Romania and the USA) and presents comprehensive theoretical discussions of isometries, homotheties and spiral similarities, and inversions, all illustrated by examples and followed by myriad problems left for the reader to solve. These problems were carefully selected and arranged to introduce students to the topics by gradually moving from basic to expert level. Most of them have appeared in competitions such as Mathematical Olympiads or in mathematical journals aimed at an audience interested in mathematics competitions, while some are fundamental facts of mathematics discussed in the framework of geometric transformations. The book offers a global view of the geometric content of today's mathematics competitions, bringing many new methods and ideas to the attention of the public.

Talented high school and middle school students seeking to improve their problem-solving skills can benefit from this book, as well as high school and college instructors who want to add nonstandard questions to their courses. People who enjoy solving elementary math problems as a hobby will also enjoy this work.

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