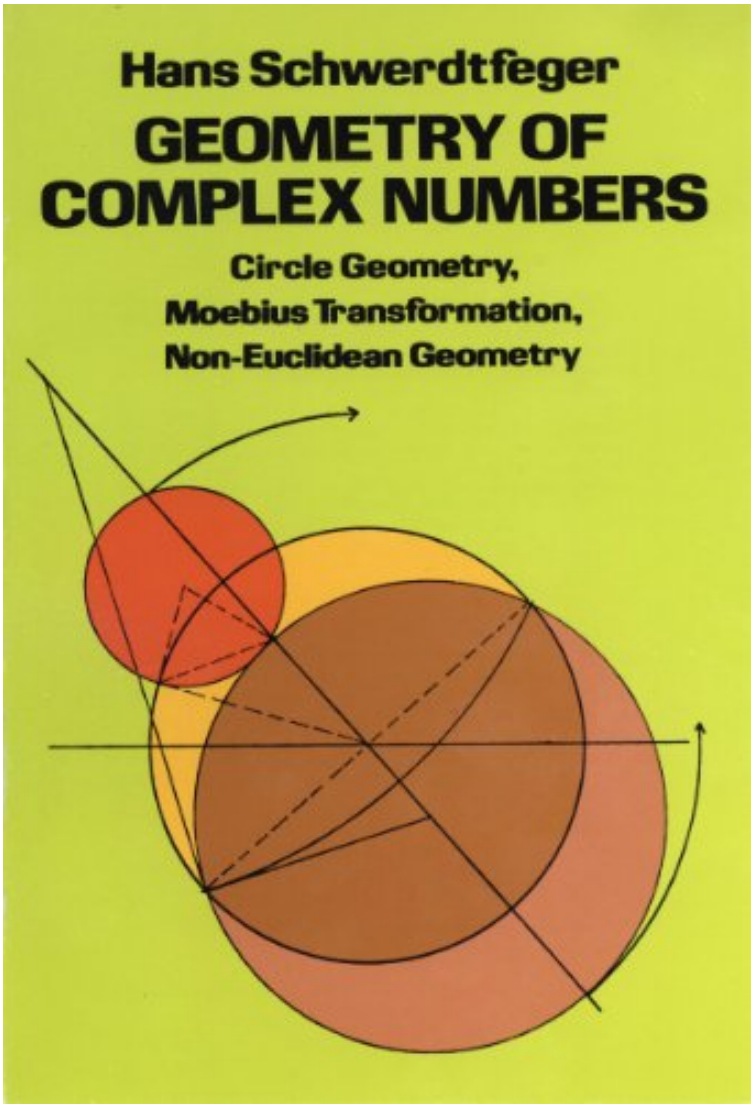
Geometry of Complex Numbers



Par Hans Schwerdtfeger
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Description :

Prsentation de l'diteur"This book should be in every library, and every expert in classical function theory should be familiar with this material. The author has performed a distinct service by making this material so conveniently accessible in a single book." Mathematical Since its initial publication in 1962, Professor Schwerdtfeger's illuminating book has been widely praised for generating a deeper understanding of the geometrical theory of analytic functions as well as of the connections between different branches of geometry. Its focus lies in the intersection of geometry, analysis, and algebra, with the exposition generally taking place on a moderately advanced level. Much emphasis, however, has been given to the careful exposition of details and to the development of an adequate algebraic technique.In three broad chapters, the author clearly and elegantly approaches his subject. The first chapter, Analytic Geometry of Circles, treats such topics as representation of circles by Hermitian matrices, inversion, stereographic projection, and the

cross ratio. The second chapter considers in depth the Moebius transformation: its elementary properties, real one-dimensional projectivities, similarity and classification of various kinds, anti-homographies, iteration, and geometrical characterization. The final chapter, Two-Dimensional Non-Euclidean Geometries, discusses subgroups of Moebius transformations, the geometry of a transformation group, hyperbolic geometry, and spherical and elliptic geometry. For this Dover edition, Professor Schwerdtfeger has added four new appendices and a supplementary bibliography.Advanced undergraduates who possess a working knowledge of the algebra of complex numbers and of the elements of analytical geometry and linear algebra will greatly profit from reading this book. It will also prove a stimulating and thought-provoking book to mathematics professors and teachers.