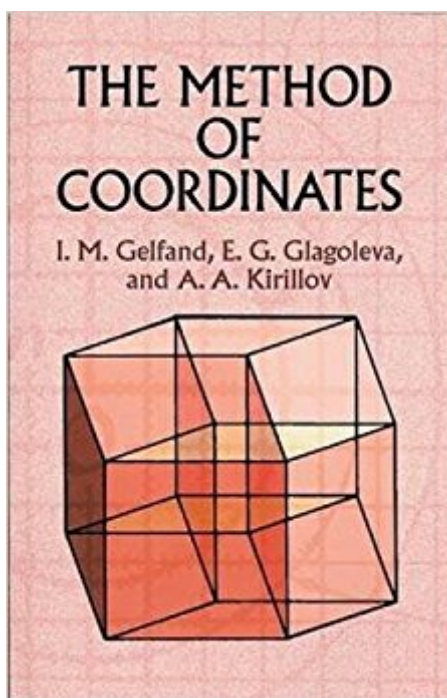The book was found

The Method Of Coordinates (Dover Books On Mathematics)

Synopsis

This introductory text explores the translation of geometric concepts into the language of numbers in order to define the position of a point in space (the orbit of a satellite, for example). The two-part treatment begins with discussions of the coordinates of points on a line, coordinates of points in a plane, and the coordinates of points in space.Part 2 examines geometry as an aid to calculation and the necessity and peculiarities of four-dimensional space. Written for systematic study, it features a helpful series of "road signs" in the margins, alerting students to passages requiring particular attention, and an abundance of ingenious problems â ” with solutions, answers, and hints â ” promote habits of independent work

Book Information

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Customer Reviews

"All through both volumes [â ˆFunctions & Graphsâ ™ and â ˆThe Methods of Coordinatesâ ™], one finds a careful description of the step-by-step thinking process that leads up to the correct definition of a concept or to an argument that clinches in the proof of a theorem. We are ... very fortunate that an account of this caliber has finally made it to printed pages... Anyone who has taken this guided tour will never be intimidated ever again... High school students (or teachers) reading through these two books would learn an enormous amount of good mathematics. More importantly, they would also get a glimpse of how mathematics is done." --- H. Wu, The Mathematical Intelligencer "This book is a concise and compact treatment of the essential ideas of coordinate geometry.Â The authors demonstrate powerfully how geomtric ides may be communicated and studied effectively

without the aid of pictures.Â Graphics are of course of vital importance int he methods of Euclidean geometry. However, the methods of coordinate geometry are able to transform pure geometric ideas into algebraic manipulations where the meaning is very clear once the formalism is learnt. In particular the book demonstrates the value of conveying information in the form of images embedded in formulas.Â This is very useful in the transmission of information by electronic means. . . This book is a valuable tool for teaching the redimentary concepts of analytical geometry.Â It contains a number of excellent examples and exercises which go further than a mere introductory programme.Â the exercises, while not numerous, are very thought-provoking and are bound to pose a serious challenge to the interested student." ---The Mathematical Gazette --This text refers to the Digital edition.

Text: English (translation) Original Language: Russian

The authors of this slim volume demonstrate the power of coordinate geometry, which they describe as a means of translating geometric figures into algebraic formulas, through their lucid exposition, interesting examples, and well-chosen exercises.The authors begin with the coordinate geometry of the real line. They discuss absolute value and define what distance means. Next the authors examine the coordinate geometry of the plane. They define distance in the plane, show how relations among the coordinates define geometric figures, and discuss different coordinate systems that can be used in the plane. Their examples illustrate how algebraic methods developed by Rene Descartes make it possible to solve geometric problems efficiently that would be quite difficult to solve using synthetic geometry. The authors then treat the coordinate geometry of three-dimensional space in a similar manner.The second part of the book begins with a problem concerning lattice points in the plane. The authors use this example and its generalizations to justify exploring the coordinate geometry of four-dimensional space. They carefully treat the example of a four-dimensional unit hypercube, examining its properties by considering its analogues in lower dimensions: the segment [0, 1] of the real number line, the unit square in the coordinate plane, and the unit cube in space.Since the book was initially written for a correspondence course for high school students in the Soviet Union, it is designed for self-study and accessible to students who have had high school courses in algebra and geometry. Since students in the Soviet Union were able to mail their solutions to the exercises to the authors when the authors were professors at the University of Moscow, answers to most of the exercises are not provided. The exercises are thought-provoking and some are quite challenging.I also highly recommend that you explore the

other volumes in the Gelfand School Outreach Program. They include Algebra,Functions and Graphs (Dover Books on Mathematics), and Trigonometry.

The contents of the book is fine, just what I expected when I purchased it.However, the binding job was done in a very amateur fashion. These books from Springer are printed and bound upon order, it seems that the people who do the job have no pride in their work. Buy the version from Dover instead.

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