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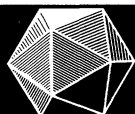
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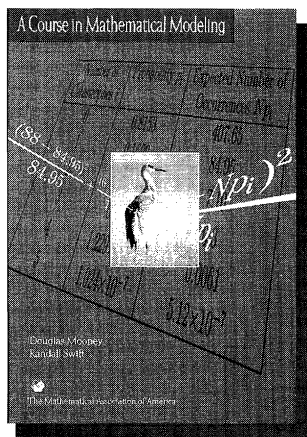


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Douglas Mooney and Randall Swift

Series: Classroom Resource Materials



A Course in Mathematical Modeling is intended as a text for a modeling course accessible to students who have mastered a one year course in calculus. Mooney and Swift's approach to modeling is presented balancing theoretical versus empirical models, analytic models versus simulation, deterministic versus stochastic models, and discrete versus continuous models. Most examples are drawn from real world data or from models that have been used in various applied fields. The use of computers in both simulation and analysis is an integral part of the presentation.

The authors emphasize teaching modeling as opposed to presenting models, beginning their book with the simple discrete exponential growth model as a building block, and successively refining it. This refinement includes adding variable growth rates and multiple variables, fitting growth rates to data, including random elements, testing goodness of fit, using computer simulations, and moving to a continuous setting.

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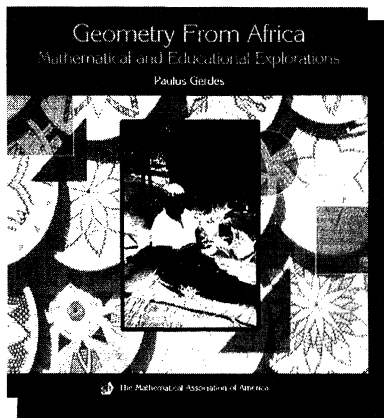
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Paulus Gerdes

Series: Classroom Resource Materials



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shows how students may be led to discover the Pythagorean Theorem and to find proofs of it. He also explores connections to Pappus' Theorem, similar right triangles, and Latin and magic squares as well as the geometrical ideas inherent in mat and basket weaving, house building, and wall decoration.

The author presents the geometry of a central African sand drawing tradition--called *sona* in the Chokwe language (predominantly northeast Angola). Through the knowledge of *sona*, passed from generation to generation via beautiful, often symmetric, designs made in the sand, Gerdes uncovers mathematical ideas and presents examples of how they may be used in teaching mathematics. He underscores the mathematical potential of the sand drawing tradition by developing the geometry of a new type of design/pattern, which he calls Lunda-designs.

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