

Principles and Standards
for School Mathematics

NAVIGATIONS
SERIES



Navigating *through* Number *and* Operations *in* Grades 9–12



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS



GRADES 9–12

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Number and Operations

Navigating through Number and Operations in Grades 9–12

By Maurice J. Burke, Paul E. Keble, Paul A. Kennedy, and Dennis St. John

Numbers and the operations that we perform with them are the starting points for all mathematics. Accordingly, *Principles and Standards for School Mathematics* makes the Number and Operations Standard first among the five Content Standards and gives it centrality across the mathematics curriculum from prekindergarten through grade 12.

Understanding real numbers is a major achievement of students in grades 9–12. This book's activities probe rational and irrational numbers and investigate properties of integers and complex numbers. They explore numbers and operations embedded in physical objects and show how simple problems can lead to sophisticated considerations. Students examine the usefulness of irrational numbers in designing musical scales and of prime numbers in devising encryption schemes, for example, and they discover powerful ideas from graph theory in a concrete context of dikes, towers, and enclosed regions.

The Navigations Series translates *Principles and Standards for School Mathematics* into action. Each book includes practical, teacher-tested activities and a supplemental CD-ROM that features applets for students' use and resources for teachers' professional development.

NCTM offers a variety of professional development opportunities that support the Navigations Series and address other mathematical subjects. Visit www.nctm.org for more information on all of NCTM's resources, including professional development offerings and publications available in the online catalog.

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- Applets, and more...

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