

Contents

Foreword	v
Preface.....	vii
Section 1: Mathematics for Everyone.....	.1
1. Improving Mathematics for All Students (with Max Bell) (1971).....	2
2. If Everybody Counts, Why Do So Few Survive? (1993).....	7
3. From “Mathematics for Some” to “Mathematics for All” (1994)	19
4. Mathematics as a Language (1996)	29
5. Algebra and Calculus for All? (1999)	39
6. The Implications of “Geometry for All” (1997).....	51
7. The Mathematically Promising and the Mathematically Gifted (1999).....	62
8. The Development <i>into</i> the Mathematically Talented (2000)	73
9. Educating the Public about School Mathematics (2001)	85
10. Performance with Fractions: A Demonstration of Cultural Differences within the United States and Overseas (2011).....	97
Section 2: Curriculum	107
11. What Should <i>Not</i> Be in the Algebra and Geometry Curricula of Average College-Bound Students? (1980)	109
12. Motivation and the Sequencing of Mathematics Content (1982).....	122
13. We Need Another Revolution in Secondary School Mathematics (1985).....	129
14. Recent Developments in Secondary School Mathematics, and Their Implications (1994).....	147
15. The Stages of Change (1995)	156
16. The Integration of the School Mathematics Curriculum in the United States: History and Meaning (2003)	166
17. The Importance of the Transition Years, Grades 7–10, in School Mathematics (2005)	179
18. Setting the Record Straight: An Examination of the Curriculum Recommendations in the National Mathematics Advisory Panel Report (with Barbara J. Reys and John P. Smith) (2008)	190
19. The Current State of the School Mathematics Curriculum (2010).....	201
20. Unpacking Mathematical Understanding in the Common Core (2012).....	212

Section 3: Algebra.....	225
21. Applications of Groups and Isomorphic Groups to Topics in the Standard Curriculum, Grades 9–11, Parts I and II (1975).....	226
22. Beginning Algebra: An Applications Approach (1979)	249
23. Why Elementary Algebra Can, Should, and Must Be an Eighth-Grade Course for Average Students (1987)	256
24. Conceptions of Algebra and Uses of Variables (1988)	267
25. Why Is Algebra Important to Learn? (Teachers, This One's for Your Students!) (1995)	277
Section 4: Geometry	291
26. A Transformation Approach to Tenth-Grade Geometry (with Arthur F. Coxford Jr.) (1972).....	292
27. Transformations in High School Geometry before 1970 (1974).....	303
28. The Case for Transformations in High School Geometry (1975).....	311
29. Resolving the Continuing Dilemmas in School Geometry (1987).....	317
30. The Shape of Geometry and the Geometry of Shape (2010)	329
Section 5: Mathematics Applications and Modeling	345
31. Building Mathematics Curricula with Applications and Modelling (1991).....	347
32. Applications in the Secondary School Mathematics Curriculum: A Generation of Change (1997)	358
33. On the Relationships between Mathematics and Science in Schools (1997)	375
34. The Arithmetic Operations as Mathematical Models (2007).....	386
35. Mathematical Modeling in the School Curriculum (2012).....	392
Section 6: Calculators and Technology	407
36. Are Calculators a Crutch? (1978).....	408
37. Paper-and-Pencil Algorithms in a Calculator-and-Computer Age (1998).....	410
38. The Ethics of Using Advanced Technologies in a CCSSM Environment (2012).....	422
A Brief Autobiography Emphasizing Books and Papers in This Volume	438