1. Record Nr. UNINA9910299550403321 Mathematics Matters in Education: Essays in Honor of Roger E. Howe / Titolo / edited by Yeping Li, W. James Lewis, James J. Madden Pubbl/distr/stampa Cham:,: Springer International Publishing:,: Imprint: Springer,, 2018 **ISBN** 3-319-61434-7 Edizione [1st ed. 2018.] 1 online resource (VIII, 303 p. 52 illus., 36 illus. in color.) Descrizione fisica Collana Advances in STEM Education, , 2520-8616 Disciplina 510.71 Mathematics—Study and teaching Soggetti Mathematics **Mathematics Education** Mathematics, general Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Includes bibliographical references at the end of each chapters and Nota di bibliografia index. Nota di contenuto Part I. Introduction -- Chapter 1.Introduction -- Chapter 2.About Roger E. Howe and his contributions to mathematics education -- Chapter 3. Cultural knowledge for teaching mathematics -- Part II. Knowing and Connecting Mathematics in Teaching and Teacher Education -- Chapter 4. The content knowledge mathematics teachers need -- Chapter 5. Knowing ratio and proportion for teaching -- Chapter 6. How future teachers reasoned with variable parts and strip diagrams to develop equations for proportional relationships and lines -- Chapter 7. Giving reason and giving purpose -- Chapter 8. Who are the experts? -- Part III. Identifying and Structuring Core Ideas and Practices in K-12 Mathematics Curriculum -- Chapter 9.Building on Howe's three pillars in Kindergarten to Grade 6 classrooms -- Chapter 10.Is the real number line something to be built, or occupied? -- Chapter 11. What content knowledge should we expect in mathematics education? --Chapter 12. Approaching Euclidean geometry through transformations

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faculty to K-12 education: A department chair's perspective (mathematicians in K-12 education) -- Chapter 16.Supporting education and outreach in a research mathematics department. .

This book is inspired by Roger E. Howe's contributions to the international communities of mathematics and mathematics education. Renowned for his research contributions in the fields of representation theory, automorphic forms, harmonic analysis, and invariant theory, Dr. Howe has also fundamentally deepened our understanding of the mathematics taught in the early school grades and has challenged and stimulated mathematicians and mathematics educators to work together to examine this part of the mathematical universe more critically and in imaginative new ways. This volume will help summarize and highlight Howe's contributions to several topic areas in mathematics education, demonstrating the possibility and importance of engaging mathematicians in high-impact research in mathematics education, and showcasing the importance of cross-disciplinary collaboration and exchange.