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A deep understanding of fractions supports student success in algebra.

Stewart, Sepideh (ed.), And the rest is just algebra. Cham: Springer (ISBN 978-3-319-45052-0/hbk; 978-3-319-45053-7/ebook). 79-93 (2017).

Summary: Algebra is frequently referred to as the “gateway” course for high school mathematics in much the same way as calculus can “open” or “close” doors for students interested in pursuing degrees in science, technology, engineering, and mathematics (STEM) areas. This chapter presents the idea that students’ challenges with algebra begin well before their first course in algebra and that these challenges are embedded in a complex set of issues. Weak or incomplete mathematical understanding of rational number concepts has a profound impact on students’ success in algebra and subsequently, courses that follow where students are expected to confidently, competently, and efficiently address situations in which “and the rest is just algebra” is invoked. Recognizing that developing students’ deep understanding of rational number concepts requires years of nurturing and care by capable, well-prepared teachers, both in terms of content and pedagogical knowledge, and a discussion of issues related to teacher preparation and teacher shortages and how these impact students’ preparedness for algebra and their success in mathematics is presented.

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