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The treatment of mathematical communication in mainstream algebra texts.

Rogerson, Alan, Proceedings of the International Conference 'The decidable and the undecidable in mathematics education'. ,. 238-241 (2004).

Summary: Communication is an essential part of teaching and learning mathematics. The National Council of Teachers of Mathematics [NCTM] standards emphasizes that communication helps build meaning and permanence for ideas. Teachers depend on curricular materials to provide students with opportunities to engage in mathematical communication. While traditional textbook publishers claim to support the standards movement, texts may not provide rich communication items that engage students in expanding their mathematical thinking. This study compares two popular Algebra I texts available in the United States. Chapters addressing six key mathematical concepts (equations/functions, graphing linear functions, solving equations and inequalities, systems of equations and inequalities, quadratic/exponential functions, and quadratic function) were sampled for the number of questions that required students to engage in communication of ideas beyond providing a numerical answer. The analysis showed that the two texts differed widely in the total number of such questions. In addition, qualitative analysis found that there was notable variation in the extent to which these questions required an extended response.

Classification: U23 U24

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