

Public Abstract

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Textbooks play a central role in US mathematics classrooms (Stein, Remillard, & Smith, 2007) and functions are a key topic in secondary mathematics (Carlson, Jacobs, Coe, Larsen, & Hsu, 2002). This study presents results from an analysis of this essential topic in the latest editions of three textbook series: the Glencoe Mathematics series, the University of Chicago School Mathematics Project series, and the Core-Plus Mathematics Project series. In each series, functions were examined in four areas: language used in relation to functions, presence of functions, core features of function examples, and ancillary features of function examples. Language used in definitions generally indicated univalence, arbitrariness, and universal quantification, but beyond these there was little consistency. Function examples were prevalent in all series. Examples were most often represented with equations or formulas and were predominantly polynomial functions, and especially linear. They mostly appeared in homework exercises and in abstract settings. Most examples were not actually identified as functions, explicit recommendations for using technology with examples were relatively infrequent, and opportunities for students to generate function examples or explore non-examples were limited. All series did include multiple representations of functions with examples. Many examples included verbal descriptions, while there were smaller proportions of numeric and graphic representations. These findings can provide valuable information for administrators and teachers using or selecting textbooks and curriculum developers as they plan new or revised textbooks.