

## What Does Research Tell Us about Fostering Algebraic Reasoning in School Algebra?

Recent research in algebra teaching and learning has included a focus on the solving of word problems and the activity of conjecturing and proving. In many studies of the ways in which algebraic reasoning can be fostered in these two areas, specific attention has been given to the role of teacher questioning. In the area of conjecturing and proving in algebra, research has also emphasized the need to support such activity with appropriate tasks where students engage in higher-level reasoning processes such as reflecting, explaining, and justifying.

- To promote algebraic reasoning in solving word problems, an effective practice is to include within a table-of-values representation not only the numerical values associated with the given variables of the problem, but also the numerical equation calculations that yield each of these values. Comparing different equation calculations for arriving at the same values can lead students to see that some calculations are more generalizable than others.
- Research suggests that generic proofs merit much greater attention in algebra teaching practice than they currently receive. As well, engaging in proving tasks needs to be preceded by significant activity on developing the related reasoning processes of predicting, comparing, explaining, and conjecturing.

*Based on What Does Research Tell Us about Fostering Algebraic Reasoning in School Algebra?*

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