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*Mathematical Knowledge for Teaching at the secondary level based on mathematical situations from high school classrooms: A challenge for collegiate mathematics.*

In an effort to build a framework of the mathematical knowledge that is useful to secondary teachers, we have drawn from classroom events and teacher discussions. We have captured mathematical events that occur in the context of teaching and analyzed them to identify useful mathematical knowledge that would help a teacher respond to that event. From these situations (the events and the mathematical knowledge), we have identified categories of mathematical knowledge that are particularly useful to secondary teachers and should be developed in teachers' mathematical preparation. Research suggests that merely taking more mathematics is not sufficient in preparing secondary teachers for the work of helping students understand mathematics. We are trying to identify the kind of mathematical knowledge that will prepare teachers to teach mathematics in a way that moves students beyond calculation and instills an understanding of the structure, logic, and usefulness of mathematics. The presenters will engage the participants in the process of analyzing classroom situations and share ideas arising from the emerging framework for mathematical knowledge of teaching at the secondary level. (Received August 23, 2008)