

Meeting: 1003, Atlanta, Georgia, MAA CP A1, MAA Session on Getting Students To Discuss and To Write About Mathematics, I

1003-A1-291 **Mary L Garner*** (mgarner@kennesaw.edu), Department of Mathematics, Kennesaw State University, 1000 Chastain Road, Kennesaw, GA. *Problem Analysis: An Assignment to Deepen Understanding of School Mathematics.*

The Department of Mathematics at Kennesaw State University offers an upper-level course for future middle grades and secondary mathematics teachers entitled "Advanced Perspectives on School Mathematics." The students are required to engage in a series of analyses of problems from the school curriculum, inspired by the text "Mathematics for High School Teachers: An Advanced Perspective" by Usiskin, Peressini, Marchisotto, and Stanley. A "problem analysis" consists of the following: (1) a presentation and discussion of different approaches to solving and representing the problem; (2) a generalization of the algebraic solution and analysis of that generalization; (3) an analysis of how the solution varies with varying inputs; (4) an extensive discussion of the concepts and skills underlying the problem; and (5) a significant extension designed by the students. In this paper session, samples of student work will be presented, along with evidence of the usefulness of such an assignment in deepening the students' understanding of mathematics skills and concepts that had previously been learned algorithmically, in challenging and improving the students' ability to communicate mathematics, and in changing their view of mathematics. (Received September 07, 2004)