The Common Core State Standards for Mathematics call for increased rigor not only in students’ ability to solve algebra problems, but also in their understanding of the methods they use to solve them. In order to help students meet the new standards, teachers must come to view the methods of algebra as problem solving strategies that are supported by properties of number systems, rather than as procedures to be executed by rote. In this presentation, we discuss some abstract algebra and number theory tasks designed to shed light on procedures commonly used in secondary mathematics. We will also present results of a pre-course and post-course survey that provided evidence of preservice teachers’ enhanced understanding of these procedures. (Received September 14, 2013)