

Calculators: A Tool to Develop Number Sense for Pre-Service Elementary Teachers (Workshop)

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Abstract

We will explore appropriate uses for elem calculators in both elementary classrooms and in classes for pre-service elementary teachers. These activities/games help develop & enhance number/fraction sense, & estimation & mental math skills. Calculators can be used for a lot more than just checking your work. These activities can be used with nearly any model of calculator. If you bring your own (not required), we can compare with my loaners.

Workshop Summary

Calculators are commonly used in most school classrooms. Yet, while the technology keeps improving, both with increased functionality as well as pedagogical advances, few teachers take advantage of these improvements. The calculator then becomes a tool used for little more than allowing students to “check their work”, leading instead to an over-reliance on the calculator for basic skills.

While the graphing calculator is loaded with advanced capabilities and ideas for teaching with it are published regularly, less has been written about the basic four-function calculator. These basic and inexpensive calculators have the potential for teaching valuable concepts for developing number sense and problem solving skills.

The best way to prepare teachers to teach with calculators is to reach them while they are still in school. If they do not learn during their content/methods courses as student teachers, it is less likely that they will learn later. This workshop is designed to be a forum for sharing teaching ideas focusing on appropriate uses of calculators in mathematics classes for pre-service elementary teachers.

The workshop will include a sampling of estimation/mental math games using calculators where the focus is on number relationships, place value, patterns, and operations, instead of computational skills. We also will explore decimal representations for rational numbers to look for patterns to help students predict when a rational number will terminate or repeat in its decimal form. These activities would not be practical (or even possible) without a calculator to do the many computations required.

Also, we will investigate how different operating systems in different models can lead to different results for the same computations. For this reason I will ask participants, if possible, to bring their own calculators for comparison. But, since I am planning a hands-on workshop, I will bring a set of calculators to ensure that everybody is able to participate.