

Meeting: 1003, Atlanta, Georgia, MAA CP Q1, MAA Session on Using Handheld Technology to Facilitate Student-Centered Teaching/Learning Activities at the Developmental Algebra Level

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Incorporating Graphing Calculators and Explorations to Encourage Students' Understanding and Use of Multiple Representations in Elementary and Intermediate Algebra.

One of the five process standards described in the NCTM Principles and Standards for School Mathematics (2000) is "Representation." This standard encourages students to (1) create and use representations to organize, record, and communicate mathematical ideas; (2) select, apply, and translate among mathematical representations to solve problems; and (3) use representations to model and interpret physical, social, and mathematical phenomena.

Students in elementary and intermediate algebra at Ivy Tech State College in Indianapolis are required to use graphing calculators, not only for daily assignments, but also for four or five "explorations" spaced throughout the course. The explorations are larger problems than can be done on tests or daily homework. They usually incorporate using and/or producing tables, graphs, and equations from a given problem situation, and drawing conclusions and explaining meanings from the results.

Some of the explorations to be shared include "Depreciating Car Values," "World Population Growth," "The Copy Machine Problem," "Appliance Costs," "Garbage," "The Triathlon," and "Classic Cars." These extended problems challenge students to make sense of data, model it with various representations, and use their results to explain and predict. (Received September 28, 2004)