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Integrating Applications, Modeling, and Technology in a College Algebra Course.

The introduction of real data problems in a College Algebra course makes the study of mathematics much more interesting and meaningful for non-science majors. Using real data problems promotes discussion of the meaning of the solutions to problems, encourages critical thinking, and sometimes imparts a health, social, or financial message to students. Using technology, including graphing calculators, Excel, and Scientific Notebook, makes it possible to convert real data points to a function that models the data. The model can be used to predict future values and to solve problems related to the relation. For example, a Body Mass Index table can be used to develop a function that gives the weight that is considered borderline obesity as a function of the height of an adult. This function can be modeled with a calculator and with a spreadsheet, the Internet can be used to find the definition that gives the values in the table, and the model found can be compared with the definition. Other examples include the level of Alev in the bloodstream, found using an iterative function, the relation between cholesterol and heart disease, using a quadratic function, interest only loans and cell phone use, using exponential functions, and the growth DVD sales, using a logistic function. (Received September 14, 2006)