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**Bill Marion\*** ([Bill.Marion@valpo.edu](mailto:Bill.Marion@valpo.edu)), Dept. of Mathematics and Computer Science, Valparaiso University, Valparaiso, IN 46383. *Conjecturing the Sum of an Infinite Series: CAS Lab Exercise in Calculus I.*

If done well, laboratory exercises using a CAS tool in a Calculus course can enhance the students' understanding of certain mathematical concepts, especially those for which there is little class time devoted to the topic. Such is the case for the definition of the sum of an infinite series. Most texts cover this material in one section (typical examples being the geometric series and telescoping series) and quickly go on to convergence tests and Taylor and Maclaurin Series. Even when the limit of a sequence of partial sums definition is illustrated via the geometric series, not many examples of applying the definition are provided before students are presented with the proof of the general sum. In this paper the author will illustrate (using Maple) a number of examples he developed to improve students' comprehension of this central idea. The examples are special cases of the geometric series which lend themselves to some nice conjectures about what the sum should be. Based on experimenting with Maple, he will explain how he developed the exercises, how they were used to help students form conjectures, how he assessed the students' understanding, what he learned and what he would do differently. (Received June 08, 2008)