962-J1-315 **Ralph P. Grimaldi*** (`ralph.grimaldi@rose-hulman.edu`), Rose-Hulman Institute of Technology, Mathematics Department, 5500 Wabash Avenue, Terre Haute, IN 47803-3999. *Binary Operations: Enumeration and Algebraic Structures.*

In a first course in discrete mathematics or modern algebra, the concept of a binary operation is introduced – usually in the context of an algebraic structure. Following this introduction the student is often presented with a set of exercises requiring the verification of the properties of the algebraic structure, where one or more binary operations are given. The calculations needed here can prove to be tedious and a computer algebra system, such as Maple, can cut down on the amount of time spent on such calculations. Furthermore, if one wishes to add a combinatorial flavor to the topic, enumeration problems dealing with associative binary operations can be solved when such a computer algebra system is available. (Received September 08, 2000)

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