Educational Applications of Solving Sangaku Problems by the MNR Method with Maxima

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This paper explores the educational potential of solving traditional Japanese Sangaku problems using the MNR method in conjunction with the computer algebra system Maxima. Sangaku, geometric problems inscribed on wooden tablets during the Edo period, provide rich and challenging content for mathematical exploration. The MNR method allows for symbolic representation of geometric relationships within triangles, enabling efficient solution strategies through Maxima. By engaging students in the process of formulating problems, interpreting algebraic output, and visualizing geometric structures, this approach fosters deeper mathematical understanding and programming literacy. We demonstrate how this method can contribute to developing students' problem-solving skills, logical reasoning, and sustained interest in mathematics through culturally significant and intellectually stimulating content.