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**STRATEGIES AND RELATED DIFFICULTIES IN SOLVING
ALGEBRAIC INEQUALITIES AT COLLEGIATE LEVEL**

A PROJECT REPORT PRESENTED BY

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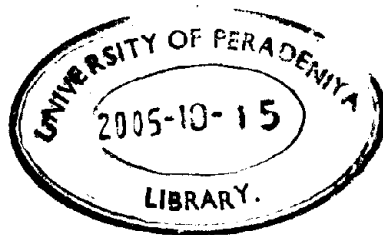
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ABSTRACT

**STRATEGIES AND RELATED DIFFICULTIES IN SOLVING ALGEBRAIC
INEQUALITIES AT COLLEGIATE LEVEL****K.M. Karunawathie**

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Inequalities play a key role in Mathematics, and they crop up in various branches of Mathematics; namely, Algebra, Calculus, Trigonometry, Modeling, Linear Programming, Differential Equations etc. Also, this is an important topic in the G.C.E. (Advanced Level) Combined Mathematics and Higher Mathematics syllabi. In spite of all these, inequalities receive little attention at collegiate level (Grades 9, 10, 11, 12, 13 and Pre-Degree courses/First year undergraduate level).

The objective of this study is to identify students' strategies and related difficulties in solving algebraic inequalities of various types at different levels, and to propose some remedial measures required to overcome these difficulties. The results of this study will be useful to Mathematics teachers at the collegiate level, and to researchers in Mathematics education.

The analysis of the data and information, collected via questionnaires, answer scripts, classroom testing, pre-test interviews and post-test interviews, indicates that the two methods used by students to solve inequality problems are,

- M-(i) algebraic manipulations; 97 % of the sample and
- M-(ii) use of the number line, \mathcal{R} ; 3% of the sample

Thus the most popular method among collegiate students is M-(i).

The graphical method is not common among students at the collegiate level. We have identified many related difficulties faced by students, and those difficulties can be categorized predominantly into two major classes; namely,

- (i) inadequacy of “thinking space”;
- (ii) inherited misconceptions.

Also, our study suggests that several changes should be incorporated into the Mathematics curriculum at collegiate level to make students attentive, and to motivate them toward learning this remarkable topic and its usage beyond the classroom.