

# An Analysis of Undergraduate Students Ability in Solving Non-Routine Problems.

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- **Abstract:** The goal of teaching and learning mathematics is to ensure that students are able to apply and solve related problems. It is important for students to put on their thinking caps instead of merely memorizing facts and figures. Through non-routine problems, students need to increase their thinking skills, nevertheless the necessary knowledge and skills that they have already learned to solve a problem. This study was conducted to investigate the ability of undergraduate students in solving non-routine problems. Employing a mix method design, a total of 120 undergraduate students from a public university in Malaysia comprising first-year and final-year participated in the study. The findings of the study show both first-year and final-year undergraduate students have a very low and low levels of proficiency in solving non-routine problems with a mean score of 4.87 (14.8%) and 9.32 (28.2%) respectively from a maximum score of 33. Majority of the respondents are not able to solve the non-routine problems given. What are the main problems faced by these students that make them unable to solve the problem correctly? The outcome indicates that there are four difficulties faced by undergraduate students in solving these nonroutine problems which are difficulty in comprehend the question, difficulty in relate the problem with algebraic thinking, difficulty in relates the problem with scientific reasoning or prior knowledge and difficulty in reviewing the correctness of the solution with problem. As recommendation, the undergraduate should be emphasised and expose to "problem-solving tools" before and during undergraduate studies for beneficial them during studies in undergraduate level and after graduated from this level.
- **Keywords:** Non-Routine Problems, problem-solving tools