

Analysis of student errors in integral concepts based on the indicator of mathematical competency using orthon classification

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Abstract. This paper reveals findings from a research that investigates the errors of students' understanding of integral concepts. Research design is quasi-experimental. Data collection is done through test instruments that are used for two purposes. The first objective is to find out the level of student error in solving problems. The second objective is to analyze and explain the results of student performance. Respondents of this study were two hundred students who took courses in Integral Calculus. Error level data were calculated using descriptive statistics and analyzed using Orthon theory. The findings show that the highest average level of student error in integral concepts based on learning strategies, early knowledge of mathematics, gender, and the educational background in the Scientific Debate class is arbitrary errors with mathematical competencies which are adaptive reasoning include: (1) estimating answers and process of solutions, and use patterns and relationships to analyze mathematical situations; (2) compile and test the conjecture; (3) follow the rules of inference and compile valid arguments, check the validity of arguments. In the conventional class, the level of highest error is Executive Errors with mathematical competencies are productive dispositions, namely the ability to always see mathematics positively, beneficially, and meaningfully.