

Physics students' understanding and problem-solving process of Gauss's law

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Gauss's law is important in understanding electrostatic; however, it is one of topics that students have difficulties in understanding and solving problems. This study aimed to analyze students' understanding of electrostatics while solving Gauss's law problems. In surveying student understanding of Gauss's law, a conceptual survey on symmetry and Gauss's law developed by Singh (2000) were administered to 100 sophomores taking an electric and magnetism course in 2014 academic year. As a result, most students had difficulties with Gauss's law. Then, 16 students were voluntarily participated in an interview for collecting qualitative data on students' understanding and problem solving process in Gauss's law. From the interview results, students had difficulties in identifying enclosed charge in both conductors and insulators. Results have been used to develop a tutorial for help student construct correct understanding in this topic.

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