

ABSTRACT

The following diploma thesis entitled "Differentiation in the teaching of mathematics and graded problems in geometry as a path to understanding" briefly presents the basic theoretical starting points for the topics of differentiation, understanding and construction problems. It also presents work with graded problems in the field of structural geometry in the teaching of mathematics at secondary schools.

The goal of the thesis is to apply theoretical knowledge to the creation of didactic material, specifically a set of graded tasks, from the field of structural geometry. The created set of graded tasks can then be used when working with students, with the aim of increasing their understanding of constructions in geometry, and thus also contribute to deepening the understanding of geometric objects, especially polygons.

Based on the research tools used (questionnaire surveys) and the practical part of this diploma thesis, the author of the thesis came to the following findings resulting from the thesis. The first finding is the fact that geometry is considered a critical place in the mathematics curriculum, especially considering the relatively high level of abstraction and the necessity of logical thinking. Another finding that emerges from the research part of the work is that after the implementation of a set of graded tasks, student's understanding of the studied concepts increased slightly - this fact is supported by the results of the students and their feedback. Pupils justify the increase in understanding by the increase in transparency of construction procedures due to the gradual gradation of tasks.

Last but not least, constructive criticism was obtained (both from the students involved and from their teachers), which improved the overall quality of the set of graded tasks.

The goals set for this thesis were fulfilled.