

Abstract

This diploma thesis deals with the topic negative numbers, especially with strategies and difficulties of 7th and 8th grade primary school pupils when solving selected tasks with negative numbers. This thesis is divided into theoretical and experimental parts.

The theoretical part deals with negative numbers, their development, didactic difficulty and work with them. The thesis deals with selected international comparative and foreign researches with the focus on negative numbers. The most extensive part of the thesis contains an analysis of mathematics textbooks used in schools in the Czech Republic with the focus on negative numbers.

The experimental part, which aim is the identification of pupils' difficulties and the analysis of mistakes they make when working with negative numbers, is the key part of the thesis. 185 pupils of 7th and 8th grade from three different schools took part in the research. The methodology consisted of the preparation of a didactic test on negative numbers and assigning it to the pupils. After completing the test, selected pupils were asked to explain their written solutions. The didactic test was prepared on the basis of mentioned research results and the analysis of mathematics textbooks. The data were analysed in terms of pupils' strategies and mistakes. The thesis presents a classification of the mistakes and the most frequent and important ones are illustrated by pupils' solutions. The conclusion summarizes potential causes of the most frequent mistakes and suggests didactic approach to overcome them.