

ABSTRACT

The aim of a thesis *High school students' understanding of the coordinate system concept* is to research the level of student's understanding of the topic by using analysis and a description of student's problems with given topic. A written non-standard test with exercises from non-Cartesian coordinate system is used as a tool to analyse the level of students' understanding. The first part of the thesis describes the historical development of the topic with emphasize on the renaissance era, in which were the basics of the modern concept of coordinate system set. The first part also includes the description of educational requirements from course books, curricular documents and the theory of *concept image* and *concept definition*, which focuses on understanding of mathematical terms. Second part of the study concentrates on the experiment with a non-standard test given to students at mathematical lessons at high school. The results are presented and analysed by previously specified phenomena and interpreted in the *concept image* and *concept definition* theory. Results of the practical part show a great variety of students' level of understanding the examined concept in theoretical and also in practical level. Results of students with good theoretical knowledge but low success in practical part are considered significant as well as the opposite case, results of students with low theoretical knowledge but high score in the practical part.

KEYWORDS

curve, coordinations, coordination system, concept image, concept definition