

TITLE:

Algebraic Curves in History and School

AUTHOR:

Bc. Tomáš Fabián

DEPARTMENT:

The Department of mathematics and teaching of mathematics

SUPERVISOR:

prof. RNDr. Ladislav Kvasz, Dr.

ABSTRACT:

The thesis includes a series of exercises for senior high school students and the first year of university students. In these exercises, students will increase their knowledge about conics, especially how to draw them. Furthermore, students can learn about two unfamiliar curves: Conchoid and Quadratrix. All these curves are afterwards used for solving other problems - some Apollonius's problems, Three impossible constructions etc. Most of the construction is done in GeoGebra software. All the tasks are designed for students to learn how to work with this software. The subject discussed is put into historical context, and therefore the exercises are provided with historical commentary. The thesis also includes didactic notes, important or interesting solutions of exercises, possible issues, mistakes and another relevant notes.

KEYWORDS:

conic, circle, ellipse, parabola, hyperbole, conchoid, quadratrix, trisecting an angle, squaring the circle, rectification of the circle, doubling a cube, Apollonius's problem, GeoGebra