

## **ABSTRACT**

This thesis deals with the division of bijective collinear geometric mappings. It deals with a corresponding view on its respective problems and their solutions. The main part of the thesis is a collection of solved problems in the field of plane geometry, which are divided into several groups. The thesis can be used by both mathematics teachers and students at the secondary schools. The thesis is divided into two parts; the first part is theoretical and it contains a brief introduction to the basic concepts concerning invariants of geometric transformations and a description of the structure of geometry according to Felix Klein including his Erlangen program; the second part contains the actual assignments and solutions of the problems. The solutions of some of the problems are supplemented by images created in GeoGebra software for better illustration. The images play an important role even in the theoretical part, where they can help improve understanding of some of the more complex concepts. Some of the problems were created by the author, other problems are taken from sources listed in the list of bibliography.

## **KEYWORDS**

geometric transformations, groups, Erlangen program, invariant, solved problems