

Abstract: The thesis describes the introduction of complex numbers in teaching at secondary school, highlights problems that are associated with their introduction and mentions the possible use of complex numbers, especially in geometry. The initial motivational considerations are followed by a brief introduction of complex numbers into the historical context. When introducing complex numbers, we take into account didactic aspects and draw attention to possible problems of interpretation. The chapter is supplemented with a reference to hyper complex numbers (quaternions, octets). Furthermore I show how it is possible to geometrically illustrate operations with complex numbers, namely addition, subtraction, multiplication and division. The thesis also describes how Moivre's theorem can be interpreted by rotation. The following part is an analytical geometry built with complex numbers, focusing on point, line, circle, ellipse, and triangle. Next, we search for the square root of the complex number and the solution of the quadratic equation graphically. Finally, we prove Napoleon's theorem and existence of Feuerbach's circle using complex numbers.