

Univerzita Karlova v Praze  
Matematicko-fyzikální fakulta

## **BAKALÁŘSKÁ PRÁCE**

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### **p-adická čísla**

Katedra algebry

Vedoucí bakalářské práce: Mgr. Jan Šťovíček, Ph.D.

Studijní program: Matematika

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Abstract: This thesis deals with construction of the field of p-adic numbers as a completion of rational numbers field and introduces several important properties of this field. It will introduce concepts of an absolute value, metric, ultrametric and completion of field with respect to absolute value. Then we introduce a p-adic absolute value - one that measures "how much" is a number divisible by a prime number p. Then we construct the completion of the field of rational numbers with respect to this absolute value - field of p-adic numbers. We show, how can one represent these numbers. At last, we introduce two of the most important results of the theory of p-adic numbers - Hensel lemma and Hasse-Minkowski theorem.