

## Abstract

In this work mean value problems of arithmetical functions of multiplicative arithmetical semigroups are investigated with the method of Indlekofer. It is shown in Chapter 3 how this process, which is known from the case of natural numbers, could be generalized to a broad set of multiplicative structures. The underlying objects are given by the asymptotic properties of the counting function of the elements and prime elements. In Chapter 4 quantitative mean value estimations are proven with the same argument. In Chapter 5 the results of the former chapters are used to extend the theorem of Erdős and Wintner.