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0. INTRODUCTION

Our subject is part of the more general field of *diophantine approximation*, i.e. the study of rational approximation to real numbers. Books on diophantine approximation in general are due to Minkowski (1907)¹, Koksma (1936), Cassels (1957), Niven (1963) and Lang (1966b), and a p -adic version is treated by Lutz (1955).

In the present survey we shall be concerned with the more special problem of rational approximation to real *algebraic* numbers. Contributions to this problem were first made by Liouville (1844), and deep theorems were proved among others by Thue (1908), Siegel (1921a), Roth (1955a) and Baker (1968b). We shall also discuss the more general questions of approximation to an algebraic number by algebraic numbers in a fixed number field or by algebraic numbers of fixed degree, and the question of simultaneous approximation to real algebraic numbers by rationals. As is well known, many results on approximation to algebraic numbers have applications to diophantine equations.

Of the books listed above, the one by Cassels (1957) has a chapter (ch. VI) on approximation to algebraic numbers. This subject also is the main topic in the book by Mahler (1961) and is the topic of chapter 6 of Le Veque (1955), of Kapitel 1 of Schneider (1957) and of chapter 6 of Lang (1962). Also see Lang (1971) and chapter 1 of Feldman and Shidlovskii (1967).

Until recently all the deep theorems on approximation to algebraic numbers were obtained by the method of Thue, Siegel and Roth, and accordingly most of the present survey is devoted to this method. In view of Baker's (1968b) results it is possible that the method of Gelfond and Baker will play an increasing role in the future. Rather than attempting to give a complete account of the literature, I tried to explain the main ideas in the proofs of the principal theorems.

1. APPROXIMATION TO REAL NUMBERS BY RATIONALS

1.1. This section is intended for the benefit of a reader who is not familiar with diophantine approximation, to provide a background for the

¹) References are listed at the end. They are listed alphabetically by the name of the author, by the year, and finally by a, b, \dots if there are several works by the same author in the same year.