ON MEROMORPHIC FUNCTIONS WITH REGIONS FREE OF POLES AND ZEROS

BY

ALBERT EDREI[1] and WOLFGANG H. J. FUCHS[2]

Syracuse University, New York and Cornell University, Ithaca, U.S.A.

Introduction

In this paper we investigate, from the point of view of Nevanlinna's theory, meromorphic functions with certain restrictions on the location of their poles and zeros. We assume familiarity with Nevanlinna's theory and with its standard notations.

In order to state our results concisely, we introduce two definitions.

DEFINITION 1. *A path L in the complex z-plane is said to be regular if it satisfies the two following conditions:*

(i) *it is possible to represent L by the parametric equation*

$$L: \quad z = z(t) = te^{i\alpha(t)} \quad (t \geqslant t_0 \geqslant 0),$$

where $\alpha(t)$ is a real-valued continuous function;

(ii) *there is a constant $B(\geqslant 1)$ such that, for any pair (t_1, t_2) $(t_0 \leqslant t_1 < t_2)$, the portion of L which lies in $t_1 \leqslant |z| \leqslant t_2$ is rectifiable and of length*

$$s(t_1, t_2) \leqslant B(t_2 - t_1). \tag{1}$$

If it is important to mention the constant B, we shall call a regular curve for which (1) holds *B-regular*.

DEFINITION 2. *Let S be a curvilinear sector, in the z-plane, bounded by an arc of $|z| = t_0$ and two regular paths in $|z| \geqslant t_0$.*

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