

NEW CRITERIA FOR MEROMORPHIC CLOSE-TO-CONVEX
FUNCTIONS

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Abstract. Let $K_n(\alpha)$ be the class of functions of the form

$$f(z) = \frac{a_{-1}}{z} + \sum_{k=0}^{\infty} a_k z^k \quad (a_{-1} \neq 0)$$

which are regular in the punctured disc $U^* = \{z : 0 < |z| < 1\}$ and satisfy

$$\operatorname{Re} \{-z^2 (D^n f(z))'\} > \alpha, \quad 0 \leq \alpha < 1, \quad |z| < 1,$$

and $n \in \mathbb{N}_0 = \{0, 1, 2, \dots\}$, where

$$D^n f(z) = \frac{a_{-1}}{z} + \sum_{k=2}^{\infty} k^n a_{k-2} z^{k-2}.$$

It is proved that $K_{n+1}(\alpha) \subset K_n(\alpha)$. Since $K_0(\alpha)$ is the class of meromorphically close-to-convex functions, all functions in $K_n(\alpha)$ are meromorphically close-to-convex.

MSC 2000. 30C45.

Key words. Regular, close-to-convex, meromorphic function.

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