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SUFFICIENT CONDITIONS FOR CERTAIN SUBCLASSES OF ANALYTIC FUNCTIONS

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Abstract: In this paper, sufficient conditions for normalized analytic functions defined on unit disk to be in the subclasses of close-to-convex , close-to-star and quasi-convex functions are obtained.

Keywords and Phrases: Normalized, analytic, close-to-convex, close-to-star, quasi-convex functions.

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1. Introduction and Definitions

Let $\mathcal{A}$ denote the class of all analytic functions $f : \Delta \to \mathbb{C}$, where $\Delta = \{z \in \mathbb{C} : |z| < 1\}$ which are normalized by $f(0) = 0$ and $f'(0) = 1$. Then

$$f(z) = z + \sum_{n=2}^{\infty} a_n z^n. \tag{1}$$

Denote by $\mathcal{S}$ the subclass of $\mathcal{A}$ containing univalent functions. The well known Bieberbach conjecture [3] says that for functions $f \in \mathcal{S}$ of the form (1), $|a_n| \leq n,\ \forall n \geq 2$. This was settled positively by Louis de Branges [2] and henceforth is known as "de Branges Theorem." However, in attempting to prove this result, researchers had defined various subclasses of $\mathcal{S}$ and had verified the same. Some of the standard subclasses of $\mathcal{S}$ introduced and studied for this purpose were subclasses