

RADIUS OF λ CONVEXITY FOR p -VALENT STARLIKE FUNCTIONS OF ORDER $-\alpha$

H. L. SHIVARUDRAPPA AND S. LATHA

Abstract

Let Ω denote the class of functions $w(z), w(0) = 0; |w(z)| < 1$ analytic in the unit disc $\mathcal{U} = \{z : |z| < 1\}$.

Let $\mathcal{P}(A, B, p, \alpha)$ ($-1 \leq B < A \leq 1, 0 \leq \alpha < p, p \geq 1$ an integer) denote the class of functions $\mathcal{P}(z) = p + \sum_{n=1}^{\infty} b_n z^n$ analytic in \mathcal{U} such that $\mathcal{P}(z) \in \mathcal{P}(A, B, p, \alpha)$ if and only if $\mathcal{P}(z) = (p - \alpha)\mathcal{P}_1(z) + \alpha, \mathcal{P}_1(z) \in \mathcal{P}(A, B)$, the Janowski class. Let $S(A, B, p, \alpha)$ denote the class of functions $f(z) = z^p + \sum_{n=p+1}^{\infty} a_n z^n$ analytic in \mathcal{U} and

satisfying the condition that $f(z) \in S(A, B, p, \alpha)$ if and only if $\frac{zf'(z)}{f(z)} = \mathcal{P}(z)$ for some $\mathcal{P}(z) \in \mathcal{P}(A, B, p, \alpha)$ and all $z \in \mathcal{U}$. The aim of this paper is to give bounds of the radius of λ -convexity for functions in $S(A, B, p, \alpha)$. The radius of λ -convexity is generalization of the radius of convexity and the radius of starlikeness.

Key Words : *Subordination principle, Caratheodory functions, Janowski starlike functions, Starlike functions of order $-\alpha$, The radius of starlikeness, The radius of convexity, The radius of λ -convexity, p -valent functions.*

2000 Mathematics Subject Classification : 30C45.