Sharma, Kanika; Jain, Naveen Kumar; Ravichandran, V.

Starlike functions associated with a cardioid. (English) [Zbl 1352.30015] Afr. Mat. 27, No. 5-6, 923-939 (2016).

Summary: Let $S^*_C$ be the class of normalized analytic functions $f$ in the unit disc with $zf'(z)/f(z)$ lying in the region bounded by the cardioid given by the equation $(9x^2+9y^2-18x+5)^2-16(9x^2+9y^2-6x+1)=0$. We determine the structural formula, coefficient estimates, growth results and various radii constants such as the radius of starlikeness, radius of lemniscate of Bernoulli starlikeness, radius of $M$-starlikeness and radius of $M(\beta)$-starlikeness for functions in the class $S^*_C$. In addition, the $S^*_C$-radii for functions belonging to several interesting classes are determined. All the results obtained are sharp.

MSC:

30C45 Special classes of univalent and multivalent functions of one complex variable (starlike, convex, bounded rotation, etc.)

30C50 Coefficient problems for univalent and multivalent functions of one complex variable

Keywords:

convex functions; star-like functions; lemniscate of Bernoulli; coefficient estimates

Full Text: DOI

References:


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