NEW RESULTS RELATED TO THE CONVEXITY AND STARLIKENESS OF THE BERNARDI INTEGRAL OPERATOR

Georgia Irina Oros*

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Abstract


\[ L_\gamma(f)(z) = F(z) = \frac{\gamma + 1}{z^{\gamma}} \int_0^z f(t)t^{\gamma-1}dt, \quad z \in U \]

preserves certain classes of univalent functions, such as the class of starlike functions, the class of convex functions and the class of close-to-convex functions.

In this paper we determine conditions that a function \( f \in A \) needs to satisfy in order that the function \( F \) given by (1) be convex. We also prove two duality theorems between the classes \( K\left(-\frac{1}{2\gamma}\right) \) and \( S^* \), and between \( K\left(-\frac{1}{2\gamma}\right) \) and \( S^*\left(-\frac{1}{2\gamma}\right) \), respectively.

Keywords: Analytic function, Univalent function, Integral operator, Convex function, Starlike function, Close-to-convex function.

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*Department of Mathematics, University of Oradea, Str. Universității, No.1, 410087 Oradea, Romania. E-mail: georgia_oros_ro@yahoo.co.uk