A SUFFICIENT CONDITION FOR THE HARMONICITY OF A FUNCTION OF TWO VARIABLES SATISFYING THE LAPLACE DIFFERENCE EQUATION[1]

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We provide a sufficient condition for the harmonicity of a summable function of two variables that satisfies a less restrictive condition than the Laplace equation at all points of the domain. We assume that an arbitrarily small neighborhood of any point ζ contains a collection of four nodes for which the difference relation of Schwartz type for the Laplace equation is arbitrarily small in absolute value. The nodes are the ends of two mutually perpendicular straight line segments intersecting at the point ζ, and a certain continuity assumption should be imposed on the function.

Keywords: harmonicity, Laplace difference equation, derivative of Schwartz type.

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