

Qian, Weimao; Zhang, Yichi

The Gehring-Hayman identity for the diameter of quasihyperbolic geodesics in convex domain. (Chinese. English summary) [Zbl 1299.30119](#)

Pure Appl. Math. 29, No. 3, 241-245, 274 (2013).

Summary: This paper generalizes the Gehring-Hayman inequality for the diameter of the hyperbolic geodesics in the plane Jordan domain to the quasihyperbolic geodesics in the convex domain of n -dimensional space. Making use of the Möbius transformation and the quasihyperbolic metric, we prove that the diameter of the quasihyperbolic geodesics with the endpoints x and y in the convex domain of n -dimensional space is equal to the Euclidean distance between x and y . The obtained result is a generalization and improvement of some known results.

MSC:

30F45 Conformal metrics (hyperbolic, Poincaré, distance functions)

30C20 Conformal mappings of special domains

30C65 Quasiconformal mappings in \mathbb{R}^n , other generalizations

Keywords:

convex domain; quasihyperbolic length; quasihyperbolic distance; quasihyperbolic geodesics; Gehring-Hayman inequality

Full Text: [DOI](#)