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RAINBOW CONNECTION NUMBER OF GRAPHS WITH DIAMETER 3

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Abstract

A path in an edge-colored graph G is *rainbow* if no two edges of the path are colored the same. The *rainbow connection number* $rc(G)$ of G is the smallest integer k for which there exists a k-edge-coloring of G such that every pair of distinct vertices of G is connected by a rainbow path. Let $f(d)$ denote the minimum number such that $rc(G) \leq f(d)$ for each bridgeless graph G with diameter d. In this paper, we shall show that $7 \leq f(3) \leq 9$.

Keywords: edge-coloring, rainbow path, rainbow connection number, diameter.

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