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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