

1141-00-60

Vincent Coll, Grant Fickes, Dylan Green, Jonelle Hook, Colton Magnant and Karen McCready*, karenmccready@kings.edu, and **Kathleen Ryan, Nathaniel Sauerberg and Jill Stifano**. *Adding color to the search for shortest paths*. Preliminary report.

An edge-colored path is properly colored if adjacent edges receive distinct colors. An edge-colored graph is properly connected if each pair of vertices in the graph is connected by at least one properly colored path. In such a graph we extend the idea of diameter to that of proper diameter, a function of both the graph and its coloring, which is defined to be the maximum length of a shortest properly colored path between any two vertices in the graph. We will explore the relationship between the diameter and proper diameter of certain graph classes and consider how proper diameter values relate to the vertex connectivity of a graph. (Received July 13, 2018)