

1125-05-134

Ruth Lopez*, Department of Mathematics and Statistics, 1250 Bellflower Blvd, California State University, Long Beach, Long Beach, CA 90840, and **Jacob Worrell**, Dept. of Psychological and Brain Sciences, 1101 E. 10th Street, Indiana University - Bloomington, Bloomington, IN 47405-7007. *Towards a Characterization of Graphs with Distinct Betweenness Centralities.*

The betweenness centrality of a vertex v is the ratio of the number of shortest paths between two other vertices u and w which contain v to the total number of shortest paths between u and w . We consider the problem of characterizing all graphs with distinct betweenness centralities. We begin by solving the problem for all graphs with less than or equal to seven vertices. Next, we investigate graph properties such as density and minimality. Finally, we determine sufficient conditions for graphs with distinct betweenness centralities to be extended to infinite families of graphs of the same type. (Received August 03, 2016)