

## CHARACTERIZATION OF SUPER-RADIAL GRAPHS

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### Abstract

In a graph  $G$ , the distance  $d(u, v)$  between a pair of vertices  $u$  and  $v$  is the length of a shortest path joining them. The eccentricity  $e(u)$  of a vertex  $u$  is the distance to a vertex farthest from  $u$ . The minimum eccentricity is called the radius,  $r(G)$ , of the graph and the maximum eccentricity is called the diameter,  $d(G)$ , of the graph. The super-radial graph  $R^*(G)$  based on  $G$  has the vertex set as in  $G$  and two vertices  $u$  and  $v$  are adjacent in  $R^*(G)$  if the distance between them in  $G$  is greater than or equal to  $d(G) - r(G) + 1$  in  $G$ . If  $G$  is disconnected, then two vertices are adjacent in  $R^*(G)$  if they belong to different components. A graph  $G$  is said to be a super-radial graph if it is a super-radial graph  $R^*(H)$  of some graph  $H$ . The main objective of this paper is to solve the graph equation  $R^*(H) = G$  for a given graph  $G$ .

**Keywords:** radius, diameter, super-radial graph.

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