PRODUCTS OF GEODESIC GRAPHS AND THE GEODETIC NUMBER OF PRODUCTS

JAKE A. SOLOFF$^1$, ROMMY A. MÁRQUEZ$^2$

AND

LOUIS M. FRIEDLER$^2$

$^1$ Department of Mathematics
Brown University
Providence, RI 02912 USA

$^2$ Department of Computer Science and Mathematics
Arcadia University
Glenside, PA 19038 USA

e-mail: friedler@arcadia.edu

Abstract

Given a connected graph and a vertex $x \in V(G)$, the geodesic graph $P_x(G)$ has the same vertex set as $G$ with edges $uv$ iff either $v$ is on an $x-u$ geodesic path or $u$ is on an $x-v$ geodesic path. A characterization is given of those graphs all of whose geodesic graphs are complete bipartite. It is also shown that the geodetic number of the Cartesian product of $K_{m,n}$ with itself, where $m, n \geq 4$, is equal to the minimum of $m, n$ and eight.

Keywords: geodesic graph, geodetic number, Cartesian products.

2010 Mathematics Subject Classification: 05C12.

References


doi:10.1007/978-0-8176-4789-6_8


Received 27 August 2012
Revised 11 September 2013
Accepted 13 January 2014