Breaking the Symmetries of the Generalized Petersen Graph and Book Graph

Bikash Bhattacharjya

February 7, 2013

Abstract

An $r$-labelling of the vertices of a graph $G$, $f : V(G) \rightarrow \{1, 2, \ldots, r\}$, is said to be distinguishing provided no non-trivial automorphism of $G$ preserves all of the vertex labels. The distinguishing number of $G$, denoted by $D(G)$, is the minimum $r$ such that $G$ has an $r$-distinguishing labelling. Similarly, the distinguishing chromatic number $\chi_D(G)$ of $G$ is defined, where $f$ is assumed to be a proper coloring. We find the $D(G)$ and $\chi_D(G)$ of the generalized Petersen graph and the book graph.

Keywords: labelling, automorphism group, distinguishing number, distinguishing chromatic number, generalized Petersen graph, book graph.

References


