World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:19, No:02, 2025

Marriage Domination and Divorce Domination in Graphs

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Abstract : In this paper, the authors define two new variants of domination in graphs: the marriage and the divorce domination. A subset S ⊆ V (G) is said to be a marriage dominating set of G if for every e ∈ E(G), there exists a u ∈ V (G) such that u is one of the end vertex of e. A marriage dominating set S ⊆ V (G) is said to be a divorce dominating set of G if G\S is a disconnected graph. In this study, the authors present conditions of graphs for which the marriage and the divorce domination will take place and for which the two sets will coincide. Furthermore, the author gives the necessary and sufficient conditions for marriage domination to avoid divorce.

Keywords : domination, decomposition, marriage domination, divorce domination, marriage theorem
Conference Title : ICMCM 2025 : International Conference on Mathematics and Computational Mechanics
Conference Location : Barcelona, Spain
Conference Dates : February 10-11, 2025