

The paper is devoted to the domatic polynomials $D(G, x)$ of certain families of graphs G . It begins with several results on the domatic number and the domatic polynomial of cycles, complete bipartite graphs, paths, star graphs and the join of a vertex to a graph. Most of these results were already established in [1] or are well known, while the others are incorrect. For example, the domatic number $d(K_{m,n})$ of the complete bipartite is $\min\{k, n\}$ and not 2 as claimed in Proposition 3.

Next, the authors introduce six operations, but their descriptions lack many details. It is unclear what the “ k -partite sets of $V(G)$ ” are, what n and p present in these constructions, how vertices are ordered within the partite sets, and so on. The characterization results for graphs with domatic numbers 2, 3, and n (Theorems 5, 6 and 7) are incorrect because the proposed operations do not cover all graphs with these domatic numbers (examples of graphs can be among graphs on a small number of vertices). In particular, every graph G with a pedant vertex has $d(G) = 2$, while $d(K_{m,n}) \neq 2$ if $m, n > 2$.

Since the paper contains no new or noteworthy results, I do not recommend it for publication in Siberian Electronical Mathematical Reports.