Vizing’s conjecture asserts that the domination number of the Cartesian product of graphs $G$ and $H$ is at least $\gamma(G)\gamma(H)$, where $G$ and $H$ are arbitrary graphs [4]. Half a century has passed since Vizing posed the conjecture, which is now arguably the main open problem in graph domination. Two types of partial results have been proven so far: either that the conjecture holds for a particular class of graphs (which means that the inequality holds when one of the factors is in this class and the other factor is arbitrary), or to prove a weaker version of the inequality. Several survey papers concerning the conjecture have been published, the most recent one in 2012, see [1]. In this talk, I will make a brief overview of the main approaches that resulted in partial results on the conjecture. I will also present some recent work and approaches that lead to improvements and to better understanding of the problem [2, 3].

**Keywords:** Cartesian product, domination, Vizing’s conjecture.

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**References**


