

Povzetek

V tem delu bomo obravnavali realno barvanje grafov z omejitvami na razdaljah. Najprej bomo predstavili povezavo med takim barvanjem in problemom dodeljevanja frekvenc, ki je bil glavna motivacija za študij takih barvanj in izpeljali osnovno definicijo. Razdaljna barvanja bomo povezali z navadnim barvanjem točk in barvanjem potence grafa. Ogleдали si bomo lastnosti lambda funkcij in tako spoznali nekaj metod za njihovo lažje določanje. Določili bomo lambda funkcije za poti, cikle, kolesa in posebno poddružino Kneserjevih grafov. Na koncu predstavimo še rezultate za drevesa in mreže.

In this thesis we deal with Real number graph labellings with distance conditions. First we present the link between this type of coloring and the frequency assignment problem, which was the main motivation for studying these labellings and derive the basic definition. Afterwards we establish the link between these labellings and normal vertex colorings and colorings of a power of a graph. We will look at the properties of lambda functions and consequently acquire some methods for their determination. Then we determine the lambda functions for paths, cycles, wheels and a subfamily of Kneser graphs. In the end we present the results for trees and lattices.

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Ključne besede: barvanje grafov, realno barvanje, razdaljno barvanje, razpon, lambda funkcija, dodeljevanje frekvenc, poti, cikli, kolesa, Kneserjevi grafi, mreže, drevesa.

Keywords: graph coloring, real number graph labelling, distance labelling, span, lambda function, frequency assignment, paths, cycles, wheels, Kneser graphs, lattices, trees.

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