Roots of the independence and chromatic polynomial
R.B. Hoffmann

Abstract

The first chapter contains definitions and properties of the independence polynomial. We explore different results concerning the roots of the independence polynomial, in particular will we show that the roots of a clawfree graph are real. To finish the chapter we will introduce the multivariate independence polynomial and state a lemma of Shearer and a lemma of Dobrushin. The second chapter contains definitions and properties of the chromatic polynomial. We will introduce exponential type graph polynomials and the first chapter to deduce statements about the roots of the chromatic polynomial of bounded degree graphs. To conclude we will generate cubic graphs and show the location of the chromatic roots.