POVZETEK: V diplomski nalogi so predstavljeni trdnjavski polinomi, njihove osnovne lastnosti ter njihova uporaba v praksi. S pomočjo teorije iskanja števila različnih postavitev nenapadajočih se trdnjav na šahovno desko lahko rešujemo številne vsakdanje probleme. V uvodu so predstavljeni osnovni pojmi za razumevanje trdnjavskih polinomov ter zgled iz vsakdanjega življenja. V nadaljevanju spoznamo postopke, s pomočjo katerih lažje rešujemo težje probleme. Definicije in izreki prvih petih poglavij so kombinirano povzeti po [2, razdelek 7] ter [9, razdelek 8.3]. Predstavljena je tudi uporaba trdnjavskih polinomov pri Ferrerovih deskah, povzeta po [8, razdelek 2.4]. Na koncu sledi še rešitev uvodnega problema ter dva poznana problema trdnjavskih polinomov: *derangement* in *problème des ménages*.

ABSTRACT: The subject of my diploma work is rook polynomials, their basic characteristics and their practical applications. By means of the theory of searching for the number of ways to place nonattacking rooks on a chessboard, we can solve a number of common, everyday tasks. The Introduction chapter shows some basic concepts for the understanding of rook polynomials and includes an example from everyday life. Next comes the procedure by which we can apply this knowledge to the solution of difficult problems. The definitions and theorems of the first five chapters are a summary of [2, Section 7] and [9, Section 8.3]. In Section 6, we show the use of rook polynomials on Ferrers boards taken from [8, Section 2.4]. In the end there come exercises: the resolution of the problem laid out in the Introduction chapter, and two popular problem tasks concerning rook polynomials, namely *derangement* and *problème des ménages*.

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