

Povzetek/ Abstract

Diplomsko delo je razdeljeno na štiri poglavja. V prvem poglavju govorimo o projektivnih krivuljah na splošno, definiramo eliptične krivulje in opišemo nekaj njihovih lastnosti. V drugem poglavju obravnavamo meromorfne funkcije, periodične funkcije, definiramo pojem eliptičnih funkcij, konstruiramo Weierstrassovo eliptično funkcijo in opišemo njene lastnosti. V tretjem poglavju definiramo Riemannove ploskve in holomorfne diferencialne na Riemannovih ploskvah. Spoznamo, da so eliptične krivulje primer Riemannovih ploskev. Definiramo pojem eliptičnega integrala ter poiščemo njegovo inverzno funkcijo. V četrtem poglavju teorijo iz prejšnjih poglavij uporabimo na stvarnem problemu in rešimo problem sfernega nihala.

The work is divided into four chapters. In the first chapter projective curves are studied in general, elliptic curves are defined and some of their properties are treated (discussed). The second chapter is dealing with periodic meromorphic functions. In the second chapter elliptic functions are defined, Weierstrass' elliptic function is constructed and properties of Weierstrass' function are discussed. In the third chapter Riemann surfaces and holomorphic differentials on them are studied, elliptic integrals are defined and their inverse function is found. In the last chapter the theory developed in previous chapters is used to solve the problem of the physical system, called the spherical pendulum.

Math. Subj. Class. (MSC 2000): 14H52, 30F30, 33E05, 70E99

Ključne besede:

kompleksne projektivne krivulje, eliptične krivulje, periodične funkcije, meromorfne funkcije, eliptične funkcije, Weierstrassova eliptična funkcija, eliptični integrali, Riemannove ploskve, holomorfni diferenciali na Riemannovih ploskvah, sferno nihalo

Keywords:

complex projective curves, elliptic curves, periodic functions, meromorphic functions, elliptic functions, Weierstrass' elliptic function, elliptic integrals, Riemann surfaces, holomorphic differentials on Riemann surfaces, spherical pendulum

Literatura

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