Title: The Jordan Curve Theorem

Author: Jan Dudák

Department: Department of Mathematical Analysis

Supervisor: Mgr. Benjamin Vejnar, Ph.D., Department of Mathematical Analysis

Abstract: The crucial part of this work is the proof of the Jordan curve theorem. To this end, the work starts by introducing necessary notions (e.g. a curve or an arc) and showing their basic properties. Further on, the Brouwer fixed point theorem is proved (in the 2-dimensional case) as well as some of its corollaries which are then used (together with several other proven assertions) in the proof of the Jordan curve theorem. The last chapter of this work briefly informs about possible generalisations of the Jordan curve theorem, referencing to appropriate bibliography.

Keywords: Jordan curve, arc, plane, connected component