

Generalization of the Cartwright-Littlewood fixed point theorem

Przemysław Kucharski
AGH University of Science and Technology

Abstract

The Cartwright-Littlewood fixed point theorem states that if h is an orientation preserving plane homeomorphism and X a non-separating plane continuum, then we can find a fixed point of h in X . There are many variations of this theorem, considering for example cases of orientation reversing homeomorphism, plane separating continua or lack of invariance. Results in those directions were obtained by Bell, Boroński, Kuperberg, Ostrowski and others. We will shortly discuss what happens if X is not invariant. Finally, we will present the result assuring, that if C is a component of the intersection of X and $h(X)$, containing forward or backward orbit of some point, then C must also contain a fixed point. It answers the Question from Boroński's paper from 2017.