

POSITIVE SOLUTIONS TO A THIRD-ORDER THREE-POINT BOUNDARY VALUE PROBLEM

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Abstract

In this paper, by using Krasnoselskii fixed point theorem, we study the existence of at least one or two positive solutions to the nonlinear third-order three-point boundary value problem

$$u'''(t) + a(t)f(u(t)) = 0, \quad t \in (0, 1),$$

$$u(0) = u'(0) = 0, \quad u'(1) = \alpha u'(\eta),$$

where $0 < \eta < 1$, $1 < \alpha < \frac{1}{\eta}$.

Keywords and phrases: third-order three-point boundary value problem, positive solution, Krasnoselskii fixed point theorem, cone.

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