
DE059294974

Mohamed, M.; Thompson, H.B.; Jusoh, M.S.

Solvability of discrete two-point boundary value problems

J. Math. Res. 3, No. 1, 15-26 (2011).

MSC Classification: 65L10

Keywords: non linear second-order scalar ordinary differential equation; finite difference method; trapezoidal; strict lower and strict upper solutions; existence of the discrete solution; homotopy

Review text:

The aim of the article is to study the discrete first-order system of difference equations that arise when one applies the trapezoidal rule to approximate solutions of the non linear second-order scalar ordinary differential equation. Under some conditions on the data and the assumption that the non linear second-order problem has strict lower and strict upper solutions, an existence of the discrete solution is proved for sufficiently small grid size. A suitable homotopy is used to compute the solutions of the discrete approximation.

This is pdfTeX, Version 3.141592-1.30.4-2.2 (Web2C 7.5.5) (format=pdfTeX 2008.10.24) 8 AUG 2011 13:13

entering extended mode

%&-line parsing enabled.

**./preview-05929497.tex

(./preview-05929497.tex

(./zb-basic.tex (/data/zmath/texlive/texmf-dist/tex/amstex/base/amstex.tex

AmS-TeX- Version 2.2

Loading definitions for misc utility macros, page layout, accents/punctuation, line and page breaks, figures, comments, math spacing, fractions, smash command s, large operator symbols, integrals, operator names, multilevel sub/superscripts, matrices, multiline displays, continued fractions, compound symbols, various kinds of dots, special superscripts, \text, math font commands, \newsymbol, bold Greek and bold symbols, Euler fonts, math accents, roots, commutative diagrams, poor man's bold, syntax check, ... finished) (/data/zmath/texlive/texmf-dist/tex/plain/amsfonts/amssym.tex) (/data/zmath/texlive/texmf-dist/tex/plain/amsfonts/cyracc.def)

(./zb-preview.tex) [1{/data/zmath/texlive/texmf-var/fonts/map/pdfTeX/updmap/pdfTeX.map}])</data/zmath/texlive/texmf-dist/fonts/type1/bluesky/cm/cmti10.pfb></data/zmath/texlive/texmf-dist/fonts/type1/bluesky/cm/cmrl10.pfb></data/zmath/texlive/texmf-dist/fonts/type1/bluesky/cm/cmbx10.pfb>

Output written on preview-05929497.pdf (1 page, 29332 bytes).