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A Variant of Newton's Method Based on Simpson's Three-eighths Rule for Nonlinear Equations

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Abstract

We propose a new variant of Newton's method based on Simpson's three-eighth rule. It can be shown that the new method is cubically convergent.

Keywords: Nonlinear equation, Newton's method.

1. Introduction

The methods for finding the zeros of nonlinear equations are important in the aspect of applications for engineering and science. Weerakoon and Fernado[1] proposed a scheme based on trapezoidal rule for approximating the indefinite integral. Hasanov, Ivanov and Nedjibov [2] developed a new scheme based on Simpson's rule. In recent years, several iterative methods for solving nonlinear equations have been developed by quadrature formula [3, 4, 5] and other techniques [6, 7, 8, 9, 10]. In Section 2 we proposed a variant of Newton's method based on Simpson three-eighths rule which is called Simpson-like method. In

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