

On the Approximate Solution of Continuous Coefficients for Solving Third Order Ordinary Differential Equations

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Abstract : This paper derived four newly schemes which are combined in order to form an accurate and efficient block method for parallel or sequential solution of third order ordinary differential equations of the form $y''' = f(x, y, y', y'')$, $y(\alpha) = y_0$, $y'(\alpha) = \beta$, $y''(\alpha) = \mu$ with associated initial or boundary conditions. The implementation strategies of the derived method have shown that the block method is found to be consistent, zero stable and hence convergent. The derived schemes were tested on stiff and non-stiff ordinary differential equations, and the numerical results obtained compared favorably with the exact solution.

Keywords : block method, hybrid, linear multistep, self-starting, third order ordinary differential equations

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