

A Collocation Method for Solving Abel's Integral Equations of First and Second Kinds

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A numerical technique is developed for solving Abel's integral equations. The solutions of such equations may exhibit a singular behaviour in the neighbourhood of the initial point of the interval of integration. The proposed method is based on the shifted Legendre collocation technique. Illustrative examples are included to demonstrate the validity and applicability of the presented technique.

Key words: Volterra Integral Equation; Abel's Integral Equations; Shifted Legendre Polynomials; Collocation Method.