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A PROPOSED NUMERICAL METHOD FOR SOLVING REAL-LIFE MODELS: DEVELOPMENT AND ANALYSIS

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Abstract: In this paper, the development and analysis of a proposed method for solving physical models arising from real-life scenarios are presented. The proposed method is derived via the transcendental function of exponential type, examined and studied for its properties. In addition, the effectiveness of the method is evaluated by applying it to three numerical examples that originated from real-world scenarios. Moreover, this study presents a comparison of the outcomes generated by the proposed method and the existing method, in the context of the exact solution. The study concludes that the proposed method solves real life problems with the expected level of accuracy and, therefore, can be considered among the numerous methods that are appropriate and suitable for solving first-order initial value problems (IVPs).

Keywords and Phrases: Accuracy, consistency, convergence, initial value problem, local truncation error, stability.

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