

Abstract: In the present work we study numerical methods for the numerical solution of initial value problems for ordinary differential equations. With the aid of the Taylor formula we derive several one-step methods. We compare numerical solution computed with explicit and implicit Euler methods. Moreover, we are concerned with second-order and fourth-order Runge-Kutta methods. We find how accurately the numerical methods obtained with the aid of these methods approximate the exact solution. Further we estimate the error of these method by the half-step method.