

Introduction to Week Five

Initial Value Problems

- ✓

Video: Euler Method | Lecture 48
7 min
- ✓

Reading: When the Euler Method is Exact
10 min
- ✓

Video: Modified Euler Method | Lecture 49
9 min
- ✓

Reading: When the Modified Euler Method is Exact
10 min
- ✓

Video: Runge-Kutta Methods | Lecture 50
12 min
- ✓

Video: Second-Order Runge-Kutta Methods | Lecture 51
7 min
- ✓

Reading: Ralston's Method
5 min
- ✓

Reading: Runge-Kutta Methods and Quadrature Formulas
10 min
- ✓

Video: Higher-Order Runge-Kutta Methods | Lecture 52
10 min
- ✓

Reading: Fourth-Order Runge-Kutta Method and Simpson's Rule
10 min

Systems of Differential Equations

Initial Value Problems in MATLAB

Boundary Value Problems

Quiz

Programming Assignment: The Two-Body Problem

Fourth-Order Runge-Kutta Method and Simpson's Rule

Consider the ode given by

$$\frac{dy}{dx} = f(x),$$

with $y(0)$ as the initial value. Use the standard fourth-order Runge-Kutta method to derive Simpson's rule.

✓ Completed

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