Complete Classical Mechanics

April 26, 2026

1 Purpose

This is a test note written as a normal LaTeX file inside the project. It should appear in the Complete notes section without manually moving it into the Astro content folder.

2 Action Principle

The starting point is the action

$$S[q] = \int_{t_1}^{t_2} L(q, \dot{q}, t)\, dt.$$

The physical path is selected by the stationary condition

$$\delta S = 0.$$

3 Euler–Lagrange Equation

For generalized coordinates q_i, this gives

$$\frac{d}{dt}\frac{\partial L}{\partial \dot{q}_i} - \frac{\partial L}{\partial q_i} = 0. \tag{1}$$

4 Map Connections

This complete note should connect to the atomic notes on Lagrangian mechanics and relativity through its metadata.