

Presentation Problem Set 1

Physics 311
Classical Mechanics I

Due on Friday, September 18th, 2026

These are presentation problems – see the syllabus for a description of the writeup expectations, and the course website for a sample.

Problem A

Show that solutions to Newton's second law, $m\ddot{x}(t) = F(x(t))$ have the property that at any point they are continuous and derivative-continuous as long as the force has (at most) finite, discontinuous, jumps.

Problem B

Find a solution to

$$\frac{df(t)}{dt} = \alpha f(t - \epsilon) \quad f(0) = f_0, \quad (1)$$

for constants α and ϵ .