

Problem Set 1

Physics 367
Computational Methods for Physics

Due on Friday, September 4th, 2026

Problem numbers refer to the book.

Homework Problems (due on Friday, September 2nd, turn in via grade-scope)

Problem 1

Problem 1.5 – changing units using constants. Here, G is the Newtonian gravitational constant, and c is the speed of light.

Problem 2

Problem 1.6 – practice rendering an equation of motion dimensionless.

Problem 3

a. Solve the following equation of motion for $x(t)$ given the initial conditions $\dot{x}(0) = 0$, $x(0) = a$:

$$m\ddot{x}(t) = -m\omega^2 x(t) + F_0 \cos(\sigma t) \quad (1)$$

b. What is the solution to the same problem for $\sigma \rightarrow \omega$?