

Homework 3

Due at the beginning of class Feb. 3

From T&M: 2-53, 3-7, 3-11, 3-41

5. Find the solution for the motion of a body subject to a linear repelling force $F = kx$. Show that this is the type of motion to be expected in the neighborhood of a point of unstable equilibrium.

6. An underdamped harmonic oscillator is subject to an applied force

$$F = F_0 e^{-\alpha t} \cos(\omega t + \theta).$$

Find a particular solution by expressing F as the real part of a complex exponential function and looking for a solution for x having the same exponential time dependence.