

oscillator problems

1. An underdamped harmonic oscillator is driven by the force $F = F_0 e^{-at} \cos(\omega t + \phi)$. Solve the differential equation ($\omega \neq \omega_0$). Interpret your solution in terms of long-term behavior, initial conditions, and the relationship of drive and particular solution. Our examples for inhomogenous linear ODEs with constant coefficients in PHYS 301 are helpful.