Next Meeting: Wednesday, 15 September 2004, 9:30am, Room 25

Consider the equation:

$$x'' + 2 \gamma x' + \omega_0 x = Q_0 \cos(\omega_D t)$$

The term $2 \gamma x'$ is the friction (dissipative) term. The term $Q_0 \cos(\omega_D t)$ is the driving term.

> 1) Solve $x'' + 0 + \omega_0 x = 0$. 2) Solve $x'' + 2\gamma x' + \omega_0 x = 0$ 3) Solve $x'' + 0 + \omega_0 x = Q_0 \cos(\omega_D t)$ 4) Solve $x'' + 2\gamma x' + \omega_0 x = Q_0 \cos(\omega_D t)$

Goals: We are trying to obtain the general solution for each case, and characterize the solution in terms of the physical expectations. Later we'll verify these numerically.

Note, you may find it convenient to define: $\omega_1^2 = \omega_0^2 - \gamma^2$.