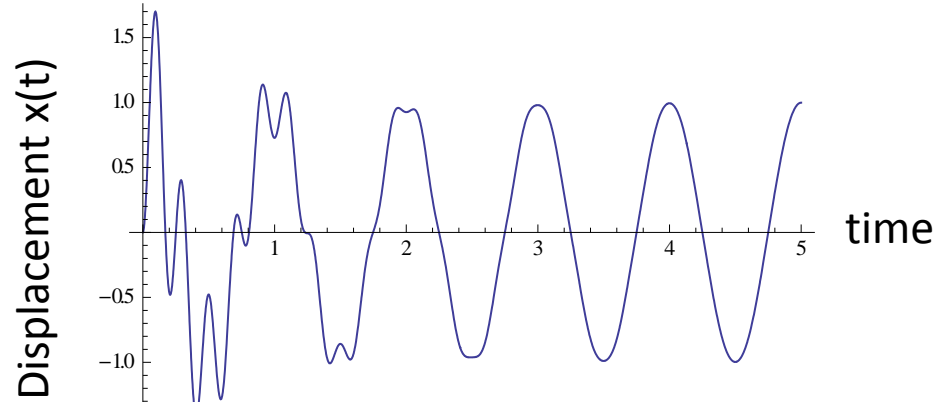
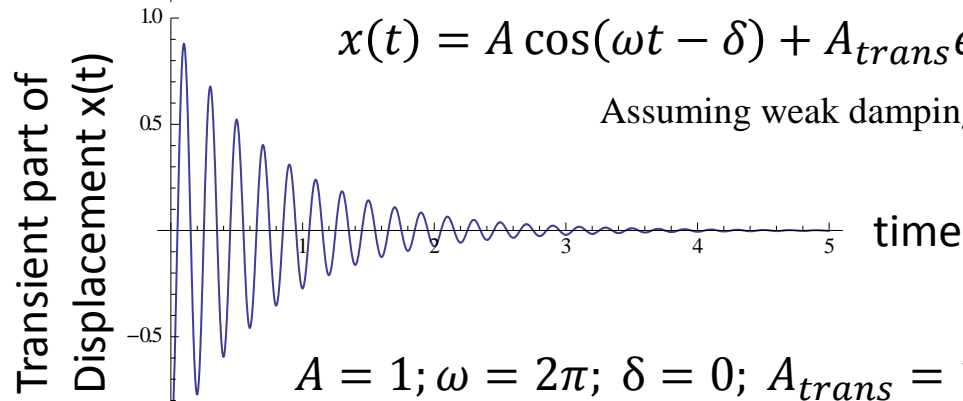


Displacement vs. Time for a Driven Damped Harmonic Oscillator

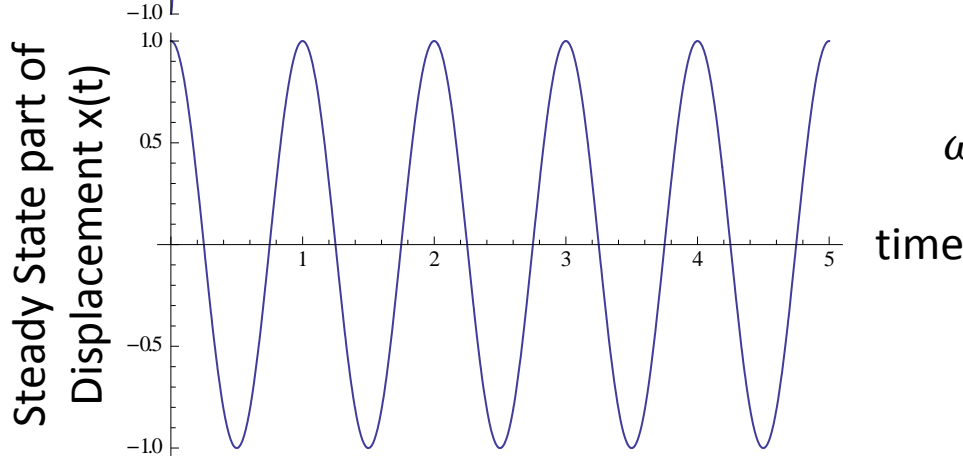


$$x(t) = A \cos(\omega t - \delta) + A_{trans} e^{-\beta t} \cos(\omega_1 t - \delta_{trans})$$

Assuming weak damping $\beta < \omega_0$



$$A = 1; \omega = 2\pi; \delta = 0; A_{trans} = 1; \beta = 1.3; \delta_{trans} = \pi$$



$$\omega_0 = 5\omega$$

$$\omega_1 = \sqrt{\omega_0^2 - \beta^2}$$