MIT MATHLETS

HOME   ABOUT   TRAINING   MATHLETS   COURSES   ACTIVITIES   DEMOS

AMPLITUDE AND PHASE: SECOND ORDER II

A dashpot drives sinusoidally a spring/dashpot/mass system. The predictable amplitude and phase lag of the sinusoidal system response can be understood using Bode and Nyquist plots.
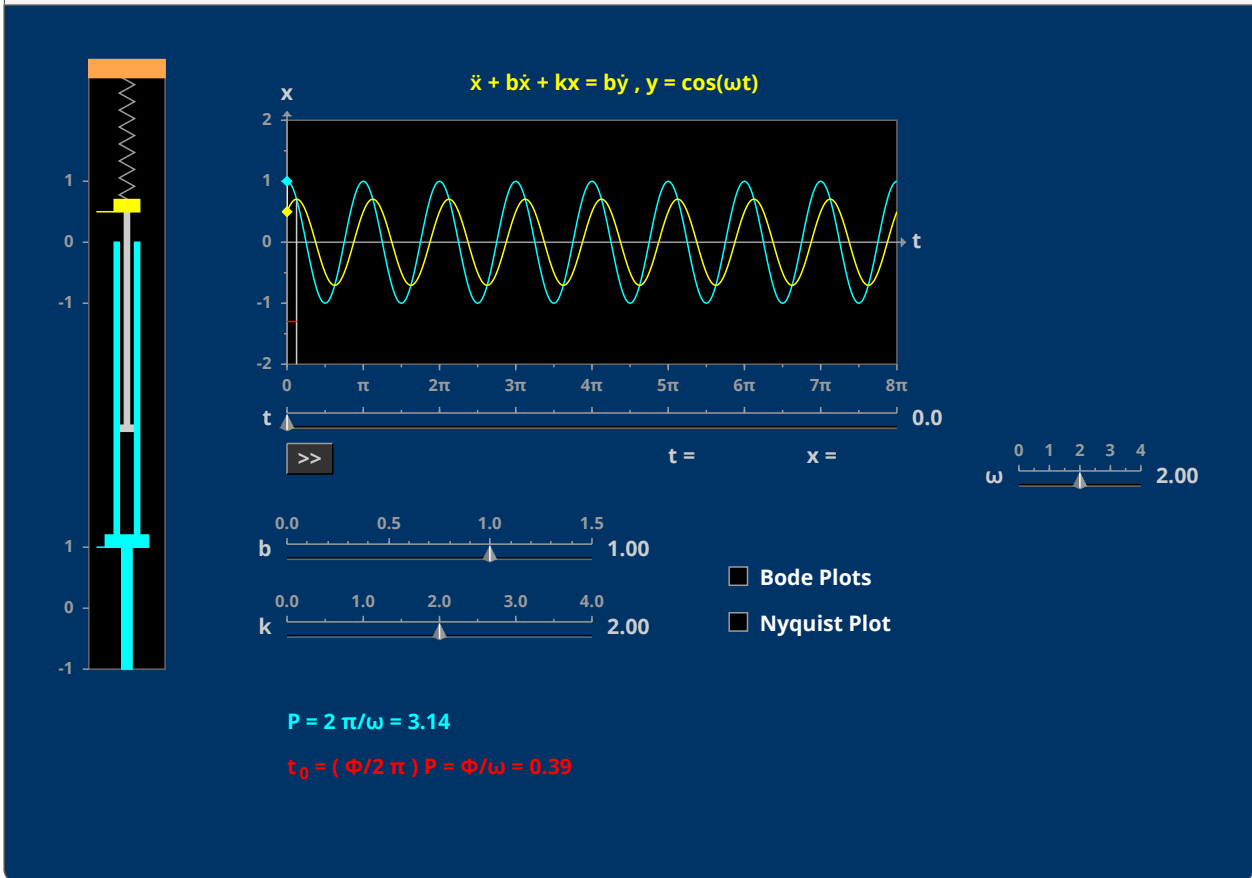
Mathlet	Description	Activity	Theory	Demo	Comments

AMPLITUDE AND PHASE: SECOND ORDER II   mode   + help

$$\ddot{x} + b\dot{x} + kx = b\ddot{y} \,,\; y = \cos(\omega t)$$

t   0.0

ω   2.00

>>

t =   x =

b   1.00

k   2.00

☐ **Bode Plots**

☐ **Nyquist Plot**

P = 2 π/ω = 3.14

$t_0 = (\,\Phi/2\,\pi\,)\,P = \Phi/\omega = 0.39$