



[HOME](#) [ABOUT](#) [TRAINING](#) [MATHLETS](#) [COURSES](#) [ACTIVITIES](#) [DEMOS](#)

## DAMPED VIBRATIONS

The decay from initial condition to equilibrium of an unforced second order system can be understood using the roots of the characteristic polynomial and the phase diagram.

Mathlet	Description	Activity	Demo	Comments
---------	-------------	----------	------	----------

DAMPED VIBRATIONS

mode + help

☐ Show trajectory

☐ Relate diagrams

0.01      0.10      1.00      10.00  
1.00

0.0000       $\dot{x}$

1.0  
0.5  
0  
-0.5  
-1.0

-1.0      -0.5      0      0.5      1.0  
0.5000

0.0      0.5      1.0      1.5      2.0  
1.00

0.0      0.5      1.0      1.5      2.0  
1.00

0      1      2      3      4  
1.00

$$m\ddot{x} + b\dot{x} + kx = 0$$

$x$

1.0  
0.5  
0.0  
-0.5  
-1.0

0       $\pi$        $2\pi$        $3\pi$        $4\pi$        $5\pi$        $6\pi$

$t$       0.0

>>

Roots



Copyright © 2009--2015 H. Miller | Powered by WordPress

Except where otherwise noted, content on this site is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported license](#)

### Accessibility