MIT MATHLETS

AMPLITUDE RESPONSE: POLE DIAGRAM

The exponential response of an LTI system is determined by its transfer function W(s), and roughly by the pole diagram of W(s). The amplitude response or gain is the restriction to the imaginary axis of |W(s)|.

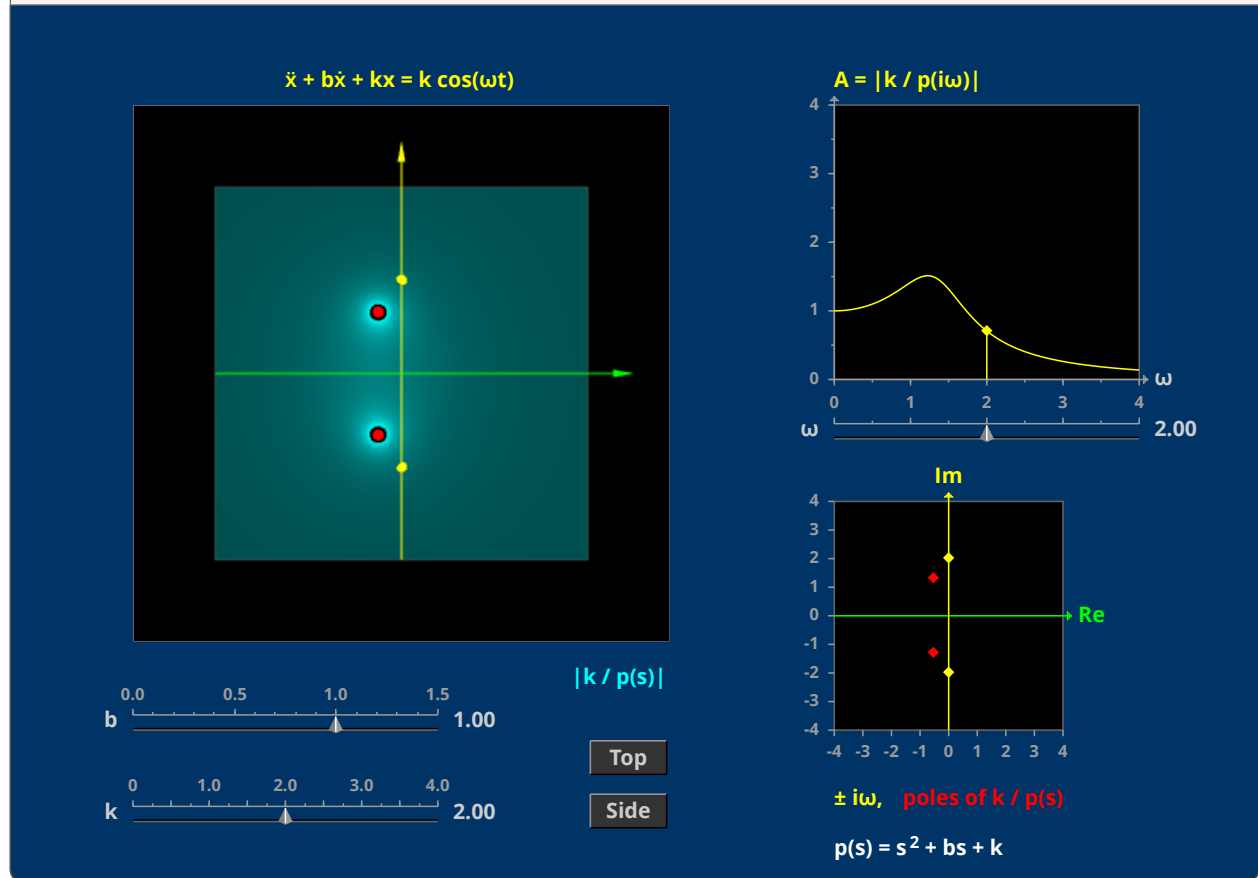| Mathlet | Description | Comments |

AMPLITUDE RESPONSE AND POLE DIAGRAM

mode   + help

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

$A = |k / p(i\omega)|$

ω   2.00

Im

Re

$|k / p(s)|$

Top

Side

b   1.00

k   2.00

± iω,   poles of k / p(s)

$p(s) = s^2 + bs + k$