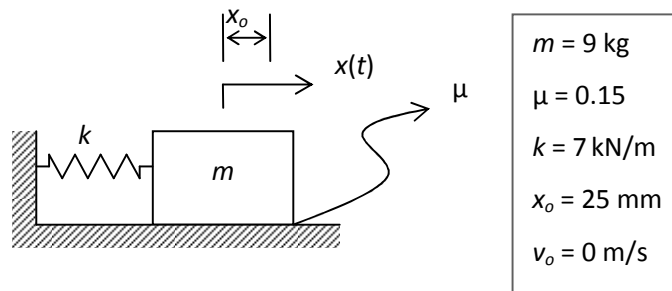


ME429 Fall 2009 HW3

You are expected to provide

- clear explanation of each step in your solution,
 - units,
 - well annotated scaled plots (title, axis labels, units, ..), not random hand sketches,
 - source code attached to your solution if you use a software package.
-

1) A mass-spring system with Coulomb damping is shown in the figure below.

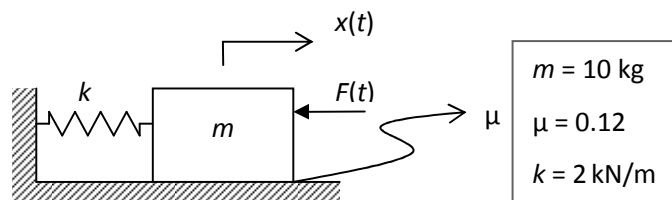


For this system, find

- a) the decrease in displacement per cycle,
- b) the maximum velocity,
- c) the decrease in velocity amplitude per cycle,
- d) the position at which the body m stops.

Hint: You may find it useful to plot/sketch the response and work on it.

2) Another mass-spring system with Coulomb damping shown in the figure below is subjected to a harmonic force of frequency 2 Hz.



When reached steady state, the mass oscillates with amplitude of 40 mm. Find the amplitude of the harmonic force applied to the mass.