

Vibration Theory With Applications
Special Problems

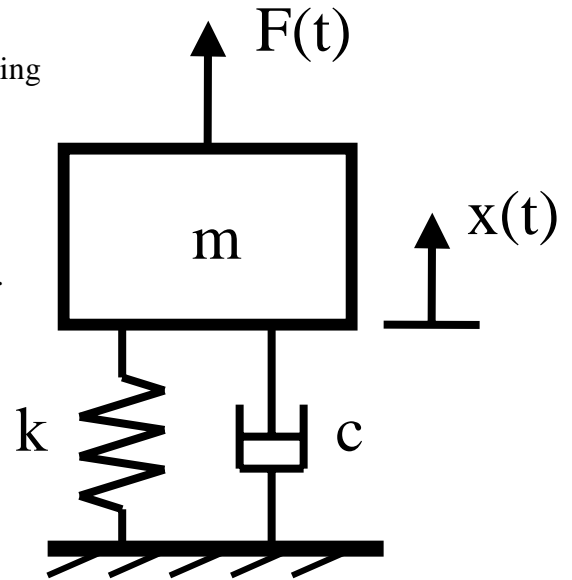
MIM 3630

SP 4.1

The spring-mass-damper system is subjected to the ramp loading

$$F(t) = \frac{F_0}{T} \begin{cases} 0, & t < 0 \\ t, & t \geq 0 \end{cases}$$

Determine the response of the mass using Laplace transforms.



SP 4.2

The base of the spring-mass system shown is subjected to the forcing function given by

$$y(t) = \frac{Y_0}{T} \begin{cases} 0, & t < 0 \\ t, & 0 \leq t \leq T \\ 0, & t > T \end{cases}$$

Determine the response of the mass using Laplace transforms.

Note: You may find the *shifting theorem* useful.

