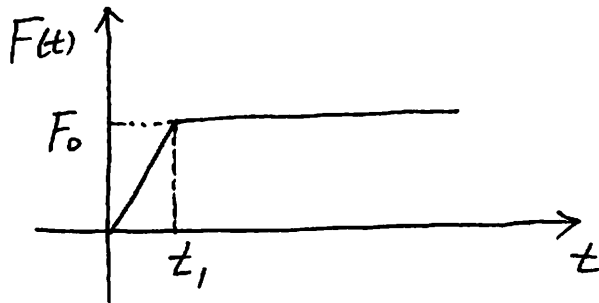


Given an undamped spring-mass system,

$$m\ddot{x} + kx = F(t)$$

Where



$$F(t) = \begin{cases} F_0 \left(\frac{t}{t_1} \right) & t < t_1 \\ F_0 & t > t_1 \end{cases}$$

Find the response $x(t)$ for $t > t_1$

You may or may not use the following formulas.

$$\left\{ \begin{array}{l} \omega_d = \omega_n \sqrt{1 - \zeta^2} \\ h(t) = \frac{1}{m\omega_d} e^{-\zeta\omega_n t} \sin\omega_d t \\ x(t) = \int_0^t F(\tau) h(t - \tau) d\tau \end{array} \right.$$