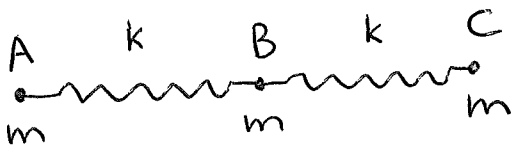
HW #6

(1.) Three identical masses m are connected by two springs as shown:



Here, k is the spring constant and the motion is 1D.

At $t=0$, all masses are at rest at their equil. positions. The leftmost mass A is then subjected to an external driving force:

$$F(t) = f\cos(\omega t) \quad , \quad t \geq 0$$

Find the motion of mass C.

(2.) Consider a 1D particle subject to

force $F = \begin{cases} 0, & t<0 \\ \frac{F_0 t}{d}\cos(\omega t), & 0 \le t < d \\ F_0 \cos(\omega t), & t \ge d \end{cases}$

Assuming that the particle is at rest at $t<0$, calculate the subsequent motion of the particle (i.e., find $x(t)$).