Physics 1A
Spring 2015

Challenge Problem 15

A system is composed of two blocks of mass m_1 and m_2 connected by a massless spring with spring constant k. The blocks slide on a frictionless plane. The unstretched length of the spring is ℓ_0. Initially, mass m_2 is held so that the spring is compressed to $\ell_0/2$ and m_1 is forced against a wall as shown. The mass m_2 is released at time $t = 0$.

Find the position $x(t)$ of the center of mass of the system as a function of time for all $t > 0$.