Block and bouncing ball
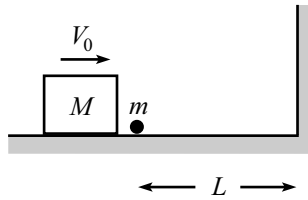
A block with large mass M slides with speed V_0 on a frictionless table towards a wall. It collides elastically with a ball with small mass m, which is initially at rest at a distance L from the wall. The ball slides towards the wall, bounces elastically, and then proceeds to bounce back and forth between the block and the wall.

(a) How close does the block come to the wall?

(b) How many times does the ball bounce off the block, by the time the block makes its closest approach to the wall?

Assume that $M \gg m$, and give your answers to leading order in m/M.