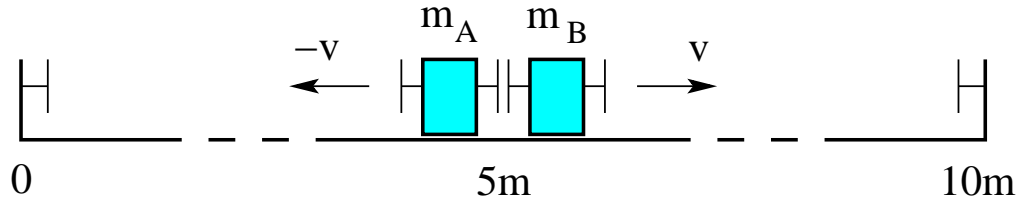## [mex247] Let's meet again... and again

Two blocks of masses m_A and m_B, positioned in the middle (at $x_0 = 5m$) of a horizontal air track, are launched with equal speed v in opposite directions. They bounce off the ends of the track and off each other in a succession of elastic collisions. The track does not recoil significantly and the blocks are of very small size compared to the length of the track.

(a) Express the velocities v_{Af}, v_{Bf} after an elastic collision as a function of the masses m_A, m_B and the velocities v_{Ai}, v_{Bi} before the collision.

(b) Apply this relation to the bounce from a wall, where $v_{Bi} = 0, m_B = \infty$, for example.

(c) Find the locations x_1, x_2, and x_3 on the track where the two blocks collide the first three times for the case $m_A = 2$kg, $m_B = 4$kg.

Solution: