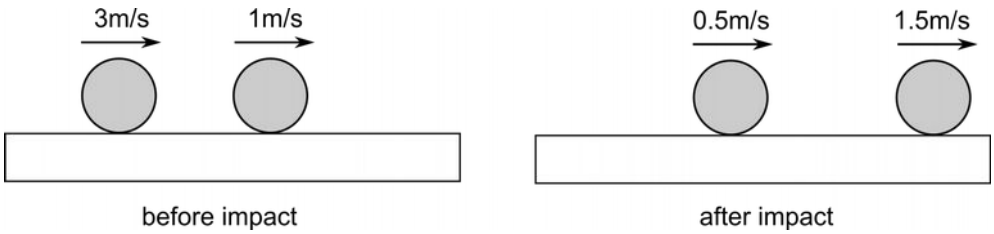
Impulse & Momentum – 2 – Practice

1. The diagram illustrate collisions between smooth spheres with identical radii.

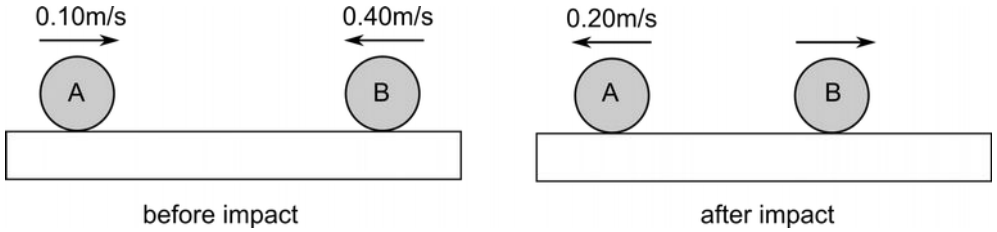
   Calculate *e*, the coefficient of restitution between each pair of spheres. *(0.5)*



2. A 5.0 kg mass moving at 6.0 m/s makes a head-on collision with a 4.0 kg mass travelling at 3.0 m/s in the opposite direction.
   coefficient of restitution, *e* = 0.5

   Calculate the velocities of the two masses after impact. *(0 m/s, 4.5 m/s)*

3. Two smooth spheres A and B, of different mass, are travelling towards each other.
   A has a speed of 0.10m/s to the right.
   B has a speed of 0.40m/s to the left.
   After impact, the A travels at 0.20m/s to the left.



   The coefficient of restitution of the collision is 0.60.

   Calculate

   (i) the speed of B after the impact. *(0.10 m/s)*

   (ii) the ratio: (mass of A)/(mass of B). *(5/3)*
   (hint: you are trying to rearrange to equations to find m_A/m_B)