

Two identical uniform small spheres A and B , each of mass m , are moving towards each other in a straight line on a smooth horizontal surface. Their speeds are u and ku respectively, and they collide directly. The coefficient of restitution between the spheres is e . Sphere B is brought to rest by the collision.

(i) Show that $e = \frac{k-1}{k+1}$. [3]

(ii) Given that 60% of the total initial kinetic energy is lost in the collision, find the values of k and e . [6]