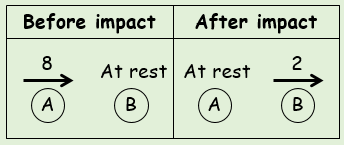
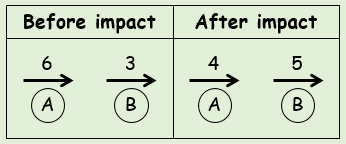
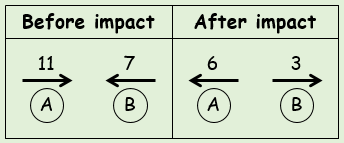
**4A Direct Collisions & Newton’s Law of Restitution**

1. In these questions the diagrams show the speeds of two particles A and B just before and just after a collision. The particles are moving on a smooth horizontal plane.

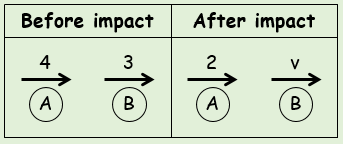
Find the coefficient of restitution in each case.



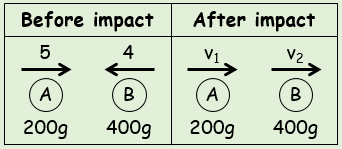




1. Find the value of v in the situation shown, given that e = 1/3



1. Calculate the values of v1 and v2, given that the coefficient of restitution is 1/2



1. Two small spheres have mass 3m and 4m respectively. They are moving towards each other in opposite directions on a smooth horizontal plane. P has speed 3u and Q has speed 2u just before the impact. The coefficient of restitution between P and Q is e.
2. Show that the speed of Q after the collisions is given by u/7(15e + 1)
3. Given that the direction of motion of P is unchanged, find the range of possible values for e
4. Given that the magnitude of the impulse of P on Q is 80mu/9, find the value of e