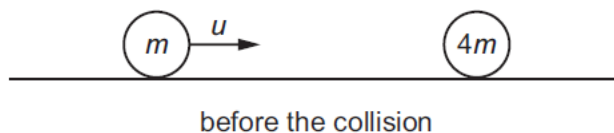


- 5 An object of mass  $m$ , moving at speed  $u$  along a frictionless horizontal surface, collides head-on with a stationary object of mass  $4m$ .



After the collision, the object of mass  $m$  rebounds along its initial path with  $\frac{1}{4}$  of its kinetic energy before the collision.

What is the speed of the object of mass  $4m$  after the collision?

**A**  $\frac{u}{8}$

**B**  $\frac{3u}{16}$

**C**  $\frac{5u}{16}$

**D**  $\frac{3u}{8}$