

Solutionbank M1

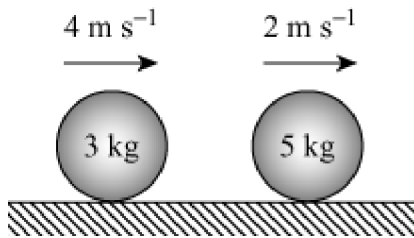
Heinemann Modular Maths for Edexcel AS and A-level

8 Momentum

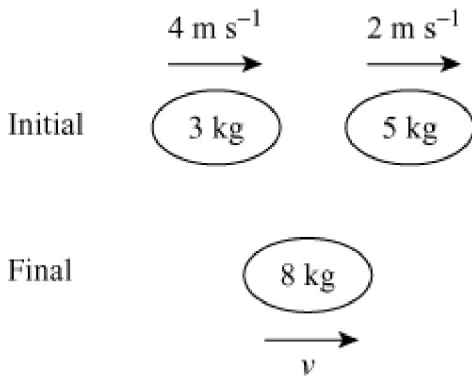
Exercise A, Question 3

Question:

The two bodies in the diagram have masses 3 kg and 5 kg, respectively. They are travelling with speeds 4 m s^{-1} and 2 m s^{-1} . The bodies coalesce on impact. Find the speed of this body.



Solution:



Using conservation of momentum

$$\begin{aligned}
 4 \times 3 + 2 \times 5 &= 8 \times v \\
 22 &= 8v \\
 \therefore v &= \frac{22}{8}
 \end{aligned}$$

Speed is 2.75 m s^{-1} .