

# Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

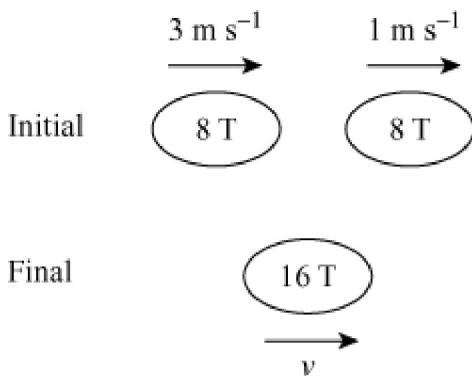
## 8 Momentum

### Exercise A, Question 5

#### Question:

Two railway trucks, each of mass 8 tonnes, are travelling in the same direction and along the same tracks with velocities  $3 \text{ m s}^{-1}$  and  $1 \text{ m s}^{-1}$ , respectively. When the trucks collide they couple together. Calculate the velocity of the coupled trucks.

#### Solution:



Using conservation of momentum

$$\begin{aligned} 3 \times 8 + 1 \times 8 &= 16v \\ 32 &= 16v \\ v &= 2 \end{aligned}$$

Velocity of coupled tracks is  $2 \text{ m s}^{-1}$ .