

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

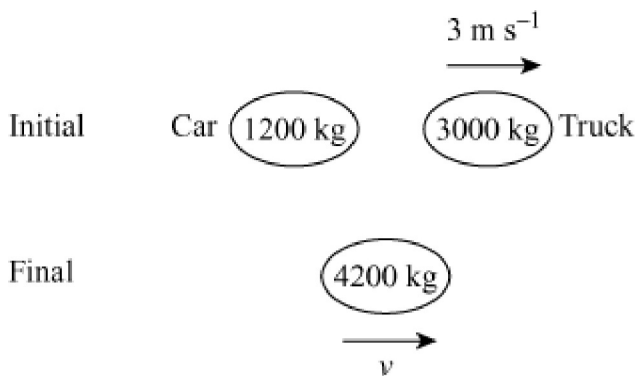
8 Momentum

Exercise A, Question 7

Question:

A tow truck of mass 3 tonnes is attached to a car of mass 1.2 tonnes by a rope. The truck is moving at a constant 3 m s^{-1} when the tow rope becomes taut and the car begins to move. Assume that both vehicles move at the same speed once the rope is taut, and find this speed.

Solution:



Using conservation of momentum

$$3000 \times 3 = 4200v$$

$$v = 2.14$$

Speed is 2.14 m s^{-1} .