

- 2 A ball B of mass 1.2 kg travelling at constant velocity collides head-on with a stationary ball S of mass 3.6 kg, as shown in Fig. 2.1.



Fig. 2.1

Frictional forces are negligible.

The variation with time t of the velocity v of ball B before, during and after colliding with ball S is shown in Fig. 2.2.

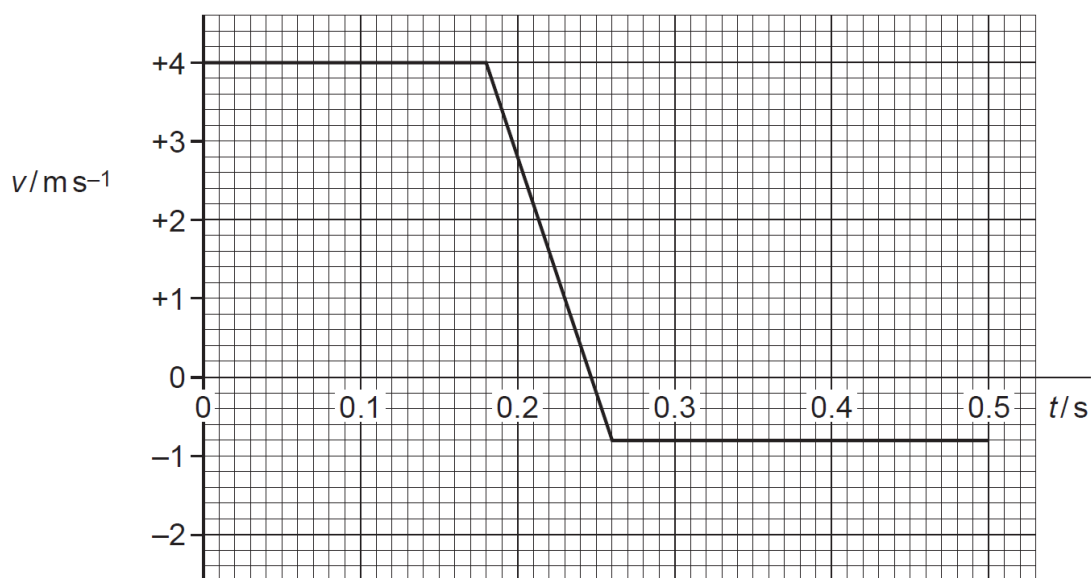


Fig. 2.2

Using Fig. 2.2, for ball B during the collision with ball S,

- (a) (i) show that the change in momentum of ball B is 5.76 N s ,

(ii) calculate the speed of ball S after the collision,

speed = m s⁻¹ [2]

(b) Using your answer in (a)(ii) and information from Fig. 2.2, deduce whether the collision is elastic or inelastic. Support your answer with working.

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[3]

[Total: 6]

