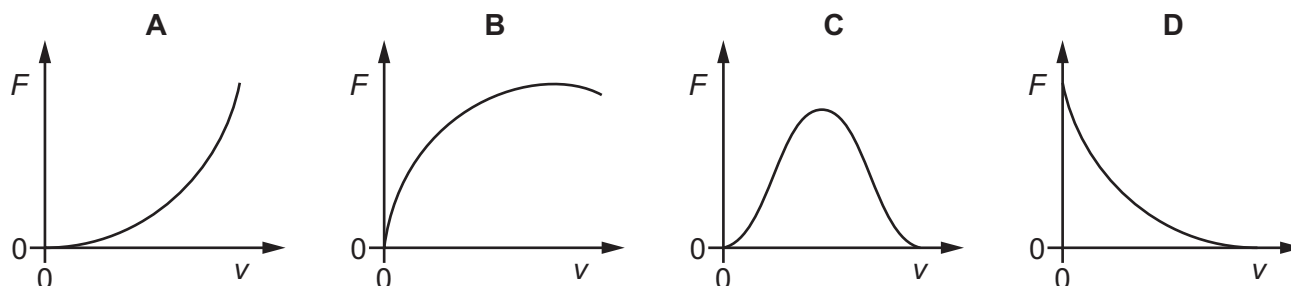
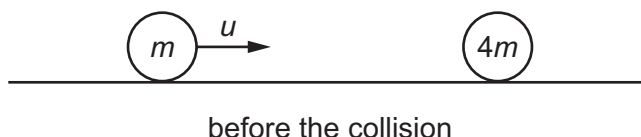


- 9 A small ball is held at the surface of liquid oil in a container. The ball is released from rest and falls through the oil. The ball has velocity v . A viscous (drag) force F acts on the ball.

Which graph could show the variation with v of F ?



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

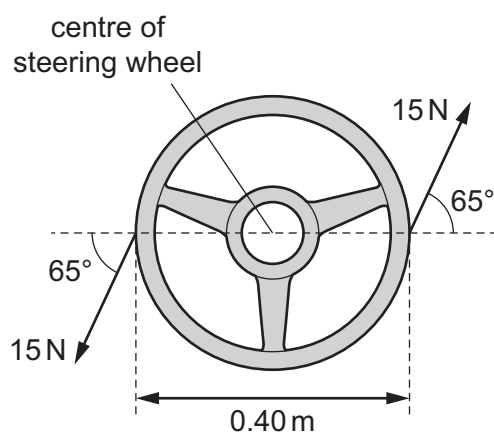


After the collision, the object of mass m rebounds along its initial path with $\frac{1}{4}$ of its kinetic energy before the collision.

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 $\frac{3u}{8}$

- 11 The driver of a car applies two parallel forces to a steering wheel, as shown.



Each force has a magnitude of 15 N and acts in the direction shown. The steering wheel has a diameter of 0.40 m.

What is the torque exerted on the steering wheel?

- A 1.3 Nm B 2.5 Nm C 2.7 Nm D 5.4 Nm