

- 9 Two balls of identical shape and size but different masses are falling through the same liquid.

The sum of the drag force and upthrust acting on each ball is equal to its weight.

Which statement about the two balls is correct?

- A The heavier ball has a larger acceleration than the lighter ball.
  - B The heavier ball has a smaller deceleration than the lighter ball.
  - C The heavier ball is falling at the same speed as the lighter ball.
  - D The heavier ball is falling at a larger speed than the lighter ball.
- 10 A perfectly elastic collision occurs between two objects X and Y. The mass of X is  $m$  and the mass of Y is  $4m$ . Object X travels at speed  $v$  before the collision and speed  $\frac{3v}{5}$  in the opposite direction after the collision. Object Y is stationary before the collision.



What is the kinetic energy of Y after the collision?

- A  $\frac{8}{10}mv^2$
  - B  $\frac{34}{50}mv^2$
  - C  $\frac{16}{50}mv^2$
  - D  $\frac{1}{5}mv^2$
- 11 What is **not** a requirement for two forces to act as a couple?
- A The two forces act in opposite directions.
  - B The two forces act through the same point.
  - C The two forces combine to produce zero resultant force.
  - D The two forces have equal magnitude.