

- 10** A group of students investigating the principle of conservation of momentum use a small truck travelling over a frictionless surface.

Sand is dropped into the truck as it passes X. At Y, a trapdoor in the bottom of the truck opens and the sand falls out.



How does the velocity of the truck change when the sand is added to the truck at X and then leaves the truck at Y?

	at X	at Y
A	decreases	increases
B	decreases	stays the same
C	stays the same	increases
D	stays the same	stays the same

- 11** An object of mass 20 kg is travelling at a constant speed of 6.0 m s^{-1} .

It collides with an object of mass 12 kg travelling at a constant speed of 15 m s^{-1} in the opposite direction. The objects stick together.

What is the speed of the objects immediately after the collision?

- A** 1.9 m s^{-1} **B** 9.0 m s^{-1} **C** 9.4 m s^{-1} **D** 21 m s^{-1}

Space for working