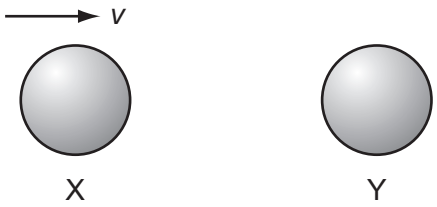
10 The diagram shows two identical spheres X and Y.



Initially, X moves with speed v directly towards Y. Y is stationary. The spheres collide elastically.

What happens?

	X	Y
A	moves with speed $\frac{1}{2}v$ to the right	moves with speed $\frac{1}{2}v$ to the right
B	moves with speed v to the left	remains stationary
C	moves with speed $\frac{1}{2}v$ to the left	moves with speed $\frac{1}{2}v$ to the right
D	stops	moves with speed v to the right

11 Two equal masses travel towards each other on a frictionless air track at speeds of $60\,\text{cm}\,\text{s}^{-1}$ and $40\,\text{cm}\,\text{s}^{-1}$. They stick together on impact.

What is the speed of the masses after impact?

A $10\,\text{cm}\,\text{s}^{-1}$ **B** $20\,\text{cm}\,\text{s}^{-1}$ **C** $40\,\text{cm}\,\text{s}^{-1}$ **D** $50\,\text{cm}\,\text{s}^{-1}$

Space for working