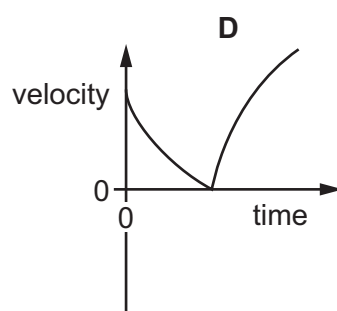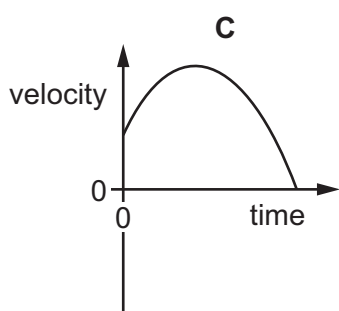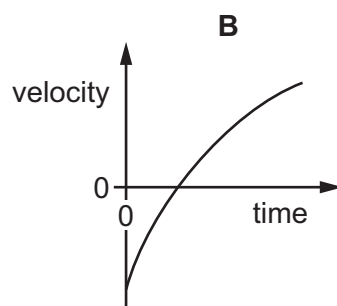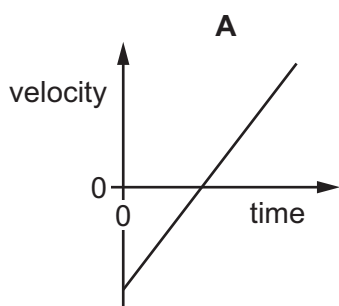**10** A person stands on the edge of a high cliff that is next to the sea. The person throws a stone vertically upwards. Air resistance acts on the stone.

The stone eventually hits the sea.

Which velocity–time graph best shows the motion of the stone from when it is released until it hits the sea?

11 Skaters of masses 80 kg and 40 kg move directly towards each other and collide.

Before the collision, the heavier skater is moving to the right at a speed of $2.0\,\text{m s}^{-1}$ and the lighter skater is moving to the left at a speed of $1.0\,\text{m s}^{-1}$.

After the collision, the heavier skater moves to the right at a speed of $0.80\,\text{m s}^{-1}$.

What is the relative speed of separation of the two skaters?

A $0.6\,\text{m s}^{-1}$ **B** $1.4\,\text{m s}^{-1}$ **C** $2.2\,\text{m s}^{-1}$ **D** $2.6\,\text{m s}^{-1}$

12 Which statement describes the two forces in a couple?

A They act in the same direction.

B They act through the same point.

C They produce zero resultant force.

D They produce zero resultant moment.