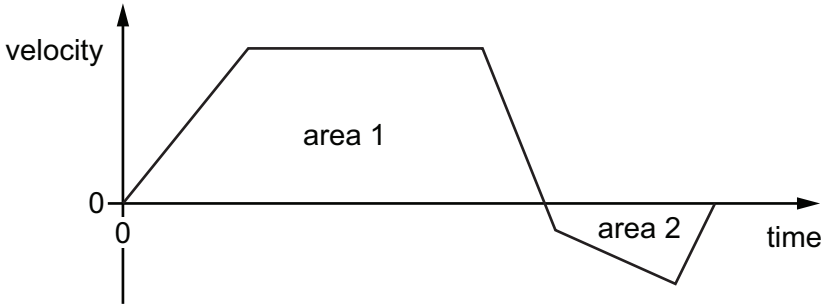
7 A stone of mass *m* is dropped from a tall building. There is significant air resistance. The acceleration of free fall is *g*.

When the stone is falling at a constant (terminal) velocity, which information is correct?

	magnitude of the acceleration of the stone	magnitude of the force of gravity on the stone	magnitude of the force of air resistance on the stone
A	*g*	zero	*mg*
B	zero	*mg*	*mg*
C	zero	zero	*mg*
D	zero	*mg*	zero

8 The velocity-time graph for an object is shown.



How can the total displacement of the object be determined?

A area 1 – area 2

B $\frac{(\text{area 1} + \text{area 2})}{2}$

C area 1 + area 2

D area 2 – area 1

9 A girl throws a ball vertically upwards. It takes a time of 3.20 s to return to her hand.

Assume air resistance is negligible.

What is the initial speed with which the ball is thrown?

A $3.07\,\text{m s}^{-1}$ **B** $7.85\,\text{m s}^{-1}$ **C** $15.7\,\text{m s}^{-1}$ **D** $31.4\,\text{m s}^{-1}$