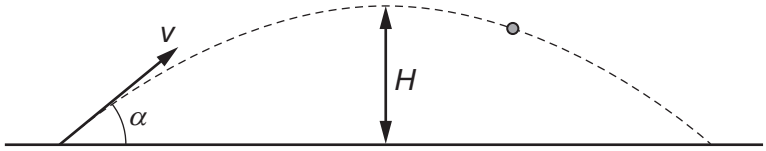
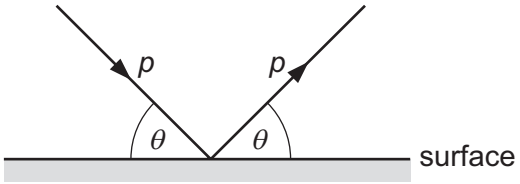
7 A cannon fires a cannonball with an initial speed v at an angle α to the horizontal.



Which equation is correct for the maximum height H reached?

A $H = \frac{v \sin\alpha}{2g}$ **B** $H = \frac{g \sin\alpha}{2v}$ **C** $H = \frac{(v \sin\alpha)^2}{2g}$ **D** $H = \frac{g^2 \sin\alpha}{2v}$

8 A ball strikes a horizontal surface with momentum p at an angle θ to the surface, as shown.



The ball rebounds with the same magnitude of momentum at an angle θ to the surface.

The ball is in contact with the surface for time t.

What is the magnitude of the average resultant force acting on the ball during the collision?

A zero **B** $\frac{2p}{t}$ **C** $\frac{2p\cos\theta}{t}$ **D** $\frac{2p\sin\theta}{t}$

9 A skydiver, who is falling vertically through the air, opens his parachute.

Which row describes the velocity of the skydiver immediately after he opens his parachute?

	direction of velocity	magnitude of velocity
A	downwards	decreases
B	downwards	increases
C	upwards	decreases
D	upwards	increases