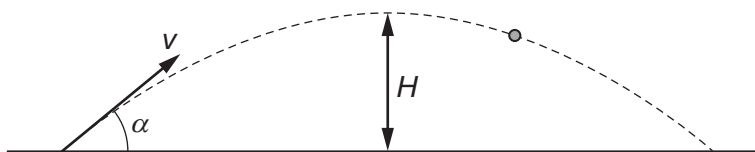


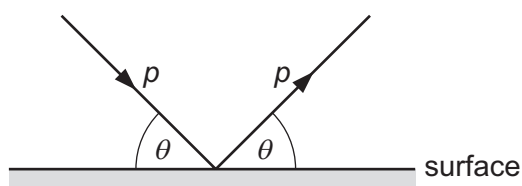
- 7 A cannon fires a cannonball with an initial speed  $v$  at an angle  $\alpha$  to the horizontal.



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  $\theta$  to the surface, as shown.



The ball rebounds with the same magnitude of momentum at an angle  $\theta$  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