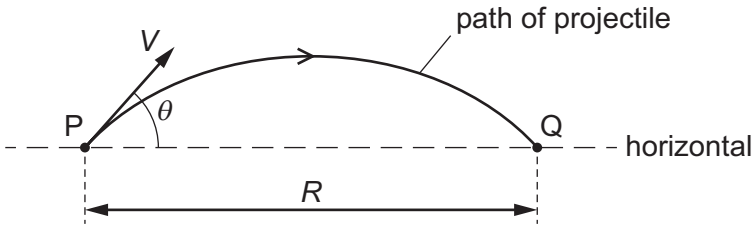
6 A projectile is fired from point P with velocity V at an angle θ to the horizontal. It lands at point Q, a horizontal distance R from P, after time T.



The acceleration of free fall is g. Air resistance is negligible.

Which equation is correct?

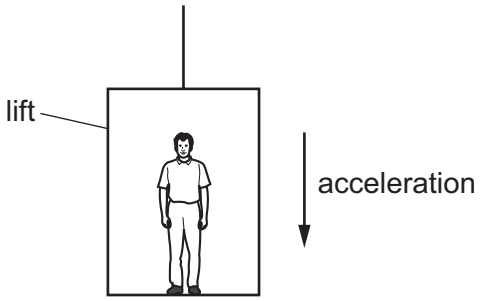
A $R = VT\cos\theta$

B $R = VT\sin\theta$

C $R = VT\cos\theta - \frac{1}{2}gT^2$

D $R = VT\sin\theta - \frac{1}{2}gT^2$

7 A man stands in a lift that is accelerating vertically downwards, as shown.



Which statement describes the force exerted by the man on the floor?

A It is equal to the weight of the man.

B It is greater than the force exerted by the floor on the man.

C It is less than the force exerted by the floor on the man.

D It is less than the weight of the man.

8 A ball of mass 200 g is thrown horizontally with a speed of $20\,m\,s^{-1}$ against a vertical wall.

The ball is in contact with the wall for a time of 0.10 s before rebounding back along its original path with a speed of $10\,m\,s^{-1}$.

What is the average force exerted by the wall on the ball during the collision?

A 20 N **B** 60 N **C** 20 kN **D** 60 kN