

- 9 A spacecraft of mass  $m$  has weight  $W$  on the surface of the Earth. The Earth has radius  $R$ .

The spacecraft is launched perpendicularly from the surface of the Earth.

When the spacecraft has reached a distance  $R$  above the surface of the Earth, it has lost fuel and its mass is now  $\frac{m}{2}$ .

What is the weight of the spacecraft when it has reached a distance  $R$  above the surface of the Earth?

A  $\frac{W}{8}$

B  $\frac{W}{4}$

C  $\frac{W}{2}$

D  $W$

- 10 A car of mass  $1500\text{ kg}$  travelling at  $4.0\text{ ms}^{-1}$  collides with the rear of a car of mass  $1000\text{ kg}$ .