

- 8 An astronaut has a weight of 660 N when she is standing on the Earth's surface.

The acceleration of free fall on the surface of Mars is  $3.71 \text{ m s}^{-2}$ .

What would be the weight of the astronaut if she stood on the surface of Mars?

- A** 67.3 N      **B** 178 N      **C** 250 N      **D** 660 N

- 9 A mass  $m_1$  travelling with speed  $u_1$  collides with a mass  $m_2$  travelling with speed  $u_2$  in the same direction. After the collision, mass  $m_1$  has speed  $v_1$  and mass  $m_2$  has speed  $v_2$  in the same direction. The collision is perfectly elastic.



before the collision



after the collision

Which equation is **not** correct?

- A**  $m_1 u_1^2 - m_1 v_1^2 = m_2 v_2^2 - m_2 u_2^2$   
**B**  $v_2 + u_2 = v_1 + u_1$   
**C**  $m_1(u_1 - v_1) = m_2(v_2 - u_2)$   
**D**  $m_1(u_1 - v_1)^2 = m_2(u_2 - v_2)^2$