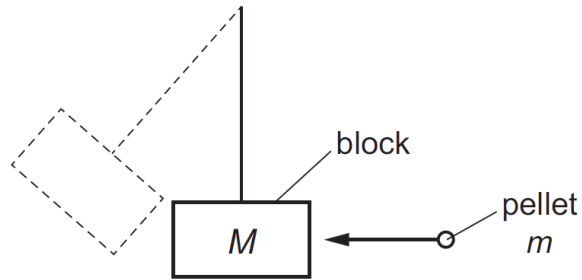


- 11 The diagram shows a 'ballistic pendulum'.



A pellet of mass  $m$  travelling at a speed  $u$  hits a stationary block of mass  $M$ . The pellet becomes embedded in the block and causes the block to move immediately after the impact.

What is the maximum height gained by the block after impact?

- A  $\frac{1}{2g}mu^2$
- B  $\frac{1}{2g}(M+m)u^2$
- C  $\frac{1}{2g}\left(\frac{m}{M+m}\right)u^2$
- D  $\frac{1}{2g}\left(\frac{mu}{M+m}\right)^2$