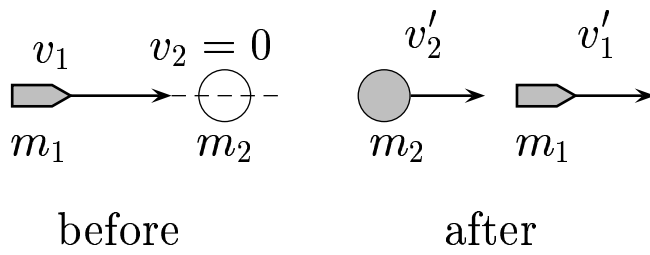


Given: A bullet m_1 is approaching $m_2 = 2m_1$ with a high speed v_1 . After piercing through m_2 , its final velocity is $v'_1 = \frac{v_1}{2}$.



Find the final velocity v'_2 of m_2 .

- A) $v'_2 = \frac{v_1}{8}$.
- B) $v'_2 = \frac{v_1}{4}$.
- C) $v'_2 = \frac{v_1}{3}$.
- D) $v'_2 = \frac{v_1}{2}$.

Conservation of momentum $m_1 v_1 + m_2 v_2 = m_1 v'_1 + m_2 v'_2$.

Solve for v'_2 .

$$v_1 = v'_1 + 2 v'_2 = \frac{v_1}{2} + 2 v'_2,$$

$$v'_2 = \frac{1}{2} \left(v_1 - \frac{v_1}{2} \right) = \frac{v_1}{4}.$$

Answer **B**.

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