Given: A ball $m_1$ is approaching $m_2 = m_1$ with a speed $v_1$.

![Diagram showing a collision between two balls, $m_1$ and $m_2$.

Before collision: $v_1$, $v_2 = 0$.

After collision: $v'_1$, $v'_2$.

After an elastic collision, find the final velocities $v'_1$ and $v'_2$.

A) $v'_1 = \frac{v_0}{2}$ and $v'_2 = \frac{v_0}{2}$.

B) $v'_1 = \frac{v_0}{3}$ and $v'_2 = \frac{2v_0}{3}$.

C) $v'_1 = 0$ and $v'_2 = v_0$.

D) $v'_1 = \frac{-v_0}{2}$ and $v'_2 = \frac{3v_0}{2}$.

For all choices, $P_i = m \, v_1 + m \, v_2 = P_f = m \, v'_1 + m \, v'_2$.

$K_i = \frac{m \, v_1^2}{2}$. The answer must satisfy $K_f = K_i$.

Answer C.

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