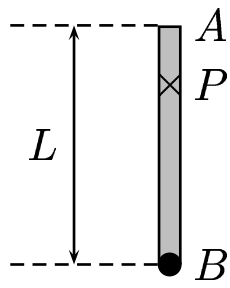


Given: A metal bar with mass m_1 and length L . The pivot point is at P , a distance $\overline{AP} = \frac{L}{4}$, from the end. Mass m_2 is attached to the other end, at B . The period of oscillation may be determined by



the general expression, $T = 2\pi \sqrt{\frac{I}{mgb}}$, where m is mass of the system, I , moment of inertia about the pivot point, and b the distance between the pivot point and the center gravity.

Consider the case $m_1 = m_2$. Choose one

- A) $m = m_1 + m_2$ and $b = \frac{L}{2}$.
- B) $m = m_1 + m_2$ and $b = \frac{3L}{4}$.
- C) $m = m_2$ and $b = \frac{L}{2}$.
- D) $m = m_2$ and $b = \frac{3L}{4}$.

Mass of the the compound system, $m = m_1 + m_2$. By inspection, the center of mass this system is at a distance $\frac{L}{4}$ from m_2 , so $b = \frac{L}{2}$.

Answer **A** .