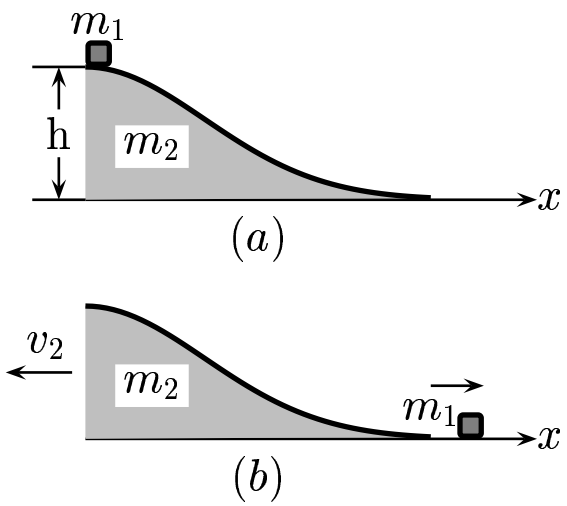
Assume: A small block of mass m_1 is released from rest at the top of a curved frictionless wedge of mass m_2, where $m_2 \gg m_1$, which sits on a frictionless horizontal surface as shown.



As the block slides down the curved surface the x-coordinate x_{cm} of the center of mass of the $(m_1 + m_2)$ system

A) moves to right.
B) moves to left.
C) remains at rest.

Note: There is no external force acting on the system, along the horizontal direction; *i.e.*, $F_{cm} = 0$.

But $F_{cm} = \dfrac{d\,p_{cm}}{dt}$, where p_{cm} is the component of the momentum vector

of the center of mass along the horizontal direction.

For the present case p_{cm} is constant.

Initially, $p_{cm} = 0$. This implies that during the entire process, the location of the center of the mass remains at rest.

Answer **C**.

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