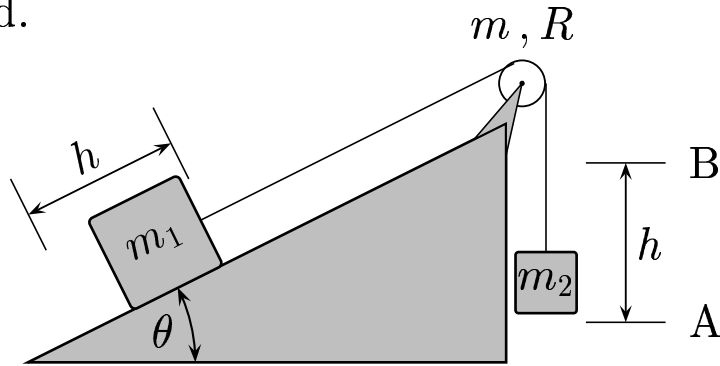


In the sketch below, the pulley is a circular disk with mass m and radius R , where $m_1 \gg m_2$. When m_2 is released at A, m_2 is being accelerated upward.



Find the conservation of energy equation for the system, as m_2 goes from A to B. Ignore friction.

- A) $m_1 g h \sin \theta - m_2 g h = \frac{(m_1 + m_2 + m) v^2}{2}$.
- B) $m_2 g h \sin \theta - m_1 g h = \frac{(m_1 + m_2 + m) v^2}{2}$.
- C) $m_1 g h \sin \theta - m_2 g h = \frac{(m_1 + m_2 + 0.5 m) v^2}{2}$.
- D) $m_2 g h \sin \theta - m_1 g h = \frac{(m_1 + m_2 + 0.5 m) v^2}{2}$.

$$U_A - U_B = K_B - K_A = K_B.$$

The amount of the potential energy which m_1 has released in going from A to B is given by

$$m_1 g h \sin \theta = m_1 g_{\parallel} h.$$

Answer **C**.