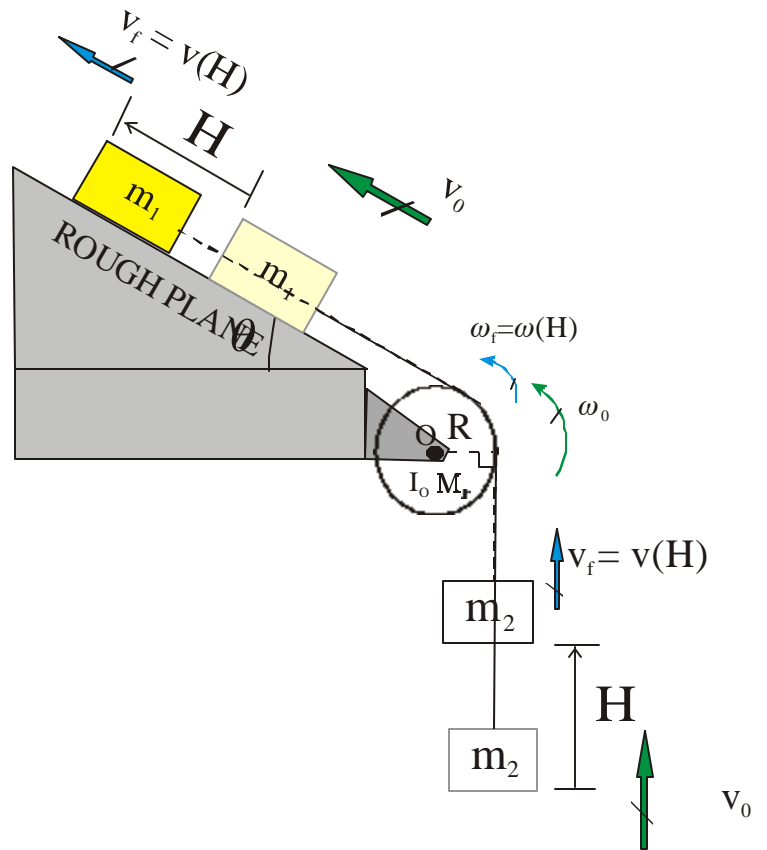


Quiz BC 07 & 08 Makeup

The picture shows the present (initial) situation, **initial state**, of this system.

1. m_1 , with mass of 0.2kg., slides with an initial velocity v_0 over the rough horizontal plane. The coefficients of friction are $\mu_s = 0.4$ and $\mu_k = 0.3$, respectively.
2. m_1 is connected to m_2 , a mass of 0.5 kg, by a massless, inextensible (won't stretch) string .
3. The string goes over the rim of the pulley of mass $M_p = 0$. kg., radius $R = 0.1$ m, and moment of inertia about its center O of $I_O = 8 \times 10^{-4}$ kg m². **The pulley rotates with the moving string without slipping.**



Find the velocity v_f after m_2 has risen a height H ($=0.5m$) by general form **Conservation of Energy**. That is to get $v(H)$ using general form **Conservation of Energy**.

Needed $\Delta S = R\theta$ $v = R\omega$, $\omega_f - \omega_0 = \Delta\omega(H) = (v_f - v_0) / R = (v(H) - v_0) / R$.

The initial and final states are shown in the above figure. In color, the black objects are in the initial state and the blue (lighter) are in the final state.

YOU CAN DO THESE ON THE BACK.

BCQ07 set up
Physical Principles

Details

BCQ08 Solve for $v_f = v(H)$