A pulley of mass $m_p$, radius $R$, and moment of inertia about its center of mass $I_{cm}$, is attached to the edge of a table. An inextensible string of negligible mass is wrapped around the pulley and attached on one end to block 1 that hangs over the edge of the table. The other end of the string is attached to block 2 which slides along a table. The coefficient of sliding friction between the table and the block 2 is $\mu_k$. Block 1 has mass $m_1$ and block 2 has mass $m_2$, with $m_1 > \mu_k m_2$. At time $t = 0$, the blocks are released from rest. At time $t = t_1$, block 1 hits the ground. Let $g$ denote the gravitational constant. Find the magnitude of the acceleration of each block. Express your answer in terms of $m_p$, $I_{cm}$, $R$, $m_1$, $m_2$, $\mu_k$, and $t_1$ as needed.

a) Find the direction and magnitude of the acceleration of the block 1 hanging over the edge of the table.

b) How far did the block 1 fall before hitting the ground?