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Outside the long slender pendulum 1, of mass m_1 , a translational joint 2, of mass m_2 , is sliding without friction. The length of the pendulum is L . The mass moment of inertia of the slider 2 with respect to its mass center point A is I_A . The acceleration due to gravity is g . Find the equations of motion, using Newton-Euler method, for the system with $m_1 = m_2 = m$.