Two blocks of mass m and $2m$ are initially sliding at speed v on a horizontal surface, without friction. After traveling a short distance, the bottom block suddenly encounters a portion of the the horizontal surface with friction. Let μ_k and μ_s be the coefficients of kinetic and static friction between the bottom block and the horizontal surface. Suppose that the friction between the two blocks is characterized by coefficients $\hat{\mu}_k$ and $\hat{\mu}_s$. Also suppose that $\mu_k = 0.9\,\mu_s$ and $\hat{\mu}_s = 0.5\,\mu_s$.
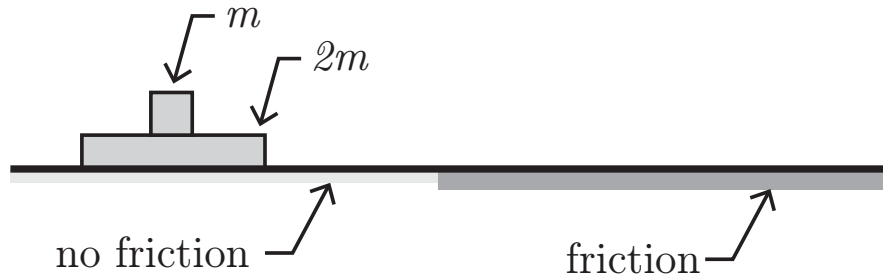
1. When the bottom block encounters friction on the horizontal surface, does the top block begin sliding relative to the bottom block?

2. How much time does it take for the bottom block to come to a stop after encountering the friction? Assume that the bottom block is sufficiently long that the top block does not slide off the bottom block.