Recitation Exam 6

Problem 1: (10 points)
A block of mass $M$ slides a length $L$ with friction down a rough plane that is inclined at an angle $\theta$ from the horizontal. The coefficient of kinetic friction between the block and the inclined surface is $\mu$. At the bottom of the ramp, the block keeps sliding along a smooth horizontal surface until it encounters a spring that has force constant $k$.

![Diagram of block on inclined plane with friction and spring]

(a) What is the maximum amount that the spring is compressed?
(b) The block rebounds off the spring. How far back up the ramp does it go? Hint: The answer is less than $L$. 