Please answer the questions below to the best of your ability either in the space provided. Everything should be scanned or photographed and submitted through gradescope.com.

Objective: *I can utilize potential energy to analyze motion inside a system.*

1. Let's revit our old (and horribly unsuccessful) spring system to launch a rocket off the moon (HW5). Recall that the plan is to launch a 2500 kg rocket using a spring. The rocket needs to have a speed of 2.38 km/s to have enough velocity to escape the Moon's gravity, and remember that due to shipping concerns the spring can only be compressed by a maximum of 2 m. The Moon has a mass of 7.348×10^{22} kg and an average radius of 1737 km.

   (a) What potential energies are going to be important to consider?

   (b) Use the energy principle to determine the needed spring constant to launch the ship with enough speed to escape.