

Main topics: Hooke's law, simple harmonic motion, molecular dynamics  
, potential energy, kinetic energy, friction and heat, force from potential energy

Knith 4td Edition Problem 10.51

A freight company uses a compressed spring to shoot 2.0 kg packages up a 1.0-m-high frictionless ramp into a truck, as shown below. The spring constant is 500 N/m and the spring is compressed 30 cm. What is the speed of the package when it reaches the truck? A careless worker spills his beer on the ramp. This creates a 50-cm-long sticky spot with a coefficient of kinetic friction 0.30. Will the next package make it into the truck? Answer: (1.7 m/s, it will go up 0.998 m, barely misses)

