

PHYS UN1601 Recitation Worksheet 7

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Problem 1

A loaded spring gun, initially at rest on a horizontal frictionless surface, fires a marble at angle θ . The mass of the gun is M , the mass of the marble is m , and the muzzle velocity of the marble is v_0 . What is the final motion of the gun?

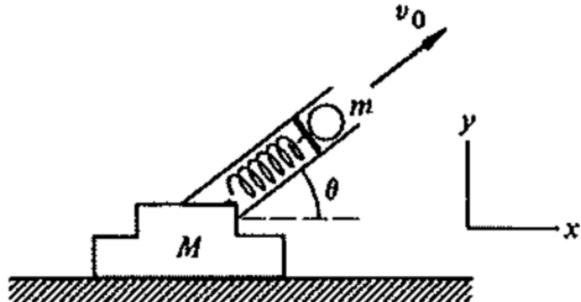


Figure 1

Problem 2

A circus acrobat of mass M leaps straight up with initial velocity v_0 from a trampoline. As he rises up, he takes a trained monkey of mass m off a perch at a height h above the trampoline. What is the maximum height attained by the pair?