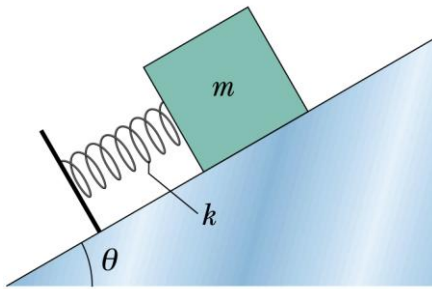Name:_____

Physics 2A/Winter 2011

Quiz 9 (Take Home)

Make sure to show all work in complete detail. NO CREDIT will be given if no work is shown!!!

1. A completely inelastic collision occurs between two balls of wet putty that move directly toward each other along a vertical axis. Just before the collision, one ball, of mass 2.5 kg, is moving upward at 25 m/s and the other ball, of mass 3.0 kg, is moving downward at 15 m/s. Calculate the maximum height both ball rise from the collision point. **(10 pts)**

- *In solving this problem make sure to define the appropriate system.*
- *If using any conservative law explain why it is conserved.*
- *If making any assumptions, make sure to justify it.*

2. A block of mass 1.5 kg is placed against a spring on a frictionless incline plane of angle $40°$. (See Figure below). The spring (K = 30 N/cm) is compressed 35 cm and then released from rest.
    a) Calculate the potential energy stored in the spring.
    b) Calculate the speed of the block when it looses contact with the spring.
    c) Calculate the maximum distance the block moves along the incline plane.

- *In solving this problem make sure to define the appropriate system.*
- *If using any conservative law explain why it is conserved.*
- *If making any assumptions, make sure to justify it.*