Physics 9A Section A Discussion Questions: Week 4

**Question 1**: Hammering a nail



**Question 2**: Ball swinging in a circle revisited

*i:* Assume a ball is swinging in a circle, on a rope that is 2m long. If the angle it makes is 40$°$ with respect to the vertical, how long does one revolution take?

*ii:* Now another identical rope is attached to the ball, as seen in the figure to the right. What is the tension in the lower string, if the ball swings at a constant 7m/s and has a mass of 3.50 kg?

**Question 3:** Block on an Incline

A 8.00 kg block is on a ramp angled at 40$°$.

*i:* If the block is stationary, what is the coefficient of static friction between the block and the ramp?

*ii:* If the block, rather than being stationary, accelerates down the ramp at 1 m/s2, what is the coefficient of kinetic friction between the block and the incline?

*ii:* To accelerate the block at 2 m/s2 up the ramp, what horizontal force must be applied? Assume the same coefficient of kinetic friction as in part (ii).

**Question 4 (if time is available):** Two hanging masses

