1. Halliday & Resnick & Walker. Chapter 4, #119
2. Halliday & Resnick & Walker. Chapter 8, #105
3. Halliday & Resnick & Walker. Chapter 8, #88
4. Halliday & Resnick & Walker. Chapter 8, #36 (Note: this problem involves material on lecture two’s midterm and not on lecture one’s midterm)
5. (Ginacoli Chapter 5, #27) A mass (M1) rests on an angled plane that makes an angle of 30 degree with the horizontal. It is connected to a cord that goes over a frictionless pulley that is at the edge of the plane. A mass (M2=5kg) hangs from the other end of the cord. What is the acceleration of the system if the coefficient of kinetic friction is 0.10? Assume that the blocks start from rest and that a) M1=5kg and b) M1=2kg (Note: the picture in this problem is identical to that of Figure 6-36 p.133 in Halliday and Resnick)
6. (Ginacoli chapter 4 #51) Two blocks are connected by a cord on a frictionless table. The cord is a heavy rope of mass 1.0kg. The left block has a mass of 12kg. The right block has a mass of 10kg. The system is being pulled to the right. A) Calculate the acceleration of each box and B) The tension in each end of the cord. Assume the cord is fairly rigid so we can neglect any sagging.
7. (Ginacoli example 8-10) A Swinging Pendulum. The simple pendulum consists of a small bob of mass m suspended by a massless cord of length l. The bob is released (with out a push) at time t=0, where the cord makes an angle of $\theta = \theta_0$ to the vertical. A) Describe the motion of the bob. B) Then determine the speed of the bob as a function of the angle as it swings back and forth. C) Determine the speed of the bob at the lowest point as a function of the angle. D) Find the tension in the cord. Ignore friction and air resistance. (Note: Part D involves material which will not be on lecture one’s midterm)
8. (Ginacoli chapter 5, #63) A motorboat traveling at a speed of 2.4m/s shuts off its engine at t=0. How far does it travel before coming to rest if it is noted that after 3.0s its speed has dropped to half its original value? Assume that the drag force of the water is proportional to v.

9. (Ginacoli Chapter 3, # 71) A motorcycle traveling at 95.0km/h approaches a car traveling in the same direction at 75.0km/h. When the motorcycle is 60.0m behind the car, the rider accelerates uniformly and passes the car 10.0 s later. What was the acceleration of the motorcycle?

10. (Ginacoli Chapter 3, #84) At serve, a tennis player aims to hit the ball horizontally. A) What minimum speed is required for the ball to clear the 0.90-m-high net about 15m from the server if the ball is “launched” from a height of 2.50m? B) Where will the ball land if it just clears the net (and will it be “good” in the sense that it lands within 7.0m of the net)? C) How long will it be in the air?