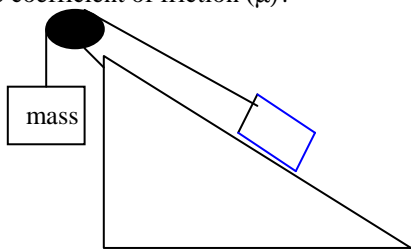


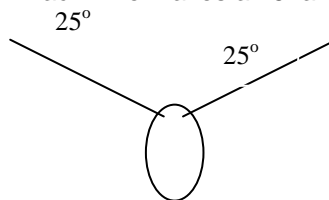
Unit 2 Practice Test (Chapters 4,5 & 6) Advanced Physics

Name _____

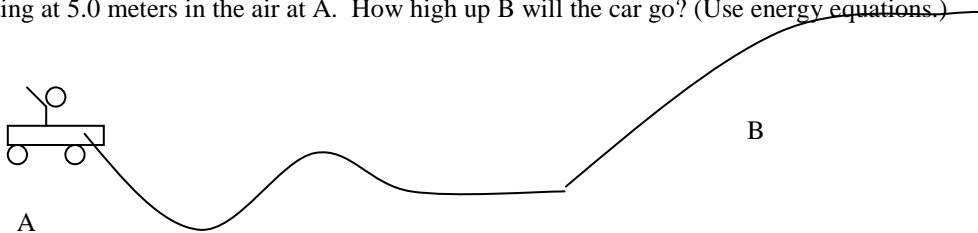
1. A 2.0-kg block is held in equilibrium on an incline of 35° by a horizontal force, F , applied applied by the hanging mass of 1.0kg. What is the coefficient of friction (μ)?



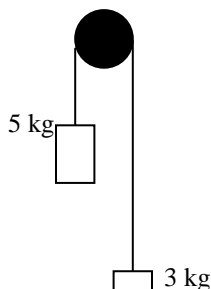
2. Find the tension in the two wires that support the 100-N light fixture. Each wire makes a 25° angle from the ceiling.



3. You are in a roller coaster car that has a total mass of 400.0 kg and a velocity of 5.0 m/s at A. It follows the section of track shown below starting at 5.0 meters in the air at A. How high up B will the car go? (Use energy equations.)



4. A light string connects two masses over a light frictionless pulley as in the diagram below. The 5.00-kg mass is 4.00 m above the floor and the 3kg mass is on the floor.
- What is the speed of each mass as they pass each other?
 - Determine the speed as the 5.00-kg mass the floor.
 - How much higher will the 3.00-kg mass go after the 5.00-kg mass hit the ground?



5. A 15g bullet is shot at 300.0 m/s by a 5.00 kg gun. What is the velocity of the recoil of the gun?

6. How long will it take to stop a 2.0×10^4 -kg train moving at .50 m/s, if the average force it applies to the wall below is 8333N?



7. What is the initial momentum of a 500.0kg bumper car that strikes a glancing blow on a 450.0kg car? The first car has a final speed of 8.00m/s at 25° N of E and the second car travels at 10.0m/s at 30.0° S of E.