Common exam 3  
April 17th, Friday  
8:30 – 9:45 am (arrive by 8:15 am)  
Room: KUPF 118  
Bring your ID and calculator  
Exam covers B2: Ch. 6, 7 & 8 (Power NOT included)  
(Circular motion, work and energy)

To combat cheating, the provost has stipulated while students are taking their exams  
1) students must show their ID upon entering the classroom,  
2) there is no cell phone use,  
3) if a student leaves the room during test time, e.g., Men's/Ladies' room, he/she forfeits finishing the exam.

No Class on Friday, Apr. 10th (Good Friday, NJIT closed)  
Review session on Apr. 13th (Mon)/14th (Tues)

Example: Pendulum

iClicker Quiz: In this example, work done by the tension is _______.  
(a) zero, (b) positive, (c) negative
I use a rope 2.00 m long to swing a 10.0-kg weight around my head. The tension in the rope is 20.0 N. In half a revolution work done by the rope on the weight is ______.

(a) Zero
(b) Positive
(c) negative

If the coefficient of static friction between the tires and road on a rainy day is 0.5, what is the fastest speed at which a car can make a turn with a radius of 80.0 meters? The road is flat.

Example

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iClicker Quiz: In the figure drawn on blackboard, the direction for acceleration is ______
(a) right, (b) left, (c) up, (d) down

iClicker Quiz: In the figure drawn on blackboard, the direction for the friction force is ______
(a) right, (b) left, (c) up, (d) down
A Hooke’s law spring is compressed 12.0 cm from equilibrium and the potential energy stored is 72.0 J. What is the spring constant in this case?

A parachutist of mass 50.0 kg jumps out of an airplane at a height of 1 000 m. The parachute deploys, and she lands on the ground with a speed of 5.0 m/s. How much energy was lost to air friction during this jump?
Old Faithful geyser in Yellowstone Park shoots water hourly to a height of 40 m. With what velocity does the water leave the ground?

A very light cart holding a 300-N box is moved at constant velocity across a 15-m level surface. What is the net work done in the process?
Preston pushes a wheelbarrow weighing 500 N to the top of a 50.0-m ramp, inclined at 20.0° with the horizontal, and leaves it. Tamara accidentally bumps the wheelbarrow. It slides back down the ramp, during which an 80.0-N frictional force acts on it over the 50.0 m. What is the wheelbarrow’s kinetic energy at the bottom at of the ramp? \( (g = 9.8 \text{ m/s}^2) \)

iClicker Quiz: In this problem, mechanical energy is ________

(a) Conserved  (b) not conserved