A-Day Due Tues., Nov 13 (Assigned: 11/9)
B-Day: Due Wed., Nov 14 (Assigned: 11/12)

2007 Energy 1

Ep	J	Potential Energy	Must have height
Ek	J	Kinetic Energy	must be moving
PEel	J	Elastic Potential Energy	must be a spring acting on the object
k	N/m	Spring constant	How strong a spring is
W	J	work	must be a force acting on the object.

$E_p = mgh$
$E_k = \frac{1}{2}mv^2$
$PE_{el} = \frac{1}{2}kx^2$
$W = Fd\cos\theta$

VERY Useful Study Helps are available.

1. A person holds onto an object for 2 minutes, but doesn't move the object. Is work done on the object?

2. What kind of energy is being described: Ek, Ep, W, or PEel?
   A. _____Friction stopping an object from moving.
   B. _____An object is going 6 m/s.
   C. _____A spring is compressed.
   D. _____A moving car.
   E. _____An object is pushed for 3 m.
   F. _____An object on top of a 3 meter table.

3. In the following situations is energy added (gained) or subtracted (lost)?
   A. _____An object is lifted up from the ground.
   B. _____An object is lowered back to the ground.
   C. _____Friction slows an object down.
   D. _____A spring is compressed.
   E. _____An object speeds up.

4. A 200 kg object is going 4 m/s. Find its kinetic energy.

5. A 3 N force pushes on a object for 20 meters. Find the work done.

6. A 4 kg object compresses a spring 0.12 meters. The spring constant for this spring is 2.3 N/m. Find the elastic potential energy stored in the spring.

7. A 10 kg object is 15 meters up a hill. Find its potential energy.

8. A 4 kg object has 400 J of potential energy. Find how high off the ground the object is.

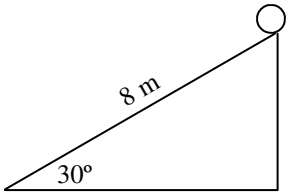
9. A 6 kg object has 350 J of kinetic energy. Find the velocity of the object.

10. A 2 kg object is on spring that is compressed 1.5 meters. If the spring has 2 Joules of Elastic Potential energy, find the spring constant of the spring.

11. A force did 80 Joules of work on an object in 4 m. How big was the force?

In the equation for potential energy h is VERTICAL HEIGHT, not distance.

12. Find the potential energy for a 5 kg ball that is 8 m up a 30º ramp. (*Use the hint above.)*



13. The graphic at the right shows a ball being released at position A.
    A. At which position does the ball have the most kinetic energy?
    B. At which position does the ball have the most potential energy?