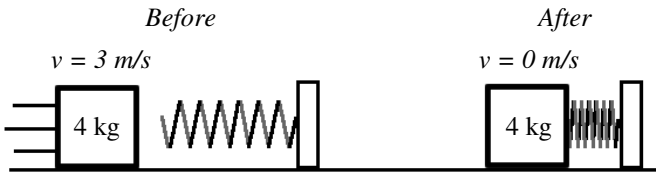
A-Day Due Wed., Nov 19 (Assigned: 11/17)
B-Day: Due Thurs., Nov 20 (Assigned: 11/18)

2008 Energy 4



1. A moving mass is sliding across a frictionless surface. It stops after compressing a spring.
   A. E_{before} = B. E_{after} =

   C. Was the spring compressed by a force doing work or by the energy of the moving object?

   D. If k = 50 N/m, find how far the spring was compressed.

2. For the following Conservation of Energy equations, give the situation.

   A. PEel − W = 0 Situation:

   B. Ep + W = Ep Situation:

   C. Ep = Ek Situation:

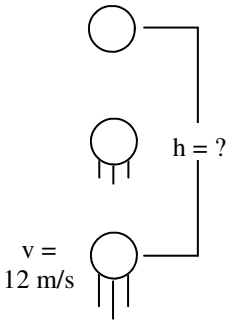
   D. Ek −W = Ek Situation:

3. A ball is going 12 m/s. How far into the air will it go?

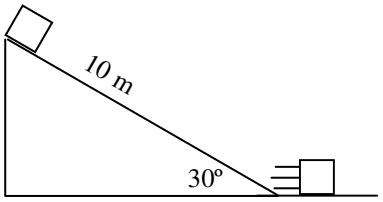
   A. E_{before} = _____ B. Work? = _____ C. E_{after} = _____

   D. Conservation of Energy Equation:

   E. Solve for how high it goes.



Remember that "h" must always be vertical.



4. A 6 kg object is at the top of a 10 m long ramp. Friction slows the mass so that it is only moving 8 m/s at the bottom.
   A. E_{before} = B. E_{after} = C. +, −, or 0 W?

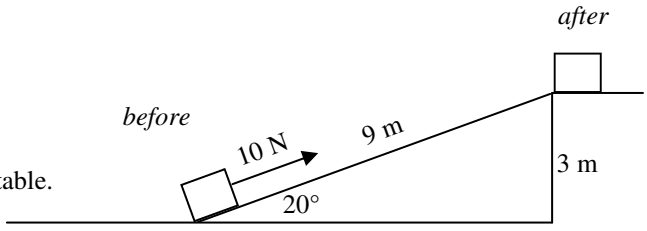
   D. Conservation of Energy Equation:

   E. What is the height of the object?
   F. How far does friction act on the object?
   G. Solve for the force of friction.

Understanding efficiency:

5. A 10 N force pulls a 2 kg object up a 9 m long ramp to get the object to the top of a 3 m tall platform.
   A. Calculate the work done to pull the object up the ramp.

   B. Calculate the potential energy of the object when it is on the table.



   C. Was all of the work transferred to the object?
   D. If energy cannot be created nor destroyed, where did the energy go?

   E. Find the efficiency of the object.

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If you don't remember the following song, go to the Study Helps and then Songs and relisten.

6. From the song: "*Metals are on the _____ side; nonmetals on the _____. Metals tend to _____ electrons; nonmetals _____ them tight. Losers of electrons become _____; gainers of electrons become _____. Losers and gainers find themselves electrically attracted and they form _____ bonds of love."*

7. Metal or nonmetal?

A. ___ Lithium	C. ____ Iron	E. ____Magnesium
B. ___ Helium	D. ____ Oxygen	F. ____Nitrogen

8. Give the oxidation numbers for the following:

A. ___ Calcium	C. ___ Oxygen	E. ____ Nitrogen
B. ___ Fluorine	D. ___ Magnesium	F. ____ Sodium

9. Give the number of valence electrons for the following:

A. ____Helium	C. ____Beryllium	E. ___ Nitrogen
B. ____Oxygen	D. ____Argon	F. ___ Potassium

10. A spring with a spring constant of 25 N/m is stretched 0.4 m in 2 seconds.
    A. Calculate the energy the spring has after it is compressed.

    B. What was done to compress the spring?

    C. Calculate the power used to compress the spring.

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