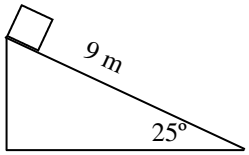
A-Day Due Fri., Nov 29 (Assigned: 11/28)
B-Day: Due Mon., Dec 3 (Assigned: 11/29)

2007 Energy 5

1. A moving object sliding along a table with friction compresses a spring.
   A. For efficiency what is Win?
   B. What would be Wout?
   C. Write the conservation of energy equation:



2. A 2 kg object is at the top of the ramp at the right. It is going 7 m/s at the bottom, because of friction.
   A. Write the Conservation of Energy formula for this situation.

   B. For the efficiency formula, calculate W_{in} =

   C. Calculate W_{out} =

   D. Calculate efficiency.

   E. How much energy was lost to friction (amount, not %)?

3. What is the biggest efficiency that can exist in an energy transfer?
4. A 3 kg object at rest is pushed by a 10 N force for 12 m. It ends up going 6 m/s. Find the efficiency of the transfer.

5. A toy company once claimed that one of their superballs would rebound higher than where it was dropped. Respond.

6. A 4 kg object originally going 2 m/s is pushed for 8 meters by a 10 N force. Find how fast it is going afterwards.

7. An object is 15 meters above the ground, how fast is it going 5 meters above the ground?

8. A 1 kg object is moving 2 m/s. It is pushed by a 5 N force for 10 m. Due to friction it is only moving 5 m/s afterwards.
   A. Write the Conservation of Energy formula for this situation (remember the friction):

   B. For efficiency Win = _____; Wout = _____.

   C. Calculate the efficiency.

Remember that the website has help on Oxidation Numbers and Ionic Compounds (including the applet I showed in class) in the Chemistry Online Study Helps.

9. Will gain or lose electrons?

   A. ____ Fluorine C. ____ Helium
   B. ____ Beryllium D. ____ Sulfur

10. Sodium (Na) and Oxygen are combined.
    A. What is the oxidation number of sodium?
    B. How many electrons are gained or lost by sodium?
    C. What is the oxidation number of oxygen?
    D. How many electrons are gained or lost by oxygen?
    E. When they combine how many sodium atoms will combine with how many oxygen atoms?

    F. Write the formula for sodium oxide:

11. Write the ionic formula for beryllium sulfide (Be and S).