A-Day Due Wed., Jan 21
B-Day: Due Thurs., Jan 22

2009 PreAP Thermo 1

1. Define Q

2. Define U

3. What happens when a gas is compressed?

4. What happens when a gas is expanded?

5. What happens to U when heat is applied to a gas?

6. Give two ways to increase U for a gas.

7. Give two ways to decrease U for a gas.

8. Remembering that the prefix "iso" means "same", define the following thermodynamic processes.
   A. Isothermal:
   B. Isobaric:
   C. Isovolumetric:
   D. Adiabatic:

9. You lift an object off the ground.
   A. Does the object gain or lose energy?
   B. Do you gain or lose energy?

10. Now, think of yourself as the gas inside a cylinder with your hands against a moveable piston above you. The piston has a mass on it, which you can move up or down.
    A. When you push up on the piston, does the mass gain or lose energy?
    B. Do you gain or lose energy?
    C. So, when a gas expands, the gas gains or loses energy?
    D. So, when a gas expands W FOR THE GAS is + or –?
    E. Yet, the temperature of the gas goes up or down?
    F. By the same logic, when a gas is compressed is W for the gas + or –?
    G. The temperature of the compressed gas goes up or down?
    H. If the gas does not change volume, is any work done?

11. For the following thermodynamic process tell me what quantity or quantities are equal to zero: U; ΔT; W.
    A. Isothermal:
    B. Isovolumetric:
    C. Adiabatic: