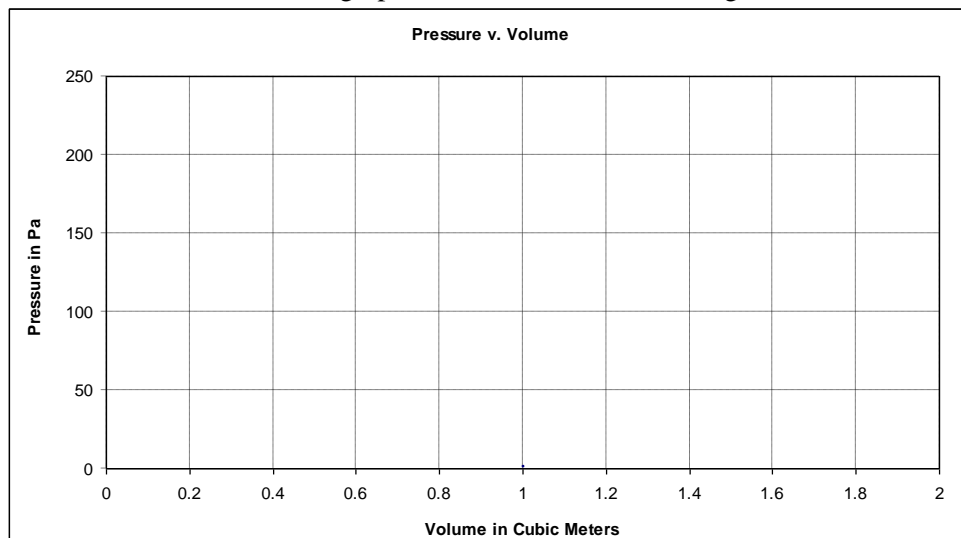Name_____

Favorite Saying _____
Show your work, and circle your answers and use sig figs to receive full credit.
When you have finished this, go to the website and check your answers. If you got a problem wrong, cross it off on the front, and do it correctly on the back.

This is a Pressure v Volume graph for 0.280 mols of an ideal gas.

Pressure v. Volume

Pressure in Pa

Volume in Cubic Meters

The system starts at a pressure of 175. Pa and a volume of 1.60 m^3 and goes through these four processes:
1. Isobaric (constant pressure) compression to 0.400 m^3
2. Isochoric (constant volume) cooling to 50.0 Pa
3. Isobaric expansion to 1.60 m^3
4. Isochoric heating to 175 Pa
    Draw all four processes. Use **arrows** for the processes, and **label** each process 1, 2, 3 or 4
    1. Calculate the highest and lowest **temperature** (in K)   **Label** these temperatures at the corners **on the graph above**.

2. Calculate the **work done by each process**, and the **net work** done by the gas in the entire cycle.

3. At what temperature in Celsius does 14.0 grams of Helium have a total internal energy of 9450 J? (He = 4.003 g/mol)

4. 32 J of heat flow into a gas, and its internal energy drops by 17 J, how much work did the gas do? Does the temperature rise or fall? (Answer both questions)

Fred does 35 J of work compressing a gas in a cylinder, and the internal energy rises by 13 J, what is the amount of heat flow into the gas? Does heat flow <u>into</u> or <u>out of</u> the gas? (Answer both questions)

5. What is the change in entropy of 1.20 kg of water boiling into vapor at 100.0 ^{o}C? (L = 22.6x10^5 J/kg)