**Thermodynamics Worksheet #1: An Ideal Gas in a Rectangular Cycle**

P

V

2 atm

1 atm

3 liters

1 liter

*a*

*c*

*b*

A sample of N2 gas starts out at pressure N/m2 (about 1 atm), volume liter, temperature K.

1. Find the number of moles of the gas.

2. The gas is heated at constant volume from point to point , then heated a constant pressure to point . Find the temperatures and .

3. Find the change in the internal energy for the gas for the processes and . (Call these and .)

4. Find the work done on the gas for each process, and .

5. Find the heat added to the gas, and .

Now the gas is cooled at constant volume from point to point , and cooled at constant pressure from point back to point .

P

V

2 atm

1 atm

3 liters

1 liter

*a*

*c*

*b*

*d*

6. Find the temperature at point .

7. Complete the following table.

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