

Physics 161 Fall 2010 Exam 1
 Numbers will be changed on the real exam.
 Closed book closed notes calculators OK.

$pV = nRT$

Helpful equation(s): $Q = nC_v\Delta T$ at const. volume

$C_v = \frac{3}{2}R$ monatomic ideal gas

| | A | B | C |
|---|---------------------|---|---|
| P | 10 N/m ² | 2 | |
| V | 1 m ³ | 2 | |
| T | 1000 K | | |

A monatomic ideal gas is taken through the paths shown. Path AC is isothermal. Path AB is a straight line. Path BC is isochoric.

1&2. How much work is done by the gas on path AB, in Joules? Answer 1 x 10^{answer2}

3&4. How much work is done by the gas on path AC, in Joules? Answer 3 x 10^{answer4}

5&6. What is the temperature of the gas at point B in Kelvin? Answer 5 x 10^{answer6}

7&8. What is the temperature of the gas at point C in Kelvin? Answer 7 x 10^{answer8}

9&10. What is heat added to the gas on path BC, in Joules? Answer 9 x 10^{answer10}

