

Quiz-09-Oct-2013

Name: solution
Id#:Number:
Section: 13

One mole of a monatomic ideal gas is initially at a temperature of 300 K and with a volume of 0.080 m^3 . The gas is compressed adiabatically to a volume of 0.040 m^3 . What is the final temperature?

$$TV^{\gamma-1} = \text{constant}$$

$$T_i V_i^{\gamma-1} = T_f V_f^{\gamma-1}$$

$$T_f = T_i \left(\frac{V_i}{V_f} \right)^{\gamma-1}$$

$$T_f = 300 \left(\frac{0.08}{0.04} \right)^{\frac{5}{3}-1}$$

$$= 476 \text{ K}$$

04 Sep	11 Sep	18 Sep	25 Sep	2 Oct	9 Oct	23 Oct	30 Oct	6 Nov	13 Nov	20 Nov	27 Nov	4 Dec	11 Dec	18 Dec
Solutions of the quizzes can be found on the webpage: http://faculty.kfupm.edu.sa/phys/aljalal/phys102.htm														
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