

Two moles of an ideal gas undergo an adiabatic free expansion from an initial volume of 0.6 L to 1.3 L. Calculate the change in entropy of gas.

$$\Delta S = nR \ln \frac{V_f}{V_i} + nC_v \ln \frac{T_f}{T_i}$$

for adiabatic free expansion ~~$T = \text{constant}$~~

$$T = \text{constant}$$

$$\Rightarrow T_f = T_i$$

$$\Rightarrow \ln \frac{T_f}{T_i} = \ln 1 = 0$$

$$\Delta S = nR \ln \frac{V_f}{V_i}$$

$$\Delta S = 2(8.31) \ln \frac{1.3}{0.6} = 12.9 \text{ J/K}$$

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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