

5. A chamber with a fixed volume of 1.0 m^3 contains a monatomic gas at $3.00 \times 10^2 \text{ K}$. The chamber is heated to a temperature of $4.00 \times 10^2 \text{ K}$. This operation requires 10.0 joules of heat. (Assume all the energy is transferred to the gas.) How many gas molecules are in the chamber?

A. 4.8×10^{20}

B. 1.2×10^{21}

C. 2.9×10^{21}

D. 3.6×10^{21}

E. 4.8×10^{21}

F. 1.2×10^{22}

G. 3.6×10^{22}

Ans. _____