

Question:

If the volume of  $2.46 \times 10^{21}$  molecules of  $\text{HBr(g)}$  at  $46.^\circ\text{C}$  and  $1.36 \text{ atm}$  is  $86.7 \text{ mL}$ , then what is the volume of  $2.46 \times 10^{21}$  molecules of  $\text{CO}_2(\text{g})$  at  $46.^\circ\text{C}$  and  $1.36 \text{ atm}$ ?

Solution:

The volume of  $\text{CO}_2$  will be the same, because volume of gas depends from number of moles, temperature, pressure, but not depends from exact gas. Molar mass of gas is not important.

So in the same conditions volume of the  $\text{CO}_2$  will  $86.7 \text{ mL}$ .

Answer:  $86.7 \text{ mL}$ .