13 A rigid container has an ideal gas. The mean square speed of the gas molecules in the container is $3.0 \times 10^5 \text{ m}^2 \text{ s}^{-2}$. Over a period of time, one quarter of the gas molecules escape from the container. The pressure of the gas in the container is reduced to half.

What is the mean square speed of the molecules left in the container?

A $1.0 \times 10^5 \text{ m}^2 \text{ s}^{-2}$ B $2.0 \times 10^5 \text{ m}^2 \text{ s}^{-2}$ C $4.5 \times 10^5 \text{ m}^2 \text{ s}^{-2}$ D $9.0 \times 10^5 \text{ m}^2 \text{ s}^{-2}$