

10 A fixed mass of monatomic ideal gas at a volume  $V$  at temperature  $T$  and pressure  $P$  has a root mean square speed  $c$ . After absorbing heat, its final volume is  $V$  and final pressure is  $2P$ .

What is the new root mean square speed of the ideal gas?

**A**  $0.5 c$

**B**  $0.71 c$

**C**  $1.4 c$

**D**  $2.0 c$