

4) Ideal gas, T is doubled, P is constant
 v_{rms} of molecules = ?

$$\frac{1}{2} m v_{rms}^2 = \frac{3}{2} kT \quad v_{rms} = \sqrt{\frac{3kT}{m}} \quad v_{rms} \propto \sqrt{T}$$

$$\frac{v_2}{v_1} = \sqrt{\frac{T_2}{T_1}} = \sqrt{\frac{2T_1}{T_1}} = \sqrt{2}$$

$v_2 = \sqrt{2} v_1$, new v_{rms} is $\sqrt{2}$ times original v_{rms}

(B)