Physics 231 - 3-Nov-99

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- Kinetic Theory
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Kinetic Theory
Kinetic Energy, Velocity and Temperature
Q1 - Answer = c

Q2 - Problem A - Last name A-K

What is the total kinetic energy in one mole of hydrogen gas at 20 °C? ($N_A = 6.02 \times 10^{23} \text{ mol}^{-1}$, $k=1.38 \times 10^{-23} \text{ J/K}$)

A. 8.3 J
B. 166 J
C. 250 J
D. 2430 J
E. 3650 J
Q1 - Answer = c
Q2 - Problem B - Last Name L-Z

• What is the average speed of a molecule of N₂ (mass = \(4.6 \times 10^{-26}\) kg) in a container held at a temperature of 300 °C? (\(k = 1.38 \times 10^{-23}\) J/K)

A. 415 m/s
B. 718 m/s
C. 519 m/s
D. 300 m/s
E. 293 m/s