**Videos 13C - Boltzmann's Equation Name**

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Example #1 – What is the RMS velocity of a helium atom in the thermosphere that is at 1800 oC?

(The mass of a Helium atom is (4.003 u)x(1.661x10-27 kg/u) = 6.649x10-27 kg)

Whiteboards: (These are solved on the website in the videos linked after the main one)

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| 1. What is the average KE of an ideal gas molecule at 37.0 oC? (6.42x10-21 J) | 2. At what temperature is the average KE of an ideal gas molecule 1.20x10-20 J? (580. K) |
| 3. What is the RMS speed of an atom of Neon-20 at room temperature?(Ne-20 = 19.992 u, 1 u= 1.661x10-27 kg, T = 20.0 oC)(605m/s) | 4. At what temperature is the RMS velocity of Helium the same as Usain Bolt’s PR average in the 100 m? (100 m in 9.58 s) (He =4.00 u, 1 u= 1.661x10-27 kg)(0.0175 K) |