

Quiz 11/12

Name: _____

1. At what temperature is the rms speed of a Hydrogen molecule equal to 2200 m/s? H_2 mass is 3.34×10^{-27} kg
2. A 5 kg block of ice is initially at $-65^\circ C$ and then combined with 1 kg of boiling water. What is the final temperature of the system, what is the final mass of ice, what is the final mass of water? $c_{water} = 4,186$ J/kgK, $c_{ice} = 2,090$ J/kgK, $c_{steam} = 2,010$ J/kgK, $L_f = 3.33 \times 10^5$ J/Kg, $L_v = 2.26 \times 10^6$ J/kg

$$T_C = T - 273.15^\circ C \quad T_F = (9^\circ F / 5^\circ C) T_C + 32^\circ F$$

$$K_{avg} = 3/2 k_B T \quad E_{th} = 3/2 N k_B T \quad v_{rms} = \sqrt{\frac{3 k_B T}{m}} \quad k_B = 1.38 \times 10^{-23} \text{ J/K}$$

$$\Delta L = \alpha L_i \Delta T \quad \Delta V = \beta V_i \Delta T$$

$$Q = Mc \Delta T \quad Q = \pm ML_f \quad Q = \pm ML_v$$