Exercise 9.5
Calculations Relating Root-Mean-Square Speed and Temperature of Gases

1. Nitrogen (N_2) and argon (Ar) are two gases commonly used as inert atmospheres in chemistry labs.

(a) Calculate the average kinetic energy for each of these gases in a lab kept at 21 °C.

(b) Calculate the root-mean-square speed for each of these gases in a lab kept at 21 °C.

2. If a gas has a root-mean-square speed of 1838 m/s at 0 °C, what is the gas?