Chapter 13
Example Problems

1. Suppose you fully inflate a bicycle tire to a pressure of 7.00×10^5 Pa at 18 °C.
   a. What would be the pressure in the tire if the temperature were raised to 35 °C? Assume that there are no changes in the volume.
   b. What would be the pressure, if the volume did change from 3.6 m^3 at 18 °C to 3.8 m^3 at 35 °C?

2. From the previous question, how many moles are in the bike tire?

3. What is the average kinetic energy for a gas at temperature 20.0 °C? What is the root mean squared velocity of N_2 molecules at this temperature?

4. Suppose that the root mean squared velocity of gas of carbon dioxide (molecular mass of 44.0 g/mol) in a flame is found to be 1.05×10^5 m/s. What is the kinetic energy and temperature of the gas?