1. (3 points) Circle the best answer for each of the following questions.

   a. If the volume of a gas is doubled while the temperature remains the same, the pressure of the gas will:
      i. double
      ii. be cut in half
      iii. quadruple
      iv. be cut in one-fourth

   b. If the pressure of a gas is tripled while the temperature remains the same, the volume of the gas will:
      i. be cut in one-third
      ii. be tripled
      iii. be increased by a factor of nine
      iv. remain unchanged

   c. The temperature of a gas is doubled and the volume is cut to one-fourth of its original size. What can be said of the pressure of the gas?
      i. the pressure doubles
      ii. the pressure is cut in half
      iii. the pressure is eight times greater
      iv. the pressure is one-eight the original value

2. (4 points) Show your work.

   a. A sample of gas originally occupies a volume of 35.0-L at a pressure of 3.0 atm. If the volume is changed to 100.0-L at the same temperature, what is the new pressure of the gas?

   b. The initial pressure of a gas is 25.0-atm in a volume of 50.0-L. What volume would be required for the pressure of the gas to be changed to 10-atm at the same temperature?
3. (4 points) The volume of a car tire is about 30-L. Show your work.
   a. If the pressure in the tire is 45-psi (1 atm = 14.7 psi), approximately how many mol of gas are in the tire at a temperature of 300 K?

   b. If the molar mass of “air” may be taken as 29 g/mol, how many moles of air are in the tire?