CW 12.3 - Ideal Gas Equation   **Name:** ....

1. One mole of oxygen gas is at a pressure of 6.00 atm and a temperature of 27.0 °C.

   i) If the gas is heated at constant volume until the pressure triples, what is the final temperature? (2)

   ii) If the gas is heated so that both the pressure and volume are doubled, what is the final temperature? (2)

2. Gas is contained in an 8.0 litre vessel at a temperature of 20°C and a pressure of 9.0 atm.

   i) Determine the number of moles of gas in the vessel. (2)

   ii) How many molecules are in the vessel? (2)

3. An ideal gas occupies a volume of 1.0 cm³ at 20°C and atmospheric pressure.

   i) Determine the number of molecules of gas in the container. (2)

   ii) If the pressure of the 1.0 cm³ volume is reduced to 1.0×10^{-11} Pa, while the temperature remains constant, how many moles of gas remain in the container? (2)

4. Gas is confined in a tank at a pressure of 10.0 atm and a temperature of 15.0 °C. If half of the gas is withdrawn and the temperature is raised to 65.0 °C, what is the new pressure in the tank? USE ALGEBRA (2)