Ideal Gas Law Practice Problems

1. If I have 4 moles of a gas at a pressure of 5.6 atm and a volume of 12 liters, what is the temperature?

2. If I contain 3 moles of gas in a container with a volume of 60. Liters and at a temperature of 400 K, what is the pressure inside the container?

3. What is the volume of a gas that contains 7.7 moles of gas at a pressure of 91.3 kPa and a temperature of 56°C?

4. If I have 72 liters of gas held at a pressure of 3.4 atm and a temperature of 35°C, how many moles of gas do I have?

5. What is the volume of a gas that contains 0.275 moles of that gas at a temperature of 75 K and a pressure of 180.1 kPa?

6. What volume is occupied by 7.10 g of O_2 at 29°C and a pressure of 0.998 atm?

7. At what temperature does 19.5g of Nitrogen gas have a pressure of 1.25 atm in a 35.0 L tank? Remember Nitrogen gas is diatomic.

8. What mass of CO_2 is needed to fill an 83.2 L tank to a pressure of 1500 kPa at 27°C?

9. How many moles of gas would you have if you had a volume of 38.0 L uner a pressure of 1432 torr at standard temperature?

10. A 7.50 L sealed jar at 18°C contains 0.125 moles of Oxygen and 0.125 moles of Nitrogen gas. What is the pressure, in atm, inside the container?

11. At 17°C, a 0.80 mole sample of a gas exerts a pressure of 810 torr. What is the volume of the container?

12. A 15.50 gram sample of gas exerts a pressure of 1.40 atm when held in a 8.00 L container at 22°C. What is the molar mass of the gas? Remember molar mass has units of g/mol.

13. How many moles of oxygen must be placed in a 3.00 L container in order to exert a pressure of 202.6 kPa at 25°C?

14. When 0.250 moles of a gas are placed in a container at 30°C, it exerts a pressure of 700 mm Hg. What is the volume of the container?

15. How many grams of Cl_2 can be stored in a 10000 mL container at 1000 kPa and 30°C?

16. What volume will 120 g of N_2 occupy at 980 torr and 25°C?