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6. The pressure of a gas in a cylinder at 27.0°C is 846 kPa. What is the pressure in the cylinder when the temperature is increased to 54.0°C ?

7. Calculate the final pressure of a gas initially at 122 kPa pressure that is expanded from 4.50 L at 56°C to 18.0 L at 124°C .

8. A weather balloon has a volume of 3.5 kL at 1.01 atm and 18°C . What is the balloon's volume at a pressure of 0.420 atm and -18°C ?

9. A cylinder contains 4.50 L of nitrogen at 35°C and a pressure of 644 kPa. How many moles of N_2 are in the cylinder?

10. A balloon containing 1.46 mo of neon gas has a volume of 36.2 L. Under the same conditions, what is the volume of the balloon if an additional 0.34 mol of Ne is added to the balloon?

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11. What is the pressure (in kPa) in a 5.00 L tank containing 0.240 mol of oxygen gas at a room temperature of 17°C?

12. Calculate the volume of 0.880 mol of fluorine gas at 26°C and 88.8 kPa.

13. A metal cylinder contains 0.440 mol of nitrogen gas at a pressure of 34.0 kPa. What is the pressure in the container after 0.128 mol of nitrogen are removed?

14. All the neon gas from a 10.0 L container at a pressure of 202 kPa is added to a 20.0 L container of argon at a pressure of 505 kPa. After the transfer, what are the partial pressures of neon and argon?

15. A child buys a balloon filled with 3.50 L of helium on a very hot day when it's 39.0°C outside. Assuming a constant pressure, what is the volume of the balloon when the child brings the balloon home to an air conditioned house at 20.0°C?

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16. In a typical automobile engine, the gas mixture in a cylinder is compressed and the pressure increases from 1.00 atm to 9.50 atm. If the uncompressed volume of the cylinder is 755 mL, what is the volume when fully compressed? (Assume constant temperature)

17. What is the new pressure when an aerosol can with an initial pressure of 4.50 atm at 25°C is heated in a fire to 650°C?

18. How many moles of air are in the lungs of an average person with a total lung capacity of 3.8 L? Assume that the person is at sea level (1.00 atm) and has a normal body temperature of 37°C.

19. Lithium nitride is formed from its elements. $6 \text{Li}_{(s)} + \text{N}_{2(g)} \rightarrow 2 \text{Li}_3\text{N}_{(s)}$ How many milliliters of nitrogen gas at STP are needed to react with 0.246 g of lithium?

20. Nitrogen and hydrogen react to form ammonia. $\text{N}_{2(g)} + 3 \text{H}_{2(g)} \rightarrow 2 \text{NH}_{3(g)}$ How many liters of hydrogen gas measured at 86.4 kPa pressure and 245°C are needed to react completely with 6.44 g N_2 ?

1) 295 kPa; 2) 521 L; 3) 3.03 mL; 4) 427 mL; 5) 398°C or 671 K; 6) 922 kPa; 7) 36.8 kPa; 8) 7.4 L; 9) 1.13 mol N_2 ; 10) 44.6 L Ne; 11) 116 kPa; 12) 24.6 L F_2 ; 13) 24.1 kPa; 14) $P_{\text{Ne}}=101 \text{ kPa}$; $P_{\text{Ar}}=505 \text{ kPa}$; 15) 3.29 L; 16) 79.5 mL; 17) 13.9 atm; 18) 0.15 mol; 19) 133 mL N_2 ; 20) 34.4 L H_2