

Boyle's Law:

- At a constant temperature a given mass of gas sample occupies 200 mL at 0.72 atm pressure. Find the volume of gas sample when pressure is increase to 0.9 atm.
(A) 180 mL (B) 160 mL (C) 200 mL (D) 220 mL
- 5 L of gas sample at 2 atm pressure is transferred in to a 1 L iron container at the same temperature. Find the pressure of the gas in the iron container
(A) 5 atm (B) 20 atm (C) 2 atm (D) 10 atm
- A gas occupies a volume of 250 ml of 0.2 atm pressure. What additional pressure is required to reduce the volume to 200 ml at the same temperature
(A) 0.05 atm (B) 0.5 atm (C) 5 atm (D) 0.001 atm
- A gaseous system has volume 580 cm³ at a certain pressure. If its pressure is increased by 0.96 atm, its volume becomes 100 cm³ at the same temperature condition. Determine the initial pressure of the system
(A) 0.1 atm (B) 0.3 atm (C) 0.2 atm (D) 0.4 atm
- 50 mL of sample of O₂ gas at pressure P is subjected to a pressure of P/4 at constant temperature. Find the increase in volume of O₂ gas
(A) 200 (B) 150 (C) 100 (D) 50

Charle's Law:

- A sample of Helium gas has 450 ml volume at - 7⁰ C pressure remaining constant what will be the volume of the gas at 27⁰ C
(A) 400 ml (B) 450 ml (C) 500 ml (D) 550 ml
- A flask has a capacity of 500 ml. What volume of air will escape from the flask if it is warmed from 25⁰ C to 37⁰ C and the barometer remains unchanged
(A) 20 ml (B) 10 ml (C) 15 ml (D) 25 ml
- A Gas occupied 100 ml at 0⁰ C and 720 mm pressure. What final temperature will be required to raise the pressure to 984 mm. Volume kept constant
(A) 100⁰ C (B) 150⁰ C (C) 50⁰ C (D) 200⁰ C
- A sample of N₂ gas has pressure of 2 atm at 127⁰ C. What will be it pressure at - 23⁰ C? volume kept constant
(A) 4 atm (B) 3 atm (C) 2 atm (D) 1 atm
- It is desired to increase the volume of 800 ml of a gas sample by 20% keeping the pressure constant. To what temperature should the gas be heated if initial temperature is 22⁰ C?
(A) 70⁰ C (B) 71⁰ C (C) 81⁰ C (D) 80⁰ C
- The volume of certain mass of Neon gas is 1500 ml at 27⁰ and 6 atm pressure. What will be the volume of same sample of gas at 127⁰ C and 8 atm pressure
(A) 1000 ml (B) 1500 ml (C) 2000 ml (D) 2500 ml
- 2 L of Helium gas has pressure 10 atm at 7⁰ C. Find the temperature at which the same sample of gas has volume 10 L and pressure 5 atm
(A) 407⁰ C (B) 417⁰ C (C) 427⁰ C (D) 437⁰ C
- 10 L of Argon has pressure P atm at - 7⁰ C. The volume of same sample of gas becomes 5 L and temperature 27⁰ C when the pressure becomes (P+5) atm. Find the value of P?
(A) 1 (B) 2 (C) 3 (D) 4

Ideal gas equation (R = 0.0821 L atm k⁻¹ mol⁻¹):

- Find the volume of 1 mole of nitrogen at 2 atm pressure and 273⁰ C.
(A) 22.4 L (B) 11.2 L (C) 5.6 L (D) 44.8 L
- What will be the pressure of 2L of 11 gm of CO₂ at 27⁰ C?
(A) 1 atm (B) 2 atm (C) 3 atm (D) 4 atm
- 8 gm of a gas X has volume 5L at STP. Find the molecular mass of X.
(A) 36.86 (B) 35.86 (C) 34.86 (D) 33.86
- Calculate the density of CO₂ gas at 5 atm and 27⁰ C (in g/L)
(A) 5.9 (B) 6.9 (C) 7.9 (D) 8.9
- 16 gm O₂ and 3 gm of H₂ are mixed and kept at 1 atm pressure and 0⁰ C. Find the volume of mixture.
(A) 11.2 L (B) 22.4 L (C) 44.8 L (D) 33.6 L

Dalton's Law:

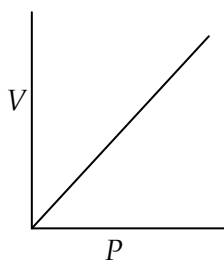
20. Calculate the total pressure of a mixture containing 4g of oxygen and 2gm of Hydrogen in a 5L container at 27⁰ C.
 (A) 2.5 atm (B) 3.5 atm (C) 4.5 atm (D) 5.5 atm
21. Equal amount of two gases of molecular weight 4 and 40 are mixed in a container of volume VL. The pressure of the mixture is 1.1 atm. What will be partial pressure of lighter gas.
 (A) 1 atm (B) 0.1 atm (C) 1.1 atm (D) 11 atm
22. 2 gm of each Methane and Sulphur dioxide are mixed in a container of 10L at 127⁰ C. Find total pressure of the mixture.
 (A) 0.1 atm (B) 0.3 atm (C) 0.5 atm (D) 0.7 atm

Graham's Law of Diffusion:

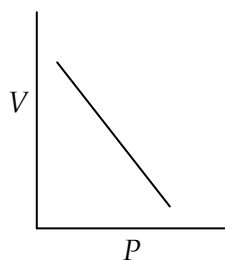
23. If 1500 CC of H₂ diffuses in 25 sec. What volume of O₂ would diffuse in the same time.
 (A) 1500 (B) 750 (C) 375 (D) 3000
24. Under similar conditions which of the following gases diffuse 4 time faster than SO₂
 (A) He (B) H₂ (C) O₂ (D) N₂
25. If CH₄ diffuses at a rate of 6 mL/sec. Find the rate of diffusion of He gas under the same condition of temperature and pressure (in ml/sec)
 (A) 14 (B) 16 (C) 12 (D) 18

All together:

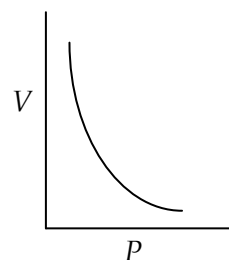
26. A sample of gas occupies 600 ml at 27⁰ C and 1 atm pressure. What will be the volume at 127⁰ C if the pressure is kept constant?
 (A) 600 ml (B) 1000 ml (C) 1200 ml (D) 800 ml
27. Coefficient of volume expansion of a gas is
 (A) 273 (B) $\frac{1}{273}$ (C) 2×273 (D) $\frac{2}{273}$
28. The molecular weights of two gases A and B are respectively 100 and 200. One gram of A occupies VL at STP. What will be volum of B at STP.
 (A) $\frac{V}{2}$ (B) V (C) V² (D) 2V
29. 180 ml of a hydrocarbon diffuses through a porous membrane in 15 mins while 120 ml of SO₂ under the identical conditions diffuses in 20 mins. What is the molecular mass of the hydrocarbon?
 (A) 8 (B) 30 (C) 16 (D) 72
30. Which of the following graph represents Boyle's Law?



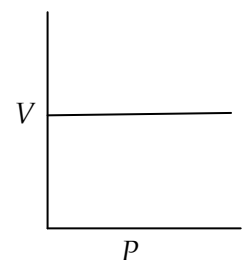
(A)



(B)



(C)



(D)

KEY

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|-------|-------|-------|-------|
| 1. B | 2. D | 3. A | 4. C |
| 5. B | 6. C | 7. A | 8. A |
| 9. D | 10. C | 11. B | 12. C |
| 13. D | 14. D | 15. A | 16. C |
| 17. B | 18. D | 19. C | 20. D |
| 21. A | 22. C | 23. C | 24. A |
| 25. C | 26. D | 27. B | 28. A |
| 29. C | 30. C | | |