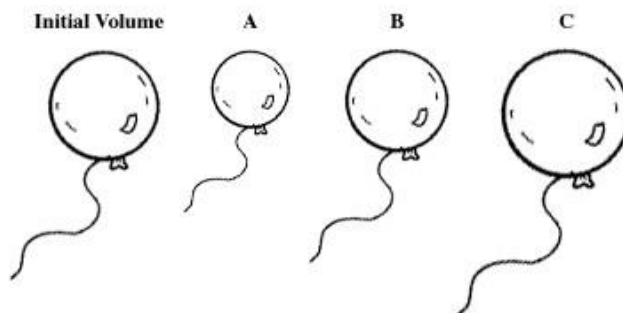


REVIEW QUESTIONS

Chapter 11

Gas Laws:

1. Indicate which diagram represents the volume of the gas sample in a balloon when each of the following changes takes place:



- A) The temperature increases at constant pressure: _____
 - B) The pressure increases at constant temperature: _____
 - C) Both the pressure and the absolute temperature are doubled: _____
2. The pressure of a sample of gas with a volume of 125 mL is decreased from 2.50 atm to 1.50 atm. What is the new volume?
 3. A sample of nitrogen gas with a volume of 10.0 L has a temperature of -78.0°C . What is the volume of this gas at 25.0°C at constant pressure?

STP & Molar Volume:

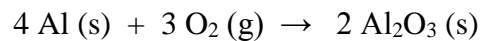
8. A gas has a volume of 125 mL at 630 mmHg and 27°C. What will the volume be at STP?

9. What volume will 30.0 g of methane gas (CH₄) occupy at STP?

10. Calculate the number of moles of CO₂ in 4.00 L of CO₂ gas at STP.

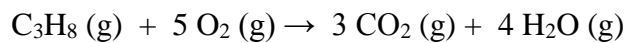
11. Calculate the volume (mL) occupied by 50.0 g of neon gas at STP.

12. How many grams of aluminum will react with 12.0 L of oxygen at STP as shown below:



13. What is the molar mass of a gas if 1.15 g of the gas has a volume of 225 mL at STP?

14. How many liters of oxygen gas are required to completely react with 12.0 L of propane at constant temperature and pressure, as shown below:



Ideal Gas Law:

15. What volume is occupied by 15.0 g of HCl gas at 715 mmHg and 90°C?
16. A 10.0-g sample of krypton has a temperature of 25°C at 575 mmHg. What is the volume (mL) of this gas at these conditions?
17. A sample of gas occupies 855 mL at 1.20 atm and 18°C. How many moles of gas are present in this sample?
18. A steel cylinder with a volume of 15.0 L is filled with 50.0 g of nitrogen gas at 25°C. What is the pressure of the nitrogen gas in the cylinder?

Partial Pressure:

19. An anesthetic consists of a mixture of cyclopropane gas (C_3H_6) and oxygen gas. If the mixture has a total pressure of 1.09 atm, and the partial pressure of the cyclopropane is 73 mmHg, what is the partial pressure of the oxygen in mmHg?
20. A gas mixture consists of nitrogen (425 torr), oxygen (115 torr) and helium (225 torr). What is the total pressure of this mixture in torrs?
21. A mixture containing 4.33 g of CO_2 and 3.11 g of CH_4 has a total pressure of 1.09 atm. What is the partial pressure of CO_2 in the mixture?

ANSWERS:

- 1A) C
- 1B) A
- 1C) B
- 2) 208 mL
- 3) 15.3 L
- 4) 7.2 g
- 5) 622 mL
- 6) 1.51 atm
- 7) 1.10 atm
- 8) 94.3 mL
- 9) 41.9 L
- 10) 0.179 mol
- 11) 5.55×10^4 mL
- 12) 19.3 g
- 13) 115 g/mol
- 14) 60.0 L
- 15) 13.0 L
- 16) 3850 mL
- 17) 0.0430 mol
- 18) 2.91 atm
- 19) 755 mmHg
- 20) 765 torr
- 21) 0.367 atm